Presented by

Marshall P. Wilder

on the 85th Anniversary

of his birth Sept 22, 1883

THE

GARDENERS' CHRONICLE.

A Weekly Illustrated Journal

OF

HORTICULTURE AND ALLIED SUBJECTS.

VOL. III.—NEW SERIES.

JANUARY TO JUNE, 1875.

LONDON:
41, WELLINGTON STREET, COVENT GARDEN, W.C.
1875.

LONDON:
BRADBURY, AGNEW, & CO., PRINTERS, WHITEFRIARS.

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THE

GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

No. 53.—Vol. III. { New Series. } SATURDAY, JANUARY 2, 1875. { Registered at the General Post Office as a Newspaper. } Price 5d. Post Free, 5½d.

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PROTHEROE AND MORRIS, HORTICULTURAL AND MARKET GARDEN AUCTIONEERS AND VALUERS, 98, Gracechurch Street, City, and at Leytonstone, E. Monthly Horticultural Register had on application.

MR. JAMES FRASER, HORTICULTURAL and AGRICULTURAL VALUER AND AUCTIONEER, Mayland's Farm, Romford, Essex; late of the firm of J. & J. Fraser, Lea Bridge Road, E.

SIMPSON'S RED SPIDER and THRIPS, &c., ANTIDOTE.—*Bonâ fide*. See former advertisements. Prepared by JOHN KILNER, Wortley, Sheffield.

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TO NURSERYMEN and OTHERS.

TO BE LET, with immediate possession, an old-established BUSINESS of a NURSERYMAN, SEEDSMAN, and FLORIST, situate at Thirsk, Yorkshire. The Stock-in-Trade, which is of a general character, to be taken at a valuation. There are several thousand feet of glass (belonging to the landlord), adapted for the growth of Grapes and Stove and Greenhouse Plants, with Propagating Houses and Cold Pits. The principal Houses are heated with hot water. The Vines are now in a fruit-bearing state, and the Pits are well constructed for growing Cucumbers and Melons.

An energetic man will find this an excellent opportunity to establish himself in business. Thirsk is on the main line of the North-Eastern Railway, and distant from the Station 1 mile. For particulars, and order to view, apply to

Mr. THOMAS SCOTT, Trustee; or to Messrs. SWAREBRECK AND RHODES, } Solicitors, Thirsk.
Thirsk, Yorkshire, Dec. 21, 1874.

FOR DISPOSAL, cheap, a West End SEED and FLORIST BUSINESS. Splendid position. Low rent. Convenient Shop and House.
L. D., *Gardeners' Chronicle* Office, W.C.

Victoria Colony, Kansas, U.S.—To Farmers and OTHERS.

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ROBERT W. EDIS, Esq., F.S.A., 14, Fitzroy Square, London, W., Architect to the Estate.

SALES BY AUCTION.

10,000 Splendid Bulbs of Lilium auratum.
just arrived from Japan.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, January 4, at half-past 12 o'Clock precisely, 10,000 magnificent Bulbs of LILIUM AURATUM, just arrived from Japan, in the finest possible condition, being quite as plump and firm as English-grown Bulbs.

On view the morning of Sale, and Catalogues had.

Rare Lilies.

MR. J. C. STEVENS has received instructions from the New Plant and Bulb Company, Colchester, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, January 4, at half-past 12 o'Clock precisely, several thousand of LILIUM AURATUM, just arrived from Japan; together with a large assortment of LILIES and PERUVIAN BULBS, including Amaryllis Harrisoni, Freesia Leichtlinana, the lovely Colchicum speciosum from the Caucasus, Lilium Krameri, Dalmaticum, and the rare and beautiful L. Neilgherricum from Southern India, L. Wilsoni, Yucca augustifolia, and a few roots of Cypripedium japonicum in excellent condition.

On view the morning of Sale, and Catalogues had.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—CUTLER TESTIMONIAL.—The Committee beg to intimate that Subscriptions will be received until January 8, and that the Testimonial will be presented after the Annual General Meeting on January 14.

J. T. BURNELL (Waite, Burnell & Co., 79, Southwark Street, S.E.), T. TAYLOR (Webber & Co., Covent Garden Market, W.C.), } Hon. Secs.

New Apple—Lady Henniker.

EWING AND CO., The Royal Norfolk Nurseries, Norwich, are now sending out strong maiden plants of this splendid novelty, which obtained a First-class Certificate from the Royal Horticultural Society, November 12, 1873. Circulars, with testimonials and full description, will be forwarded, gratis and post free, to applicants. Price 7*s.* 6*d.* each, or three for 20*s.* The usual Discount to the Trade.

Catalogues! Catalogues!!

EWING AND CO.'S PRICED, DESCRIPTIVE, and ILLUSTRATED CATALOGUES are now ready. Rose Catalogue, and Fruit Tree and General Nursery Catalogue—both are forwarded gratis and post-free to applicants.

The Planting Season.

LARGE TREES.—Limes, Horse Chestnuts, Giant and English Elms, Sycamores, Norway Maples, Upright and other Poplars, Bedford and Cœrulean Willows, Weeping and Cut-leaved Beech, Turkey Alders, &c. Fine Trees for immediate effect. For particulars and prices apply to EWING AND CO., The Royal Norfolk Nurseries, Norwich.

Cœlogyne cristata.

R. S. YATES has pleasure in announcing that his CŒLOGYNE are, as usual, very fine; they are just bursting into bloom. R. S. Y. has ten or twelve plants with near 100 spikes, and 500 or 600 bulbs on each pot, a portion of which he offers at Twenty-five Guineas each, for cash only. He has a large stock of Plants from Three Guineas each.
Sale, December 28, 1874.

Celosia pyramidalis plumosa.

R. S. YATES is now sending out SEED of his unequalled strain of the above. Many plants may yet be seen here in gorgeous bloom, from which the Seed was gathered. He warrants it true and ripe. Sealed packets, 3*s.* and 5*s.* each, on receipt of Post Office Order. R. S. YATES possesses the entire stock (which is very limited) saved by him, having none to dispose of to the Trade. A plant may be inspected here yet in as brilliant plumage as it was four months ago. The flowers were cut off the eight plants of Celosia exhibited by him at the Pomona Palace for four days, placed in jars of water, and are yet perfectly fresh and brilliant.
December 28, 1874.

Planting Season, 1874-75.

MESSRS. JOHN STANDISH AND CO. invite the attention of intending Planters to their large and valuable Stock, consisting of all the newest and best varieties of the Japanese Importations, as well as a vast quantity of SPECIMEN CONIFERÆ, HOLLIES, LAURELS, DECIDUOUS and EVERGREEN PLANTS, ROSES, FRUIT TREES, &c., all of which are in excellent condition for removal.

Their NEW CATALOGUE is now ready, and will be sent, post free, on application.
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The Nurseries, Dumfries, N.B.

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Our Stock of the above is one of the largest in Scotland. The Trees and Shrubs are of all ages and sizes, and are well adapted for extensive Planting, or giving immediate effect in the Formation and Improving of Ornamental Parks, Pleasure Grounds, &c.
Priced CATALOGUES free on application.
THOMAS KENNEDY AND CO., Seed and Nursery Establishment, Dumfries.

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KELWAY AND SON, The Nurseries, Langport, Somerset.

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KELWAY AND SON,
who are the Only Raisers and Propagators for Sale in the United Kingdom.

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Blooming Bulbs of our unbloomed seedlings, saved from the choicest varieties, 100*s.* per 100.
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THE ROYAL NORFOLK SEED ESTABLISHMENT,
NORWICH.

ROYAL HORTICULTURAL SOCIETY, 1875.

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Gold, Silver, and Bronze Medals,
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WILL BE OFFERED BY
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At the various Royal Horticultural Society's Meetings during 1875, for
THE BEST SPECIMENS OF
New Varieties of Vegetables, Flowers, and Fruits
Introduced by Messrs. SUTTON in 1875.

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THE QUEEN'S SEEDSMEN, READING.

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CUPRESSUS LAWSONIANA, 6, 7, 8, to 10 feet, very handsome.
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,, PINSAPO, 3 to 4 feet.
,, NOBILIS, 3 to 4 feet.
PINUS AUSTRIACA, 3, 4, 5, to 6 feet.
,, BENTHAMIANA, 3 to 4 feet.
,, CEMBRA, 3, 4, to 5 feet.
,, MACROCARPA, 3 to 4 feet.
,, SABINIANA, 3, 4, to 6 feet.
RETINOSPORAS, 3, 4, to 6 feet.
THUJOPSIS BOREALIS, 3, 4, to 6 feet.
THUJA LOBBII, 5, 6, 8, to 10 feet, splendid specimens.
,, AUREA, 1, 2, 3, to 4 feet, and as much through; superb specimens.
,, GIGANTEA, 4, 5, to 7 feet.
WELLINGTONIA GIGANTEA, 3, 4, 5, to 6 feet.

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Specialities.
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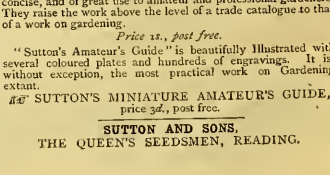

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VINES, extra strong leading sorts, close-jointed and well ripened; SEAKALE, ASPARAGUS, and RHUBARB, extra strong, for forcing; ROSES, FRUIT, FOREST, and ORNAMENTAL TREES, STOVE and GREENHOUSE PLANTS, &c.
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H. AND F. SHARPE are now prepared to make special offers to the Trade of their home-grown choice selected stocks of AGRICULTURAL and GARDEN SEEDS of this season's growth. They have been harvested in very fine condition, and are quoted low in price.
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PEACHES and NECTARINES, in pots, for Forcing; strong pyramids and bushes, in fine fruiting condition.
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They are now sending out the New BOUVARDIA HUMBOLDTII CORYMBIFLORA, which is a great acquisition, in fine strong plants, 24s. to 36s. per dozen.
Royal Nurseries, Ascot, Berks.

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W. DODDS, having sold all his strongest plants of the above splendid GRAPE, begs to thank his friends who have ordered it, and to inform those who have not that he has a few well-ripened Canes, which he can offer at 31s. 6d. and 25s. each, delivered to order on receipt of Cheque or Post-office Order on Bristol, payable to
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SEEDS of TIMBER TREES, PALMS, SHRUBS, &c. Plants indigenous to Australia, New Zealand, and Fiji, including ARAUCARIAS, TREE FERNS, variegated FLAX, &c. Orders may be left with our London Agents, Messrs. C. J. BLACKITH AND CO., Cox's Quay, Lower Thames Street, London, E.C., for transmission.
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LARCH, 2 to 3, and 2½ to 3½ feet.
SCOTCH, 2 to 2½, 2½ to 3, and 3 to 3½ feet.
SPRUCE, 2 to 2½, 2½ to 3, and 3 to 4 feet.
OAKS, English, 3 to 4, 4 to 5, and 5 to 6 feet.

The above, with other sorts, are all strong and good, and there is a considerable quantity of each size on offer. Apply to JOHN HILL, Spot Acre Nurseries, near Stone, Staffordshire.

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DESCRIPTIVE CATALOGUE of CONIFERS, SHRUBS, and FOREST TREES.
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Carriage Paid to any Railway Station in England.

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CELERY, white and red	2 ditto	TURNIP, fine sorts for succession	3 ounces
COUVE TRONCHUDA	1 ditto	VEGETABLE MARROW	1 packet
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CUCUMBER, the best varieties	2 ditto	TOMATO	1 ditto

C. LAWRENCE, Esq., *says*:—"Mr. Lawrence was satisfied with Messrs. Jefferies' supply of Garden Seeds for the past season, and will continue them for the season of 1875. The Celery, Jefferies' Cirencester Red, was the best Mr. L. has had for a long time."

ILLUSTRATED CATALOGUES 6d. each, Presented to Customers.

JOHN JEFFERIES AND SONS, SEED MERCHANTS, CIRENCESTER.

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SIR GARNET WOLSELEY (Cranston's).

First-class Certificate awarded by the Royal Horticultural Society at the Grand National Rose Show, July 1, 1874.
First-class Certificate awarded at the Oxford Rose Show, June 25, 1874.

This fine New Rose, which has been the attraction of all during the past season, was raised from Prince Camille de Rohan. Its colour is the richest vermilion shaded with bright carmine, and well retained throughout. Flowers very large, full, and perfectly formed, standing out bold and erect; habit strong and vigorous, producing flowers on every shoot. As an exhibition flower it will undoubtedly take a very prominent position.

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As a Crimson Bedding Rose this variety surpasses every other Rose for brilliancy of colour and continuous blooming; its habit of growth is moderate and shoots short-jointed, producing a mass of flowers all over the bed from June till November. Colour scarlet and crimson, very effective and lasting, clean glossy foliage, and free from mildew; introduced as a Bedding Rose only.

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A sport from Jules Margottin; flowers exactly similar to its parent; a free and vigorous climbing habit; not in a robust form, but branching as freely as an evergreen climbing Rose. A great acquisition as a free growing perpetual climbing Rose.

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Address: CRANSTON & MAYOS,
NURSERIES, KING'S ACRE, near HEREFORD.

"GENUINE SEEDS ONLY."

JAMES VEITCH & SONS

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ILLUSTRATED PRICED CATALOGUE
OF
GARDEN and FLOWER SEEDS for 1875,

Containing LISTS of NOVELTIES, HORTICULTURAL IMPLEMENTS, and other GARDEN REQUISITES, is now Published, and will be forwarded, Post Free, on application.

It contains full descriptions of the following Novelties, and other Choice Seeds:—

VEGETABLE SEEDS.	s.	d.		FLOWER SEEDS.	s.	d.	
BEAN, Premier Runner	5	0	per quart.	BLUMENBACHIA CORONATA	1	6	per packet.
CAULIFLOWER, Veitch's Autumn Giant	1	6	per packet.	CELOSIA PYRAMIDALIS (selected)	1	0	"
CUCUMBER, "Tender and True"	3	6	"	CINERARIA, New Double	3	6	"
MELON, Eastnor Castle Green-flesh	2	6	"	COCKSCOMB, "Glasgow Prize"	2	6	"
PEA, Culverwell's Prolific Marrow	5	0	per quart.	RICINUS GIBSONII	1	6	"

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, LONDON, S.W.

MR. LAXTON'S NEW PEAS FOR 1875.

HURST & SON

Have pleasure in offering the following four varieties of MR. LAXTON'S NEW PEAS, all of which have been selected for their high quality, flavour and distinctness, three of them having received First-class Certificates from the Royal Horticultural Society after the great Chiswick trial in 1872:—

UNIQUE.

This is a very handsome and prolific Dwarf Early Pea, with long, deep-green coloured pods, of the same habit and coming into use at the same time as Little Gem, and may be briefly described as a Dwarf William the First. Received a First-class Certificate.

Price 7s. 6d. per sealed quarter-pint packet.

DR. HOGG.

"A very handsome Pea. The earliest green wrinkled Marrow, very sweet and of excellent quality, pods being very well filled and of a beautiful deep green colour, like the Ne Plus Ultra."—*Vide Proceedings of the Royal Horticultural Society for* 1872.

"No higher recommendation could be given to it than to introduce it as a competitor of Ne Plus Ultra." "To sum up the whole it is a fine Ne Plus Ultra, coming in one week after Dillestone's."—*Hogg's Gardener's Year Book for* 1873.

Height 3 feet, habit and type of Sangster's No. 1. Awarded a First-class Certificate and received its name at the instance of the Fruit Committee of the Royal Horticultural Society.

Price 7s. 6d. per sealed quarter-pint packet.

SUPPLANTER.

"A cross between Veitch's Perfection and Little Gem—the earliest of the Veitch's Perfection type; plant very robust and vigorous, producing very large broad pods n pairs. A large, handsome, and very prolific Pea, which received a First-Class Certificate."—*Proceedings of the Royal Horticultural Society for* 1872.

"Appropriately named, for it is a large, handsome, and very prolific Pea, and will take the place of many others."—*Hogg's Year Book*, 1873.

This Pea is of fine quality, and is also first-rate for exhibition, having been shown by Mr. R. Gilbert during the past season, in three of his Prize Collections of Peas. Height 3 feet.

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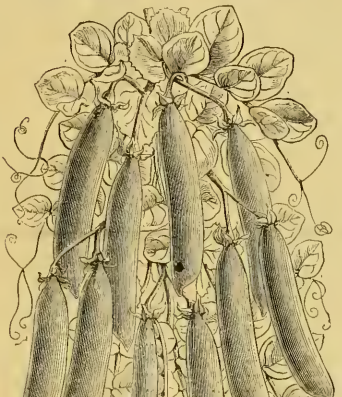

DR. HOGG.—First-class Certificate.

SUPPLANTER.—First-class Certificate.

HURST & SON, 6, LEADENHALL STREET, LONDON, E.C.

SATURDAY, JANUARY 2, 1875.

A HOLIDAY IN NORWAY.

THE incidents attending a voyage across the North Sea to the coast of Norway are not generally of a character to excite any particular interest. Leaving the track of coasting vessels, even the small excitement contributed by a passing ship is seldom afforded, the cold, clear, metallic waves present but few evidences of marine life; occasionally the spout of a whale may be seen, and sometimes a school of porpoise, but the passage is often made without the appearance of one or the other, and until approaching the coast very few sea birds are met with. Steamers going from Hull to Bergen call at Stovenger, a fishing-town, built on the side of a promontory, in the Stovenger Fjord, and, like many other Norwegian coast towns, built down to the water's edge, the houses and warehouses are of wood, and painted yellow, white, or a reddish brown, and, seen from the steamer, the town has a freshness and neatness that is very pleasing; but a very short inspection of the place suffices to remove the idea of exceptional propriety, the streets are narrow and ill-paved, and on the land side the houses have by no means a clean or inviting aspect. Small and unimportant as the town appears, its trade is by no means inconsiderable. The catch of herrings off the coast averages 300,000 to 400,000 barrels, and a tonnage of 27,000 tons entered, and 31,408 tons departed from the port according to the last returns. In pursuing the voyage along the coast, one of its great natural features and advantages is presented in the fringe of rocks and islands, which extend for 1000 miles, and form a great natural breakwater, within which vessels ride with comparative ease, however stormy the sea may be without. After a short stay at Stovenger, the voyage was continued until we reached the city of Bergen, which is situated at the head of a fjord, and about 25 miles from the North Sea. Mountains of great altitude tower up majestically, and except on the side of the fjord almost encompass the place. To this fact, and the proximity of the city to the sea, and the western breezes that come from the sea charged with moisture, may be attributed the very heavy rainfall of 73 inches.* The position of this western capital of the country gives it special advantages, the branches of the fjord, on the banks of which it is built, penetrate far into the interior, and it is easy of access from the sea, the waters of which are at all times open. Its trade in cod-liver oil and stockfish is considerable, and it has the aspect of a particularly well-to-do and even opulent city: it contains about 25,000 inhabitants. It is remarkable that the first Treaty of Commerce which England entered into with any foreign nation was contracted with King Hakon Hakonson in 1217, Bergen being then the principal trading city. The Museum is an imposing building, of modern erection. Some of the departments devoted to natural history are exceedingly well filled, and, as might be expected from the extent of the coast, and the opportunities that exist for forming a collection in the well-known enterprise and industry of Norwegian fishermen, the divisions that illustrate the products of the northern sea are rich in specimens, and the fish and corals are well preserved. Some of the sections devoted to ornithology are remarkable for the beauty of the objects they contain. The collections of gulls, ducks, eagles, hawks, owls, grouse, and game birds, may be distinguished as being of exceptional interest, and in the instance of the rapacious birds the numerous examples tend to show that a domain still exists in Europe not altogether overrun with civilised exterminators. It was no slight disappointment to find that the collection of minerals was boxed up, and in the cellars of the Museum, and unattainable.

An enclosed space of ground, with trees and shrubs planted in large beds, cut out in the coarse and ill-kept turf which covers a large portion of the ground, is the public garden and promenade of the city. Seats are placed by the side of the walks that are carried through the enclosure, and, rough and unadorned as the place is, the trees and flowers that are placed in it give some interest, as serving to show that the climate does not offer insuperable impediments to the cultivation of many trees and plants, and to a much greater indulgence in horticultural pursuits than the city at present sanctions. The garden affords examples of Lime, Sycamore, Cherry, Lilac, Æsculus, Viburnum, Cratægus, Maple, Elder, Laburnum, and, of Conifers, Picea Nordmanniana, Abies alba, Abies cephalonica; and in the few scattered flower-beds were Roses, Pæonies, Spiræas, Veronicas, Campanulas, Phloxes, and Iberis.

A few well-kept private gardens of modest proportion may be seen, but many spaces of what should be garden ground are given up to weeds which in so rainy a place doubtless assert themselves with great determination. In one well-managed little garden I saw Zinnias, Asters (German), Stocks, Auriculas, Nemophila insignis, Potentillas, and Roses; and in the garden attached to the summer residence of Carl Konon, Esq., were Hybrid Perpetual Roses growing vigorously, and in the fruit garden were rows of Red Currants just ripe—August 10—Gooseberries, Raspberries, and Strawberries, all healthy and in bearing condition. In the kitchen garden the Potatos were in bloom and exhibited no sign of disease. The masses of primitive rock which crop out here in all directions on the hill-side, show that no slight difficulties attend the cultivation of the soil on the declivities about Bergen.

Facilities exist for travelling to all parts of Norway from Bergen, and to travellers proceeding southward the small steamers which make voyages up the many branches of the fjord are particularly convenient. Starting early, the steamer *Voss* carried me up through the ever-changing and lovely mountain scenery that enclose the fjord to Bolstroden. I was so fortunate as to meet on board Mr. Neilson, the Director of Telegraphs, and Lieutenant Lund, who was proceeding with a party of engineers to survey a new line of country for a railway, projected to cross the country between Bergen and Christiana; these gentlemen readily afforded all the information in their power concerning the geology and natural history of the country. Crossing from the station of Bolstroden to the Lake Evenger, a distance of 2 or 3 miles, I was somewhat disappointed, finding only the ordinary plants that would be encountered in a walk in England. A characteristic Norwegian boat, pointed at each end, built of fir, and propelled by two men pulling a pair of sculls, took me to the head of the lake, and my first experience of the carriole was gained in travelling from Evenger to Vossevongen, a station situated near a fine lake and amidst grand mountain scenery. In a country which is so much dependent on the products of its own soil, and where climatic obstacles are added to the physical difficulties presented by the conformation of the country, seen in its mountains, lakes, rock-strewn valleys, agricultural operations are

* Woods.

necessarily pursued during the short summer season with great assiduity, and but few natural advantages are neglected, and many contrivances are brought into action to facilitate the gathering of the crops of hay, barley, and oats. Thus in every small meadow a framework of stakes and cross-rails is seen, on which grass is hung as soon as cut, and so dried. In the cornfields poles are placed at intervals about the fields, on which the small sheafs of corn are strung one above the other, the ears outwards.

Vossevengen is a convenient station for an excursion to Ulvig, a village at the head of one of the branches of the Hardinger Fjord, and to the Voring Foss, a celebrated waterfall. After resting one night at the fairly good house of Mr. Fleischer, I started for Ulvig, proceeding along a very good road lined by woods of Scotch Pine, with occasional masses of Spruce. Some of the woods had very much the appearance of well arranged English plantations. Down in deep gorges a river rushed dashing into foam against the black slaty rock which bounded it; mountains, their crests covered with snow, rose up against the sky, and every turn of the road brought to view some new and picturesque feature in the landscape. The mountain sides and valleys are covered indiscriminately with natural forests of Fir and Pine; intermixed with these, or growing where they fail to thrive, are seen Birch, Populus nigra, Alder and Juniper, sometimes Mountain Ash. In situations adapted for a farmstead, open green spots are seen parcelled out in small fields, and placed in the midst is the house of the peasant farmer and owner. The rails for the hay and poles for corn are seen on every farm. Potatos are universally cultivated, and were in bloom the middle of August. Saw-mills of very simple construction, the motive-power of which is a stream of water diverted from the main current and turned upon the wheel, are of frequent occurrence.

The Scotch Pine appears to thrive in damp valleys, and to grow equally well on the mountain sides. In a country where the preservation of fine timber is not considered, and the needs of each small proprietor govern the course of action he pursues with reference to timber, as may be expected, but few examples of either Pine or Fir of any size or matured development are met with. Finer examples of these Norwegian trees may be found on almost any English estate than their native woods afford. Immature and decrepid specimens, left on account of their inferiority, are prone to produce cones more abundantly. These trees become the parent stocks of future forests, and thus degeneracy goes on. It is commonly remarked that Norwegian timber is less in size than in more ancient times. It would be a prudent and proper course for the Government to insist on the preservation of a few acres of the best trees in each district, as seed parents for future forests; but perhaps the process of exhaustion, which has been going on from time immemorable, is approaching that period when the tribe of Firs can no longer be produced by the sparse, overtaxed soil: and according to the lessons that modern farming gives us, and of which even remote geological periods furnish examples, such a time must arrive. *William Ingram, Belvoir.*

(*To be continued.*)

New Garden Plants.

BOLLEA PATINII.

This very remarkable plant, which is now figured for the first time, is the first described species of an entirely new genus, founded by Professor Reichenbach; it is named in honour of its discoverer, Mr. C. Patin, who found it in 1873 in the forests of New Grenada.

The plant from which our illustration (fig. 1) is taken lately flowered in the choice collection of G. Herriott, Esq., Cholmeley Park, Highgate, to whose courtesy we are indebted for the opportunity of figuring it. The plant was described in the *Gardeners' Chronicle*, 1874, vol. ii., p. 34.

MASDEVALLIA SIMULA, *n. sp.**

Quite a little wonder of beauty in colours. The flower has a purplish upper sepal, with many pellucid honey-coloured bars. The base of the inferior sepals is purplish, the anterior part is honey coloured. It is near M. Molossus, Rchb. f., and, like that, it has a ghost flower. Those species are among the Masdevallias what the mastiffs are among the dogs. It was discovered by Mr. Chesterton in New Grenada, and has already flowered twice in the Royal Exotic Nursery of Messrs. Veitch. It is the Troglodyte among Masdevallias. If amateurs would like to admire its charms they would have to arm themselves with very powerful eye-glasses, the flower just equalling in size a poorly-fed fly of our windows. *H. G. Rchb. f.*

* Dense cæspitosa. Foliis a lineari basi lineari-lanceolatis apice cucullato-contractis microscopice crenulatis; pedunculo unifloro; bractea spathacea ancipiti acuta pedicello subduplo breviori; floris cyatho quarta infima connato; sepalo superiori triangulo cucullato apice lineari, dorso carinato; sepalis lateralibus ima basi connatis gutturosis, deiu oblongis apice caudatis; caudis brevibus laminam non æquantibus, intus trabeculato callosis; tepalis brevibus subquadratis, margine anteriori angulatis; labello bene unguiculato, lamina transverse oblonga, antice obtuse triloba, angulo minori utrinque ante basin; columna gracili longiori apice cucullata, cucullo dentato.

ELEMENTARY LESSONS IN BOTANICAL GEOGRAPHY.

I.—ON THE HEAT OF A PLACE AS PRODUCED BY LATITUDE.

THE distribution of plants over the world at the present time depends principally upon three causes, which are:—

I. Climate, or the way in which heat and moisture are at present spread over the globe.

II. The influence of man in spreading some kinds, and voluntarily or involuntarily restricting the distribution of others.

III. Their past history, or the times and places when and where they have been created or differentiated, and the way in which sea and land, heat and moisture, have been distributed in former times.

First, then, we have climate to consider under the two heads of heat and moisture. The distribution of heat over the world depends upon three causes, viz.:—

1. The position which a place occupies with regard to the sun whilst the earth makes its annual revolution.

2. The distribution of the masses of sea and land in its neighbourhood.

3. Its height above sea level.

This first paper will be devoted to the consideration of the first of these three points.

A circle is always spoken of as divided into 360 degrees. For the earth, in the direction from the equator to the pole, we call these degrees of latitude. Taking the round of the circle in the direction in which the earth moves upon its axis in its daily rotation from east to west, we call them degrees of longitude, and begin to count from Greenwich. Between the equator and the pole at each end we have a quarter of the circle, or 90°. At the spring and autumn solstices—that is to say, near the end of March and of September—the sun is directly opposite the equator as it makes its daily circuit, and day and night are equal all over the world. But the axis of the earth—a line drawn from pole to pole—changes its position with regard to the sun, and to the path of the earth's orbit from day to day. This produces only a small difference in the relative positions of the sun and the equatorial regions, but a great difference in the relative positions of the sun and the country round the poles. This movement of the earth's axis is what produces the great difference which in this country we see and feel between winter and summer. At midsummer the earth moves round the sun opposite a line 23½° north of the equator, which we call the tropic of Cancer. At Christmas it moves round the sun opposite a line 23½° south of the equator, which we call the tropic of Capricorn. Within these tropics the sun at mid-day is always nearly overhead. It rises and sinks without any interval of twilight, and there is very little difference in heat and light between one season and another. At midsummer the sun is directly opposite a line 23½° north of the equator, and consequently so much nearer all points north of the tropic of Cancer, and so much further away from all points south of the tropic of Capricorn. At midsummer we get in the southern part of the north temperate zone nearly as much heat as they are getting at the equator, and in England the day is twice as long as the night. At this time, as viewed from the north pole, the sun does not sink below the horizon for several months together, whilst the heat and light which the northern hemisphere is getting in excess the southern hemisphere has lost, and for just as many months at the south pole the sun is never seen. At Christmas, on the contrary, the sun moves round the tropic of Capricorn, and the condition of things is reversed. Their summer is our winter, and their spring is our autumn. At Cape Town it has been shown, by a series of observations continued through several years, that on the average the hottest day in the year is the 4th of January, and the coldest the 6th of August. So that the heat which any place in the world gets, and the course of its seasons, depends largely and primarily upon latitude. The difference between being exposed to a sun shining overhead for twelve hours, and for eight hours to a sun whose rays strike the earth with a moderate degree of obliquity, makes a greater difference than there is between a midsummer day in England and a Christmas day in England.

By geographers the earth is commonly treated as divided into three zones of heat and latitude—a torrid, temperate, and frigid zone. The torrid zone is the district that extends upon both sides of the equator to the two tropics. Over every place within this central belt of 47° of latitude in breadth, the sun is directly vertical at some period of the year, and never far from overhead at mid-day at any season. The temperature of this torrid zone does not vary in the shade from a daily average of from 75° to 90° of Fahrenheit's thermometer from one end of the year to the other. The principal difference in heat is not between summer and winter but between day and night, between shade and exposure. At Bombay, in 18° north latitude, the daily temperature in the shade rises to an average of 85° at 1 o'clock in the afternoon and sinks to 75° at 6 o'clock in the morning. In exposed places of course the heat registered in the shade is enormously increased. In the full blaze of sunlight it often rises on the ground to 120° or 130°. It was measured by Sir John Herschel at the Cape up to 159°. In the arid regions of Central Australia Captain Sturt says that it is sometimes so hot that a match dropped on the soil instantly catches fire.

For purposes of botanical geography it is very important that the great difference between shade temperatures—which are those that are always given in tables—and the heat that is reached in exposed places, should be carefully kept in mind.

Humboldt invented a plan of connecting together upon a map those places which have the same average annual temperature in the shade, by what he called isothermal lines or isotherms. These isothermal lines run round the world nearly, but by no means exactly, parallel with the lines of latitude. The isotherm of the equator is about 82° Fahr., and they do not sink more than 5° to the tropic in each direction. The temperate zone reaches from 23½° from the equator to 23½° from each pole, so that it is 43° of latitude broad in each hemisphere.

For purposes of botanical geography and climate it is needful to divide the temperate zone of geographers into two—a warm temperate or sub-tropical and a cool temperate zone, because the climate within its bounds varies so greatly. In the north hemisphere Europe, Asia, and America all extend beyond the cool temperate zone into the frigid or arctic zone; in the southern hemisphere Africa, Australia and New Zealand do not stretch beyond the warm temperate zone, and the South American continent does not nearly reach the arctic circle. As we cross these temperate belts in the direction of the poles these isothermal lines fall rapidly, the fall growing faster and faster, and the lines consequently closer and closer, as we get into more polar latitudes.

The average annual temperature of Naples is 63°, of Paris 51°, of London 49°, of Stockholm 42°, of St. Petersburg 38½°. In central Europe one degree of latitude further north is equal to the lowering of average annual temperature one degree of Fahrenheit's thermometer. In England the difference in the temperature of the air in the shade between day and night amounts to 13° or 14°; on the ground in the night the minimum is 7° or 8° below that of the air, and in exposed places the daily maxima are on an average 20° above what they reach in the shade. In the north temperate zone, through the influence of the Gulf stream, the temperatures of the western shores of Europe are raised all through the year materially above their proper average—a circumstance which in England makes a great difference in our daily comfort. Virginia, where the annual temperature is 56°, is opposite Lisbon, where it is 62°. Quebec, where the annual average is 42°, is 5° of latitude south of London, where it is 49°, and is opposite the south of France. We may safely say that in Britain we get, month by month through the year, 10° of heat brought from the tropics by the Gulf stream, and added to what we get direct from the sun.

But this lowering of the yearly averages is only one point of difference between the temperate and torrid zones. As we cross the temperate belt in the direction of the arctic circle, the difference in heat and light between summer and winter grows greater. It is not until we get at least 10° across it that we ever get snow or ice

or hoar-frost at sea level. In the warmer half of the temperate zone the thermometer never sinks below 32°, and there is no such thing as winter in the sense of a check to vegetation. As we proceed northward, through the cooler half of the temperate zone snow and ice become more and more abundant, and continue for a longer time, till at the arctic circle we reach a belt where the period of vegetation does not last for more than three months out of the twelve. The arctic zone is reached in the northern hemisphere by land in all the three great continents, but in the southern hemisphere only by the perpetually snow-bound, plantless, antarctic continent. Throughout all its southern, and the greater part of its northern, area, there is perpetual snow and ice; man cannot live there, plants cannot grow there, and at the very pole it is supposed that the average annual temperature sinks to Fahrenheit's zero. It is only in a limited part of the arctic zone, principally in a tract in Lapland that comes under the favouring influence of the Gulf stream, that any cultivation can be carried on, and that any considerable population can permanently reside.

At Spitzbergen, in latitude 76°—80°, the sun never rises above the horizon from October 22 to February 22; the average temperature of the three warmest months of the year, taken together, is 34°, and the whole period of vegetation does not last for more than six weeks—beginning in an average year late in July, and continuing through August and ending when September begins. *J. G. B.*

NEW PLANTS OF 1874.

THE New Plants of the year which has just passed away present, as we took occasion to mention last week, nothing which stands out pre-eminent as marking an era in plant introduction. Many good things of average merit have, however, been acquired, so that those to whom novelty presents especial charms will have little cause to complain. We propose, as usual, to pass the more important acquisitions under review.

Stove plants of the flowering class have been reinforced by such subjects as Aphelandra fascinator, Medinilla amabilis (*G. C.* 1874, i. 372, fig. 81), Lasiandra lepidota, Pitcairnia Andréana, and two or three white-spathed plants referred to Anthurium. The Aphelandra hails from New Grenada, and is a very showy plant, apparently of free growth; its foliage is effectively barred with silvery veins, and its cone-shaped spikes of flowers are of the most brilliant scarlet. The Medinilla, which comes from the Indian Archipelago, is bold in habit and remarkable for its angular winged stems; it has good and ample foliage, and immense panicles of numerous purplish rose-coloured flowers, which are erect, and in this respect abundantly different from M. magnifica, which it otherwise resembles. Lasiandra lepidota is another acquisition from New Grenada—that interminable mine of plant wealth, and has large carmine-red, pale-centred blossoms. Pitcairnia Andréana is a showy member of a family which seems to be again making way in popularity—the Bromeliads—and its orange and yellow flowers are particularly attractive. Two of the Anthuriums referred to are New Grenadan—A. floribundum, with erect lance-shaped oblique leaves, and A. Patinii, with the leaves of nearly the same shape but deflexed, both having the spathes pure white, and forming neat and interesting, if not specially showy novelties. The new white-spathed form of A. Scherzerianum (*G. C.* 1874, i. 501, fig. 103), which has been called both A. S. Williamsii and A. S. album, is likely moreover to become a fine decorative plant when it becomes thoroughly established. A very curious Asclepiad, called Decabelone elegans, has been introduced from Angola; it is an ally of Stapelia, and has succulent, leafless, spiny-angled stems, and narrow bell-shaped flowers 3 inches long, of a lurid yellow, with brownish purple streaks and spots.

Of handsome-leaved Stove plants the gems are certainly Mr. Bull's Bertolonia superbissima and Mr. Van Houtte's B. Houtteana, which appear to be better constitutioned than others of the same family, and have a certain degree of resemblance to each other, but the first has the rosy spottings confined to the spaces between the ribs, and intermixed with innumerable dots of the same colour, while the latter has fewer and more uniform spots, and lines of rosy hue along the course of the ribs. Under this head (because grown principally for their curious foliage) we must record the two most interesting plants of the year, Sarracenia Moorei, and S. Stevensii, the former a

FIG. 1.—BOLLEA PATINII.

hybrid between S. Drummondii and flava, the latter between S. purpurea and flava, and both decided and well-marked intermediates between their respective parents. Saxo-Fridericia subcordata, or Rapatea pandanoides (*G. C.*, 1874, i. 275, fig. 65), an introduction from the Amazon country, is quite a novelty to cultivators, and belongs to the order Rapateaceæ, hitherto not represented in our gardens; its distichous leaves, with a broad equitant base, narrowed spiny petiole, and ribbon-like blade (coloured red while young), give it a very distinct and curious appearance. Of another class is the South Sea Island Ficus Parcellii, which has large herbaceous-textured hairy leaves, and is very effectively variegated with creamy-white and green, disposed in angular blotches, after the style of marking seen in Abutilon Thompsoni. Other distinct variegated stove plants are Croton (or Codiæum) variegatum ovalifolium and volutum, the former remarkable for its flat, oblong-oval, blunt-ended leaves, the latter for having its leaves rolled under in a volute, both being handsomely marked with a yellow costa and veins. Spathiphyllum pictum is a pretty mottled-leaved Dieffenbachia-like Aroid; while amongst Dracænas, Reali, princeps, and Hendersoni, the latter having its leaves streaked with white and pink, are amongst the most desirable.

Palms, which continue in high favour as decorative plants, have received an accession almost as elegant as Cocos Weddelliana itself, in Geonoma gracilis, a Brazilian species with slender pinnate leaves; while in Martinezia granatensis (a garden name), from New Grenada, we have almost the opposite extreme in a dense-growing dwarf broad-lobed species, the erose blunt apices of which are more or less undulated. The plant exhibited as Alsophila australis Williamsii (*G. C.*, 1874, i. 725, fig. 154), whatever may be its origin, and that is as yet obscure, is a stately addition to our greenhouse Tree Ferns, its long tripinnate evergreen fronds having naturally a decidedly drooping character. Pleocnemia Leuzeana (*G. C.*, 1874, ii. 354, fig. 74), is, if possible, a still more elegant Fern of arborescent character, having ample spreading triangular fronds, with tripinnate division, and with the pinnules so set on below the upper edge of the rachis that a distinct ridge-and-furrow aspect is given to the surface of the fronds. This is from the Philippine Islands, and is probably the form which has been called Cumingiana.

Orchids have kept up their numbers, but have not reached up to the standard of excellence of last year, when we had to chronicle Odontoglossum vexillarium. Some of the more interesting of this year's acquisitions are hybrids, for which we have to thank the Messrs. Veitch and their staff of assistants. Thus, × Cattleya Veitchiana is a fine cross of theirs between C. lobata and crispa, with the large rosy pink flowers and yellow disc of the first, combined with the rich purple-crimson lip colouring of the last; × Cypripedium Arthurianum is C. insigne improved by being crossed with C. Fairieanum; × Lælia flammea is a very handsome cinnabar-orange form, bred between L. cinnabarina and Pilcheri. Dr. Ainsworth has also given us a very pretty hybrid Dendrobe, in × Dendrobium Ainsworthii (*G. C.*, 1874, i. 443, figs. 93-4), obtained by the inter crossing of D. heterocarpum and nobile, and whose white flowers are prettily blotched with amaranth. One or two other pretty Dendrobes have been imported, *e. g.*, D. Boxallii, from Moulmeim, allied to crystallinum, with white flowers having the sepals and petals tipped with purple; and D. amœnum from the Himalayas, with small white flowers tipped with magenta, and having a delightful fragrance of Violets. Another imported gem is Masdevallia amabilis, a New Grenadan species, in the way of M. Harryana, and in which the flowers are of a rich ruby-crimson, and have straight short tails an inch or two in length. Many other additions have been made to this rapidly extending genus, but none of the rest rank above second-class as ornamental plants, though they highly commend themselves to the favour of the curious. M. Morren figures under the name of Trichopilia suavis Lamarchæ, an exceedingly beautiful form of that species, in which the flowers are very large, white, richly spotted with deep rose.

Excluding succulents and Cycads, new Greenhouse plants have not been abundant, nor of a very striking character. Boronia elatior, with pinnate leaves and deep rose flowers, is, perhaps, one of the most interesting; and in Erica Chamissonis we have one of the globose, bell-shaped, pendulous-flowered Heaths, with lively rose-coloured blossoms. Begonia Frœbelii is one of the group of tuberous-rooted species, which is beginning to play an important part in our garden decoration, and has yielded us many fine hybrids. The species now under notice is from Ecuador, and has obliquely-elliptic radical leaves and very beautiful scarlet flowers. B. octopetala, from Peru, has been reintroduced in an improved form, with large white flowers, scarlet instead of green on the outer surface. The new hybrids of this genus are amongst the most important novelties of the year; and experience so far goes to show that they will be valuable for flower-garden purposes, as well as for pot-culture. The fine Liliaceous genus Blandfordia has also yielded to the hybridiser a new form in × Blandfordia flammea elegans, which has been raised between B. flammea and Cunninghamii. In Echeveria Peacockii we gain a welcome addition to that very ornamental group of succulents, the plant consisting of a densely rosulate tuft of about fifty very glaucous leaves, and a scorpioid spike of from thirty to fifty orange-red flowers—it is from New Mexico. Among Cycads, Cycas media, which has been introduced from Queensland, grows seventy feet high, with a crown of long pinnate leaves; and Macrozamia plumosa—from the same country—has small, ovate, woolly stems, surmounted by very elegant, spirally-twisted, erect pinnate leaves, the pinnæ being very narrow linear, and from 6—8 inches long.

Several welcome additions have been made to the Hardy or Half-hardy Perennial list. In the variety of Iris Kæmpferi named E. George Henderson (*G. C.*, 1874, ii. 45, fig. 11) we gain a remarkable "double" Japanese Iris, with six broad flat spreading segments of a deep violet-purple, with golden rays. Pentstemon humilis is a charming little Rocky Mountain plant, with deep blue flowers.

The most welcome of the additions to the hardy bulbs are Brodiæa volubilis; Crinum Moorei, a grand thing, suggestive of the Belladonna Lily, and hardy in Ireland; Fritillaria pudica (*G. C.*, 1874, i. 831, fig. 174), Lilium avenaceum (*G. C.*, 1874, ii. 231, fig. 49), remarkable for its strongly reflexed perianth; and L. Washingtonium purpureum (*G. C.* 1874, ii. 322, fig. 67), the latter a particularly interesting plant, quite unlike any of the more familiar Lilies.

Lastly, among Hardy Trees and Shrubs we note the following as being specially desirable:— Aralia Maximowiczii, a Japanese species, with erect spiny stems, and large palmately five to seven lobed serrated leaves; Clematis Flammula roseo-purpurea, a chance seedling, probably a hybrid, with rosy-purple flowers; Pyrus Maulei (*G. C.*, 1874, i. 756, fig. 159; ii. 741, fig. 144), a charming new Japanese Quince, whose profusely developed bright orange-red flowers are succeeded by roundish oblong golden fruit; Retinospora obtusa aurea gracilis, a fine hardy evergreen, with elegant pendulous branches, freely variegated with golden-yellow; Robinia Pseud-Acacia pyramidalis, with the habit of the Lombardy Poplar; and R. P. pendula, with that of the drooping Sophora japonica, two fine ornamental trees. Finally, Wistaria multijuga, which is said to be intermediate in some respects between W. sinensis and pubescens, but to be a desirable ornamental woody creeper on account of its long racemes of lilac and purple flowers, which are described as being upwards of 2 feet in length. *T. M.*

GREENHOUSE PLANTS.—XIX.

THEIR CULTURE AND MANAGEMENT.

Pleroma elegans.—When this plant was first flowered in this country, now more than thirty years ago, it made quite a sensation, its unrivalled rich purple blossoms were the admiration of all who saw it—and no wonder, for, when seen either by itself, or in company with other flowering subjects, it has few rivals. It is, however, when the plant, well-flowered, stands beside something complementary in colour to it, say a good example of Allamanda, or a nicely-bloomed Cassia corymbosa, that it is seen to advantage. Yet so distinct is it in colour and habit, that there is not a plant with which I am acquainted, of any colour, either in the conservatory or on the exhibition stage, that it does not harmonise with, and that is not improved by its presence. The individual blossoms do not last very long on the plant—some three or four days from the time they open—yet this is compensated for by their being produced in succession and developed in clusters of three to half-a-dozen on the points of the shoots. When cut, their duration is somewhat similar, but if taken from the plant when half open, there is no flower in existence that is more telling in a bouquet to be seen by daylight. Under the influence of artificial light the flowers lose much of their lustre, consequently they are not to be recommended for use under such conditions. It is found indigenous in the Organ Mountains, so will bear a little more warmth than some greenhouse plants; in fact, its cultivation has been attempted in the stove, but so treated it does nothing but grow, never getting enough rest to ripen its wood preparatory to flowering.

The plant is easy of propagation, growing freely from half-ripened cuttings, taken off at any time of the year they can be obtained in such condition: all they require is to be inserted in the usual way in silver sand in a moderate heat, and kept a little, but not too close, or the leaves will receive injury, and be liable to fall off. It will grow well in either peat or loam, yet I prefer the latter where it can be had of good quality, containing plenty of fibre: in such it grows stronger and shorter-jointed, with a greater disposition to flower freely than in peat. There is one thing the plant is subject to suffer from—too much exposure to strong sunlight; in fact, we often see it grown well in an old-fashioned house glazed with small glass, and with the accumulation of dirt under the laps usually found in such structures. When it is grown in a very light house it must be slightly shaded in bright weather, otherwise its leaves become so much disfigured as to seriously interfere with its appearance, even when well-flowered—I have seen this occur in bright March weather. Neither should the plant be in the winter time submitted to so low a temperature as the generality of greenhouse stock will bear: 40° in the night is low enough for it. If nice, stout, healthy plants in 6-inch pots are obtained in the autumn and wintered in a temperature as above indicated, with just sufficient water given to keep the soil in a healthy condition, towards the beginning of March the roots will be sufficiently active to admit of their being moved into pots 3 inches larger; add to the loam one-sixth clear, sharp sand, drain well, and pot firmly, placing the plants where they will be a little close, without exposure to the sun's full rays.

This Pleroma possesses what plant-growers call a good habit, not being too much inclined to run up with a few straggling branches; but, to insure the requisite equality of strength amongst the shoots from the commencement, the centre one should be cut back sufficiently to cause an equal disposition of the sap in all the branches near the base; the omission of this, in the first stages of the plant's existence, destroys its after symmetry, as, if the shoots near the base are weak they soon perish, to an extent not usual in most plants. Train all the strongest shoots to the outside of the pot, which will cause the weaker ones to gain strength, any that appear to take the lead must have their points pinched out all through the summer. As the weather gets warmer use the syringe in the afternoons, damping the under as well as the upper surface of the leaves, as the plant is sometimes, although not often, affected with spider. By the middle of June, if they have made their wonted progress, they will again require potting, giving another 3 inches of root-room, using soil similar to the first; grow them on as earlier in the season, giving them the necessary attention in respect to water, which they require in greater quantities than most hard-wooded greenhouse plants, consequent upon their freer growth, and much greater evaporating leaf surface; continue also to shade sufficiently to preserve a healthy condition of the leaves. The shading will have to be accommodated to the character of the house, that is, whether it is very light or otherwise. Admit sufficient air every day to induce short stout growth, and by the end of August discontinue the use of the syringe, giving more air and less shade. Keep through the winter, as before advised, in a night temperature as near 40° as may be. The plants must be tied into shape, which will be easily done, from their natural symmetry. In the spring, at the same time as advised last year, repot, if they have plenty of roots, giving them a 3-inch shift, and treating as in the preceding season in respect to stopping, shading, and watering, closing the house with a little sun upon it, and at the same time maintaining a sufficiently humid condition of the atmosphere in the evenings by using enough water on the stages and paths. The plants will not require a second shift this season, and by the middle of July should receive a full complement of air day and night.

By the middle of August remove them to the open air: but here they must not be submitted to the direct action of the sun. They should be placed on the north side of a tall hedge or trees, where they will not receive more than the morning and evening sun. Syringe them whilst here on the evenings in bright weather. Before they are thus turned out they must have sufficient sticks put to them so as to properly secure the branches, otherwise they will be liable to break with the wind. Do not let the plants remain out later than the middle of September, or they might be seriously injured by frost, and it is unnecessary to risk them, for the month's exposure will have sufficiently ripened their growth to induce their flowering freely in the spring. Winter as before, keeping them well up to the light. Tie them into the required shape, and as early in the season as there is danger of their suffering through the effects of the sun, either shade slightly, or remove them to where they will not be exposed to its mid-day influence.

In respect to flowering, there is no particular time through the spring and summer that it can be exactly calculated upon, as in the case of some plants—much will depend upon the situation where it has been wintered. It is not a plant that can be hurried on; if any excitement were attempted by heat it would run into growth, and not flower at all. I have had it in by the beginning of June, and on other occasions not until the end of August. When in flower the plants can be removed to the conservatory, where they will be very effective. Place them where they will not be too much crowded. They will last here for a month, after which they should be removed to the growing house, and have any shoots that are unduly taking the lead shortened back. If they have flowered early in the season they will have sufficient time before winter to make growth for the

next year's bloom, in which case they ought to be moved into pots 3 inches larger, and in the autumn turned out for a few weeks, and then tied and wintered as before, but so treated they never bloom so profusely as if allowed a season's rest. More commonly they are only flowered every other year, in which case the plants should be shortened back somewhat freely after flowering, then placed in a house where they can be enabled to make some growth without any attempt at pushing, as they will have time sufficient the ensuing summer to grow into a large size. When so treated they had better not be potted until the spring, giving them as heretofore a 3-inch shift, and subjecting them through the summer to the same treatment as advised in their early stages, as to shade and water, as also in exposing them out-of-doors; but this season they may be placed out by the end of July, at which time, if all has gone well with them, they will be large enough for any purpose they may be required, even to exhibit in the company of the best and most select collection of plants, in which there are few more telling subjects.

After this flowering they should be cut to within a foot or 15 inches of the base, placed in a growing temperature, and syringed overhead every afternoon until the end of August, when they should have plenty of air, and the syringe should be withheld: it will not be necessary to place them in this state out-of-doors, for under any circumstances they cannot be expected to flower much, if any, the ensuing season. In the spring give them a pot 3 inches larger, encourage growth through the summer, and turn them out in the open air as before advised to ripen; train so as to keep enough young shoots to furnish the base of the plant with green healthy growth. This will be facilitated no doubt by the production of a number of shoots from the crowns of the plants, which the cutting back will have caused them to produce. After flowering this time it is as well to discard them for younger stock, which it is more satisfactory to bring on, particularly as it is such a free grower, making as much progress in a single season as many plants do in two; besides younger plants always have a fresher appearance. All that is necessary is, each year, to provide a few young ones to replace those that are made away with, for it is naturally such a good grower that unless very badly treated it rarely goes off or gets out of health. On this account it is a fitting subject for new beginners in the cultivation of hard-wooded plants, while as a subject for general decorative purposes it cannot fail to give satisfaction.

It is seldom attacked by insects, sometimes red spider will make its appearance, but this will not occur if the syringe is employed as advised. Scale, either brown or white, will live upon it, if communicated from other plants, but in case the plants become infested with either of these insects, it is better to destroy them, as the leaves are too soft to bear dressing with any solution strong enough to kill the insects. *T. Baines.*

TRANSPLANTING EVER-GREENS.

There does not appear much diversity of opinion among planters as to the proper time for planting deciduous trees and shrubs, as most are agreed that early autumn is the best time for that purpose. Deciduous trees may be planted from the beginning of November to the end of February with varying success, but the earlier they are planted after the fall of the leaf the less check will they receive, and the success will be in proportion to the earliness of the period at which the operation is carried out. It is erroneously supposed by many that deciduous plants are dormant during winter, and that the roots are in a state of rest and inactivity. That they are so in a degree I readily admit, but Nature is never wholly at rest, either in the animal or vegetable worlds, for no sooner do the leaves of one season burst forth than she is busy bud-forming and preparing for the next; and these buds go on slowly but continuously increasing all through the winter, till they burst forth in the spring. If the roots of deciduous trees were entirely at rest during winter, the drying winds and frosts would rob the trunk and stems of all the stored-up sap, and the trees would cease to exist.

Evaporation goes on from the stems and branches of trees in the same ratio as it does from any other surface equally exposed to the weather, and the roots are ever at work to supply the demand. Any one who has had experience in transplanting large deciduous trees will have observed the beneficial effect that results from binding bands of hay or moss round the trunks and branches. This is because it keeps the bark plump by preventing the action of frost and drying winds from robbing the tree of its stored-up sap, till the roots get to work to send up a fresh supply. If the bark is allowed to shrivel and become contracted, the channels for the flow of sap are impeded, and the growth of the trees is checked for years.

As to transplanting evergreens, I note that Mr. Saul recommends autumn for that purpose, and speaks of spring as unfavourable on account of drought which then prevails, accompanied by frosts and drying winds, but this state of weather applies more to February and March, which are of all others the most unfavourable months planters have to contend with, as the winds usually then prevailing are much more searching and drying than at any other time in the year, and generally prove more fatal to autumn-planted stuff, than any of the summer months are to that planted in spring. The case of Laurel cuttings put in in September is no proof that autumn is the proper time to plant evergreens, as it takes a long time for the callus to form before an emission of roots can take place, and the long months of winter give time for that process to go on before spring calls all vegetable life into activity. Laurel and all cuttings of evergreens are always inserted deep in the ground to keep them moist and plump, and to favour this but few leaves and a small portion of wood are left above-ground for the weather to act on, and they are always put in the most sheltered spots that can be found for them. I think the species of Berberis are about the worst evergreens to transplant; they rarely succeed if moved in the autumn, but if caught in the spring just as they are beginning to move, success is certain. If spring planting holds good in this case with one of the worst subjects we have for removal, it must be equally so with others, and points to that season as the proper time for the operation. My experience has led me to choose April as the month of all others for transplanting evergreens, as just at that time the atmosphere is generally in that genial state of sunshine and shower so favourable to vegetation. At that season evergreens naturally shed a portion of their old leaves, and rapidly form young ones to replace them, and it is a well-known fact that these greatly aid the formation of roots. In winter, after a long continuance of wind frost, we frequently see old established evergreens killed or greatly injured, and in such winters it is impossible for those recently transplanted to struggle through. The only excuse or plea in favour of autumn planting is that labour is more abundant, but if we take into consideration the losses often entailed through planting late in the autumn, and having the labour over again in the spring, I think the saving will be found greatly in favour of the latter. If the winter should turn out moist and mild, evergreens may be transplanted as successfully in the autumn as deciduous trees and shrubs, and the last few winters have been exceptional, having been exceedingly mild and favourable to success; but it would be unfair on this account to condemn spring planting, as the summers have been exceptional, too, for dryness—so much so, that old-established trees have suffered severely, and I admit that it has been a work of labour to save those recently transplanted. Nevertheless, it is much easier to protect them from severe drought, by giving an occasional syringing overhead, than it is to save them from the scathing blasts of winter. If there is not sufficient root at that time to pump up a supply of sap to replace that taken out of them by the winds and frosts, they stand but little chance, and appear in the same unfavourable condition for withstanding cold as a half-starved animal would be.

If I were obliged to plant evergreens in the autumn I should advocate September and October as the limit of time for the operation, as later than that they stand but little chance of making sufficient root to carry them successfully through even an ordinary winter. The dryness of an ordinary summer is much more easily counteracted than the cold of winter, for if the fresh transplanted stuff receives a good watering before the roots are entirely covered in, and is then finished off with the dry earth without further watering, and afterwards covered over with a good heavy mulching of half rotten litter, they will require but little after attention. I attach the greatest importance to a good mulching either for spring or autumn planting, and look on it as almost indispensable to success, as it secures a uniform state of moisture, and with such protection root-action sets in rapidly, assisted by the daily increasing warmth. I had to superintend the planting of a large number of evergreens in the autumn some years ago, and although every care was taken, very few survived the winter, and they were dried through and through by the wind frosts. These shrubberies we replanted the following April, and, so far as my recollection serves me, we did not lose a single plant, although many were of large size. Evergreens present, on account of their leaves, a large surface for the atmosphere to act on, and if cold frosty winds prevail, evaporation goes on more rapidly from their surfaces than can be kept up by the limited root-action of an autumn transplanted plant, as roots are formed much more slowly at that season than during the early summer months. I therefore advocate April as the proper time for transplanting evergreens. What say others of your correspondents? *J. Sheppard, Woolverstone Park.*

HORTICULTURAL EXHIBITIONS, 1875

January.

20.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.

February.

17.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.

March.

3.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.
10 and 11.—Leeds Horticultural Gardens Company. Spring Flower Show. Sec. and Manager, James Birbeck, 193, Hyde Park Road, Leeds.
16.—Manchester Botanical and Horticultural Society's Floral Meeting in the Town Hall. Manager, Bruce Findlay.
17.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees. Hyacinth Show.
24.—Glasgow and West of Scotland Horticultural Society. Spring Exhibition. Sec., F. G. Dougall, 167, Canning Street, Glasgow.
31.—Royal Botanic Society, Regent's Park. Spring Show. Sec., W. Sowerby.

April.

7.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.
21.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees. Early Rhododendron Show.
22.—Royal Horticultural Society of Ireland. Spring Exhibition. Sec., A. Balfe, 28, Westland Row, Dublin.
27.—Manchester Botanical and Horticultural Society. Exhibition of Auriculas, &c., in the Town Hall. Manager, Bruce Findlay.
28.—Royal Botanic Society, Regent's Park. Spring Show. Sec., W. Sowerby.

May.

1 to 24.—Royal Botanic Society, Regent's Park. Special Exhibition of Clematis, by Mr. G. Jackman.
12.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees. Pot Rose Show.
20.—Royal Horticultural Society of Ireland. Early Summer Exhibition. Sec., A. Balfe, 28, Westland Row, Dublin.
14 to 21.—Manchester Botanical and Horticultural Society's Annual National Exhibition, at the Garden, Old Trafford. Manager, Bruce Findlay.
22.—Crystal Palace Great Flower Show. Sec., F. W. Wilson.
26.—Royal Botanic Society, Regent's Park. Summer Exhibition. Sec., W. Sowerby.
26.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.

June.

2.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees. Great Summer Show.
16.—Royal Botanic Society, Regent's Park. Summer Exhibition. Sec., W. Sowerby.
16.—Glasgow and West of Scotland Horticultural Society. Midsummer Exhibition. Sec., F. G. Dougall, 167, Canning Street, Glasgow.
16.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.
19.—Crystal Palace Rose Show. Sec., F. W. Wilson.
24.—Royal Horticultural Society of Ireland. Great Summer Exhibition. Sec., A. Balfe, 28, Westland Row, Dublin.
30.—Royal Botanic Society, Regent's Park. Exhibition of Fruit and Cut Flowers. Sec., W. Sowerby.
30, and July 1.—Spalding Horticultural Society's Annual Show. Hon. Sec., G. F. Barrell.

July.

7.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committee. Cut Rose Show.
8 and 9.—Manchester Botanical and Horticultural Society. Special Evening Fête and Exhibition of Roses, Floral Decorations, &c. Manager, Bruce Findlay.
14.—Royal Botanic Society, Regent's Park. Evening Fete. Sec., W. Sowerby.
14.—Woodford Horticultural Society's Third Annual Exhibition. Hon. Sec., S. J. Taylor, Woodford.
15 and 16.—Wimbledon and District Horticultural and Cottage Garden Society's Annual Exhibition. Hon. Sec., P. Appleby, 5, Linden Cottages, Wimbledon.
21.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees. Zonal Pelargonium Show.

August.

4.—Royal Horticultural Society, South Kensington. Meeting of Fruit and Floral Committees.
6 and 7.—Manchester Botanical and Horticultural Society. Exhibition of Carnations, Picotees, New Plants, &c. Manager, Bruce Findlay.
18.—Royal Horticultural Society, South Kensington. Meeting of Fruit and Floral Committees.
26.—Royal Horticultural Society of Ireland. Autumn Exhibition. Sec., A. Balfe, 28, Westland Row, Dublin.
26.—Wantage Horticultural Society's Annual Show. Sec. W. Caudwell, Wallingford Street, Wantage.

September.

1.—Royal Horticultural Society, South Kensington. Meeting of Fruit and Floral Committees. Dahlia Show.
2, 3, and 4.—Manchester Botanical and Horticultural Society. Exhibition of Fruits, Vegetables, and Autumn Flowers. Manager, Bruce Findlay.
7.—Crystal Palace. Autumn Exhibition of Fruit and Flowers.
8.—Glasgow and West of Scotland Horticultural Society. Autumn Exhibition. Sec., F. G. Dougall, 167, Canning Street, Glasgow.
15 and 16.—Royal Caledonian Society. International Fruit and Flower Show in Edinburgh. Sec., J. Stewart, 5, Alva Street, Edinburgh.

October.

6.—Royal Horticultural Society, South Kensington. Meeting of Fruit and Floral Committees. Fungus Show.

November

10.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees. Chrysanthemum and Fruit Show.
25.—Royal Horticultural Society of Ireland. Private Winter Exhibition. Sec., A. Balfe, 28, Westland Row, Dublin.

December.

1.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.

FLOWER FESTIVALS IN YEDO.

ONE of the most agreeable characteristics of the people of Japan is the lively sensibility they exhibit to the beauties of Nature, and the pleasure they experience in witnessing the rich display of vegetation which the well-known fertility of their soil each year affords to them. At each of the many pretty spots in the neighbourhood of Yedo from which a beautiful *coup-d'œil* may be obtained, numerous tea-houses and light temporarily-built sheds of Bamboo are erected, to which old and young resort in the fine weather, in order to enjoy the beauties of the landscape. The greater number of the suburban houses are surrounded by well-tended gardens, and even in the narrow and confined streets of the town, little garden plots, or perhaps pots only, of flowering plants and shrubs in endless variety of form may be seen, which are changed according to the season of the year, and in the order of succession of the flowers. The adornment of the temples with shrubs and flowers forms no unimportant part of the religious festivals. The principal temples are usually surrounded with pleasure gardens, and the skilful adaptation of the conditions of the ground, and the choice and grouping of the trees, and the happy effect of the architecture of the buildings in its relations to the surrounding plantations, frequently exhibit a refined artistic sense.

The influence of the changing seasons of vegetation is largely felt by the people of Yedo, and flower festivals occupy a prominent place among the recreations of all strata of the population. The introduction of the spring season is indicated in February by the coming into blossom of the cherished Japanese Plum tree. At this season the houses and altars are decorated with its beautiful blossoms, which closely resemble those of our Apricot, though exhibiting, from the greater care expended upon the culture, a larger variety of shape, colour, and size. The people of Yedo visit in crowds the localities most distinguished for the beauty and number of these trees. Among these Kamedo and Omusai on the left bank of the Ogawa, the large river upon which Yedo is built, and Tabata, on the road to the villages of Odsi and Sungita, on the south side of the town, are at this season the most popular. At the end of April the country wears its most charming aspect. The evergreen trees assume their new foliage, a vast number of shrubs and trees burst into blossom, and chief of all these the Cherry tree. This tree is very largely planted, and thrives especially at Askayama, a mountain plateau, from which a lovely view is obtained. The grounds here—among the largest and most beautiful in Yedo—exhibit themselves at this season in their greatest splendour. The snow-white blossoms of the Cherry offer a glowing contrast to the dark green colour of the surrounding foliage, and afford for many weeks a scene of gay and animated movement. In many parts of the grounds, and more especially close to the chief entrance gate, a large number of simple tea-houses constructed of Bamboo are raised. Everything is at its best in this season. The houses are decked with flags and gay-coloured lanterns, and sellers of food, confectionery, and children's toys throng the spot in great numbers, and from morning until night the grounds are filled with crowds of visitors of every age, appearance, and condition. In many of the tea-houses music is played and dances are performed by girls and children; young and old refresh themselves with tea, Cherry-blossom water, *saké*, and the fragrant weed; and on all sides pleased countenances are seen, and singing and laughter may be heard. The effect of the entire scene is to produce the pleasantest impression, for though occasionally an intoxicated person may be met with, the pleasure of the festival is rarely disturbed by misconduct or intemperance.

In the month of June the Fudsi (Wistaria sinensis) comes into bloom. This is a shrub of a climbing nature, and is much cultivated in gardens and in the vicinity of temples, where a stem about 2 inches in diameter may be seen supporting a thick umbrageous roof of a superficial area of from 2 to 3 square metres. When a Wistaria bower is decorated with all the wealth of its massive branches of butterfly-hued flowers, it forms a truly charming retreat, and spots in which the tree has been most largely planted—Kamédo, for example, where the trees surround and shade a piece of water—form the favourite resort of the Yedo people at the flowering season. Pic-nics are held under the branches of the trees, and the beauties of the flower are frequently commemorated in verses which are written upon slips of clean paper and hung upon the boughs. Lovers, too, resort to the Fudsi as to an oracle, and fastening their *billet-doux* to the buds, read a presage of the realisation of their hopes according to the period of their fall.

Shortly after the Fudsi, the Ajame, and Hama Scorbu of the Iris family come into flower. At this period Horikiri in the vicinity of Mukoshima exhibits a spectacle rarely to be met with of its kind. Irises of the loveliest hues and in endless variety of form crowd the ponds and flower-beds. House-boats filled with pleasure-seekers dot the ample stream, and on the river-side road people may be seen, all alike bound to the Iris gardens, where, seated in the tea-houses or bowers which crown each little hill, they enjoy the charming scene, its *agrémens* being in no small degree heightened by music and conviviality.

The late autumn is not without its festivals, towards the end of October the Kiku (Chrysanthemum indicum), chief favourite of all their cherished flowers, attaining its full bloom. This lovely Composite is cultivated in all its numerous classes with particular care and attention, and the variety of its flowers in colour, shape and size, is very great. Presumably from its similarity to the sun, the Kiku has been adopted in the Imperial escutcheon as emblematical of the Mikado's house. The effigy may be observed upon weapons, porcelain and lacquer-ware, and even the parti-coloured cakes which it is usual to present to the guests at the Imperial Court bear it. One of the five popular festivals (Goseku) which originated in the earliest days, and are universal throughout the country, bears the name Kiku-no-setzu, or "Period of Chrysanthemum bloom," or Festival of the Gold Flower. This festival is observed on the ninth of the ninth month, according to the old Japanese calendar, and occurs usually in the latter half of the month of October.

For more than thirty years past, flower exhibitions of a very original description have existed at Yedo, and there, though playing an important part in the recreations of the people, possess no religious signification. Among these exhibitions, those which took place this year at the great temple of Asakusa, and in the garden suburbs of Sugamo and Somei, are especially deserving of attention.

The temple *enceinte* of Asakusa, situated upon the Golden Dragon Hill, near to the chief river, is a rallying point to the tradespeople of Yedo. The various attractions to sight-seers are here combined. A French circus, a stereoscopic panorama, a building fitted up with a variety of electrical apparatuses, a remarkable waxworks, and rare animals may be seen; while jugglers perform their wonderful tricks, and story-tellers, jesters, and soothsayers exercise their attractions upon a pleasure-loving public. Objects for sale are displayed in numerous booths, such, for instance, as cheap ornaments, children's toys, &c. In fine weather the grounds are crowded with visitors from town and country, while walking or flying among them are numbers of fowls and pigeons which are fed by the pious worshippers at the temples. Within, a garden is situated, where one of the before-mentioned sights is exhibited for a trifling fee. Here may be seen bushes or shrubs cut so as to represent the figures of individuals or groups, mostly of the size of Nature, the faces being made from paper and painted, while clothes, fans, and weapons are formed by suitably trained leaves and flowers—in fact, in just such a manner as a mosaic is created by the combination of a number of bright coloured stones. Skilful though the work of these figures may be they are far excelled in originality of invention and careful execution by the products of the gardeners of the suburbs of Sugamo and Somei, who, relying upon the attraction of a special *chef d'œuvre* to bring them customers, expose to view some curiously-trained plant in such a position as to challenge the attention of the passer-by. Among these may be seen the often described Japanese dwarf trees in flower or fruit bearing descriptions, many of them with leaves marked with spots or stripes, and a numerous selection of deformed dry stumps of the Plum tree, the Mune so dear to the Japanese horticulturist. These flower-figures are most numerously represented in Dango Sauka in the tea-house grounds, their proprietors seeking by this means to add to the other attractions of their hostelries.

For nearly a month these tea-houses, favoured by fine weather, are filled with crowds of joyous guests, and a long holiday reigns of which the sellers of toys, cakes, and fruits do not fail to avail themselves. The exhibitions in the gardens are also numerously attended, and the behaviour of the visitors, while testifying to the pleasure excited by the flower-tableaux, evidences also the deep-rooted sympathies of all classes of the people with the clever productions of their national art-gardeners. *The Japan Mail.*

THE ORIGIN OF CEREALS.

THE late Dr. Lindley hazarded the opinion that the cereals, notwithstanding the dissimilarity of what botanists call their fruits, may have had a common origin, and may have sprung from one kind of grain. The heads of Barley so much resemble the heads or ears of bearded Wheat that an ordinary observer would say they were very near akin, and it is a fact bordering on the miraculous that the cereals are only of annual duration, and our daily bread is dependent upon seed-time and harvest; so that we should look in vain to the roots or stubble of last year for a single grain of Wheat; thus, then, as years roll on there is left no evidence that waving corn, being an annual plant, had flourished in this place or in that. The line between Maize and Wheat seems well defined, but if the illustrious botanist above named is to be heeded it is not a hard-and-fast line; and such has been the cavilling about the origin of species that even the citadel of Mansoul itself, as John Bunyan would call it, has been so battered with scientific blows that the godlike face of the Caucasian variety of the *genus homo* is in danger of being allied to the beast whose soul or spirit is said to go downward to the earth.

Wheat is often found in the wrappings of Egyptian mummies, and Mummy Wheat, *said* to be raised from such, has been advertised frequently. This, if it could be depended upon, would be good evidence of the character of the corn of those days, and the mode of threshing out the corn by oxen treading on it tells us that it was Wheat and not Maize that could be so trodden out. [Prof. Heer indicates two varieties of Barley and six sorts of Wheat, in addition to other cereals, as having been found in the lake-dwellings of Switzerland B.C. 1000—2000?] In the case of the Cedar of Lebanon, spoken of so often in Holy Writ, we get evidence on the spot of their descendants, and so of the Olive, the Vine, &c.; but in the case of an annual grass there is no such evidence to be got, for the precious bread corn lives not from year to year like some of the tufted grasses, every year getting better established, but has a short life of one summer only. We read indeed that the Egyptians harrow the seed into the mud of the Nile in September, and in March following have their harvest—only seven months from their seed-time. When Macaulay's artist from Australia comes to be mounted, as no doubt he will be, on one of the arches of London Bridge, sketching the ruins of St. Paul's, he will doubtless find evidence of a city having stood there, but of the hundreds of beautiful annuals that now adorn the gardens round London one half at least would be irretrievably lost, realising the poet's views of the Deserted Village—

> "Near yonder church, where once a garden smiled,
> And still where many a garden flower grows wild."

No one seems able to fix the native habitat of the Wheat plant; its history is lost in dry antiquity, so that we look in vain about the confines of the Old World for any starting point or reliable information respecting the origin of our grain plants, although they have all along played an important part in keeping the world alive. We know when the tubers of the Potato were first turned to account as food for man and beast, and we have chronicled the arrival on our shores of the leaves of the poisonous drug, Tobacco; but although the polite heathens had a special divinity to watch over their corn crops, the corn field, like Moore's "garden of beauty," was but "carelessly watched after all." Ceres, the daughter of Saturn, was accredited to corn and tillage, and that lady (goddess, I beg her pardon) has not left a rack behind to tell the tale of her cereals in their infancy. Loudon says the Zea Mays was introduced into this country a little over 300 years ago from America. Its importance in that country is well known, from the hundreds of cargos imported into this country from the New World. The unripe seeds are used in America just as we use green Peas here. I am much obliged by the Editors' comments in setting me right on the score of Maize being unknown in Holy Writ. I wrote asking for information on points of great importance, viz., what is known of the botany of the sacred books of the Old and New Testaments, and I am sorry to find so little light thrown upon the subject up to this date, and feel much obliged by the writers that have taken the matter up for what they have done. *A. Forsyth.*

DR. BRANDIS.

THE botanical career of Dietrich Brandis began early in life. He was but thirteen years of age when in 1837 his father took the family to Greece, where he commenced his pursuits under Dr. Fraas at Athens. During his sojourn there he frequently accompanied his venerable relative Link on excursions; these were not confined to the mainland but extended to the islands, and gave Dr. Brandis great opportunities for cultivating his natural passion for botanical researches, every moment of leisure being assiduously devoted thereto. He never left the house without his botanical apparatus, and never came back without bringing some additions to his herbarium.

On the return of the family to Bonn in 1839 this herbarium formed no small portion of their luggage, the facilities of transport at that time being very defective. During the next four years he pursued his studies with great ardour at the Gymnasium at Bonn, and was always distinguished as the foremost of his class; and, notwithstanding his delicate health, he never ceased to enrich his herbarium. In 1843 he proceeded to Copenhagen and resided with his grandfather Brandis, the well-known physician, then attached to the Court of Denmark. He entered the Natural History Classes of the University, and became a pupil of the celebrated Professors Schouw and Oersted, the latter of whom took especial interest in the pursuits of the young and ardent botanist, nor did he cease to the day of his death to be his friend and counsellor. From the University of Copenhagen he proceeded to that of Göttingen, where he studied under Grisebach and Lantzius-Beninga, and subsequently to that of Bonn, where he had the advantage of being under the guidance of Treviranus. Here he took his degree of Doctor in Philosophy, and was soon after attached to the University as botanical lecturer, and continued to occupy that position to the period of his departure for India.

His researches in vegetable physiology gained him a great reputation among the botanists of Germany, and many of those who pursued their studies under his instruction, and enjoyed the benefit of accompanying him in his scientific excursions, cherish a grateful recollection of the pleasure and advantage they derived from his lectures and demonstrations.

In 1855 the post of Conservator of Forests in British Burmah became vacant on the resignation of Dr. M'Clelland, and Lord Dalhousie, the Governor-General of India, ever on the search for merit, having heard of the distinction Dr. Brandis had acquired in Germany, caused it to be intimated to him that if he was disposed to accept the office it was at his service. The prospect of extending his favourite researches to this magnificent field was too tempting to be resisted, and the offer was at once accepted. Dr. Brandis continued to occupy this position for eight years, with great benefit to the interests of the State, by the success of his efforts to preserve the valuable Teak forests from extinction through reckless improvidence and mercantile cupidity. During this period the improved system of administration was apparent, both in the nett money returns and in the timber available to the public.

In 1863 he was promoted to a post of more enlarged usefulness and greater importance, and was directed to proceed to Oudh, the North-west and Central Provinces, to organise a more efficient and methodical conservancy.

In 1864 he was appointed Inspector-General of Forests to the Government of India, which post he has held ever since. From 1864 to 1871, with the exception of 1865, when he was on leave in Europe, Dr. Brandis annually made long tours of inspection in the different forests; in fact his official duties during these years were so arduous as to compel him almost entirely to abandon scientific pursuits.

In the latter part of 1871, Dr. Brandis' health gave way, and he returned to Europe on sick certificate. In March, 1872, he was directed by Her Majesty's Secretary of State for India to complete for publication the *Forest Flora of North-west and Central India* (commenced by the late Dr. J. Lindsay-Stewart, M.D.). This work (lately reviewed in this journal, see pp. 395, 426, vol. ii., 1874) will do Dr. Brandis infinite credit, the identification and description of species, and the botanical part generally, being entirely the result of his independent researches. During the last two years he enjoyed the privilege of working at Kew, and of conferring with Dr. Hooker, Mr. Bentham, Professor Oliver, Mr. J. G. Baker, and other botanists. He also had the assistance of his friend and coadjutor, Dr. Cleghorn, who had been for many years associated with him in the Forest Department of India, and to whose efforts mainly Indian forest conservancy owes its very existence.

In April last Dr. Brandis resumed his duties, and is now inspecting the forests of the North-west Himalayas. In these lines we have but imperfectly noticed the important services which Dr. Brandis has rendered to the Government of India by organizing a department such as the Woods and Forests.

DR. BRANDIS, INSPECTOR-GENERAL OF INDIAN FORESTS.

Foreign Correspondence.

ST. PETERSBURG.—In your list of portraits of garden plants given in the number for December 5, mention is made of a Panax sessiliflorus, Pancher, a native of New Caledonia, and described in the *Revue Horticole*. There seems to be some confusion here, as the true Panax sessiliflorus is a native of Amooria, and was described in 1857 by Ruprecht and Maximowicz (*Melang. Biologiques de l'Acad. des Sc. de St. Petersb.* 1857, 426). This latter plant is quite hardy here, and forms one of the best acquisitions we have had for a long while. *P. W.* [Panax sessiliflorus of Ruprecht has been referred by Seemann to Acanthopanax sessiliflorum (*Revis. Hederac.* p. 102). We have no personal knowledge of the New Caledonian plant. EDS.]

COMO.—In a recent number of the *Gardeners' Chronicle* reference is made to the blooming of Aralia Sieboldi in the temperate-house at Kew. A plant in my garden here has also bloomed. It is in the centre of a bed (*centello*) formed of Alternantheras, Lobelia, Mesembryanthemum, &c., and in August last threw up a fine panicle of white flowers. *L. T.*

CAMBRIDGE, MASS., U.S.A.—I enclose photographs of Agave schidigera, which has lately flowered at Brookline. The plant differs in some particulars from the one figured in the *Botanical Magazine*, tab. 5641. Horticulture has during the last ten years taken a seat here, and is making solid progress. *C. S. S.*

Florists' Flowers.

THE fine old varieties of DOUBLE TULIPS still hold their own against the new improvements, so called, of the past ten years. If any one desired to use a double variety that would make him a gorgeous densely-flowered bed, he would employ that finest of all the double varieties, the grand old Tournesol. If he wanted the most effective double variety for pots, he would select the same. Of dwarf growth, and bearing cerise-red flowers deeply edged with gold, of prodigious size, and showy in the extreme, it is difficult to imagine how this particular flower can be surpassed. The raiser of it deserves a monument to his memory, if it was necessary to add anything to the flower itself. Old Rex Rubrorum holds its own, notwithstanding that green tips occasionally show themselves on the bright red petals. Then there is La Candeur, with its stiff dumpy habit of growth and lateness of flowering, and yet standing alone as a double white Tulip, without a rival to dispute its claims. I well remember when Mr. Stuart, formerly of Nuneham Park Gardens, used to employ these three Tulips on the terrace garden to form masses of colour in spring in beds carpeted with Daisies; his practice was to plant Tournesol and Rex Rubrorum 2 inches deeper in the soil than La Candeur, and by this means get them in bloom together. An excellent quartette is formed by the addition of Couronne Pourpre, a rich deep crimson self-flower, of great beauty and large size. Duke of York, dark rose, bordered with white; Extrémité d'Or, rosy bronzed feathered with orange; Gloria Solis, in the way of Tournesol, but inferior to it; Murillo, pale rose and white; Overwinnaar, striped with purplish blue, and Yellow Rose, are second-rate as compared with those just named. There are two fine self-coloured varieties, as yet somewhat expensive, that are remarkably good, viz., Imperator Rubrorum and Yellow Tournesol. The former is of a scarlet-crimson hue, very bright and fine; it is decidedly earlier to flower than the red Rex Rubrorum, and is without the defect of the green tips among the petals. The Yellow Tournesol is a fine self form of that well-known variety, and makes a grand display either in beds or pots. Mariage de ma Fille is an early Tulip, and it appears to be a double form of one of the late flowering florists' varieties. If grown in the border, the stems should be secured to stakes. The flowers are charmingly flaked with rose on a white ground.

Of newer double varieties there are Couronne des Roses, pale rose, and pink on the edges, very pretty; Rose Agnea, a bright crimson self; Soleil d'Or, very like Yellow Tournesol, and with a tendency to become stained on the base with age; and Turban Violet, pale pinkish violet with dark base.

But little novelty has shown itself among the single varieties this season, which is perhaps not to be wondered at, seeing what splendid varieties we already possess. The most promising appear to be the following:—Admiral Regnier, bright carmine-rose, feathered and flamed with white, very pretty; Asselyn, an intense carmine self, and a fine hue of colour; De Kaiser, a very nice dwarf Tulip, deeper in colour, and fully twelve days later than La Belle Alliance, which is one of the earliest to flower; and scarlet Pottebakker, which, being at least ten days later than the rest of the varieties in the Pottebakker section, can scarcely belong to them. It cannot, at least as seen this season, be termed an acquisition. *R. D.*

Notices of Books.

Ten Years of Gentleman Farming at Blennerhasset. By William Lawson, C. D. Hunter, and others. Longmans.

This is one of the most amusing and instructive books we have read for a long time. Amusing because in spite of the mishaps recorded by the authors they are invariably good-humoured and disposed to laugh with those who laugh at them—instructive because full of warnings and cautions to rash experimenters whether in political economy or practical agriculture. With perfect candour the authors relate the results of a costly experiment at farming on co-operative principles, of estate management under the direction of a committee of co-operators chosen by universal suffrage without any particular regard to their special knowledge of farming. Were it not for the evident good faith and excellent intentions of the promoter of this scheme the whole thing would read like a farce. The excellent spirit, however, which animated him and the frankness with which this record of failure is written engender a feeling of great respect for the good hearted experimenter.

The Blennerhasset establishment existed for ten years. "It included a farm, extensive farm buildings, a market garden, artificial manure works, steam-ploughing machinery, a laboratory, a free library, a free school, and several grocery shops." These were all established by Mr. Lawson, not only for his own benefit, but also especially for that of his labourers. "I want you," said Mr. Lawson, "to feel no longer that you are working for me, but that you are really working with me, as cultivators of the soil, with a view to participation in the profits, if we can make them." It was hardly likely that any profits would be made when the labourers assembled in "parliament" to discuss what they should do, and were paid for the time spent in debating whether they should do anything at all. "This parliament or industrial council was thrown open to anybody in the village to come in with their conflicting and confusing advice." An amusing instance of this is given in a case where the increase of wages was the matter under discussion. The men-voters hesitated, and took into consideration whether the concern could honestly afford the increase; and when a limit was proposed to be put to their wages, they voted for it,—not so the women; one only out of thirteen entertained the slightest doubt on the question, and the rest of the twelve at once voted in favour of increasing their own stipend.

How the farm was carried on, what extravagancies were committed, what blunders made, what accidents befel the steam-ploughs, may be read in the candid pages of the book, which we commend to the notice of our agricultural and amateur readers. In spite of the financial want of success, the good effected indirectly by Mr. Lawson must have been very great. Co-operative societies, dispensaries, schools, reading rooms, established by him, or through his agency, or that of the "public good department," testify to this. It is impossible also but that the standard of intelligence among the labourers must have been raised, and even the progress of agriculture largely, if indirectly, benefited by the Quixotic experiment. So far then, we are far from looking at the Blennerhasset Farm as an entire failure. There was a strong principle of benevolence, a strong desire to benefit his fellows, in all that Mr. Lawson did, and these have *not* failed. As to the financial loss, that, we imagine, is of secondary consequence in this case.

We regret we cannot find space to insert some details concerning the farming operations and the reports on various manures, which give a permanent value to the book. We may, however, find a place for the following extract from the section relating to the garden:—

"In February, 1864, the garden was first laid out, and soon afterwards a small plantation and hedge were planted around it. By November, 1000 Gooseberry bushes and many hundreds of fruit trees had been planted, Mr. Lawson engaging his father's head gardener to plant every one with his own hands. Things evidently looked well at this time, for in December, when his father's steward valued the estate, the 16 acres of garden land were estimated at £150 per acre.

"Meantime marketing was begun, but proved ratheran expensive mode of sale; the cost of man, and horse, and tolls often amounting to nearly one-fourth of the sales. But sometimes it was worse; for in June, 1865, a man was sent to Silloth, a watering place 10 miles to the north, where good prices were obtained for vegetables and fruit; but night came and he did not appear. Next day a second man was sent to find him, and though he was successful, the cause of the delay and the cheapness of the sales were never clearly explained.

"Strawberries and Rhubarb proved the most paying crops; for the farm generally grew better Potatos and Cabbages than the garden did. Why, it is difficult to say—the chemist claiming that his chemical manure, which the farm used largely and the garden but little, was the cause of superiority, and others attributing it to soil and rotation.

"Subjoined is a list, rejecting fractions for brevity, of the annual sales of the more important products:—

Annual Sales of Garden Produce.

	1867.	1868.	1869.	1870.	1871.	1872.
Strawberries	£6	£14	£49	£40	£32	} £37
Other berries ..	3	3	8	12	11	
Rhubarb	7	13	17	15	38	
Cabbages	47	95	12	25	16	3
Potatos .. .	40	51	28	37	34	1
Peas	14	6	10	3	4	..
Onions	8	8	15	6	24	35

"The variety and tendency of our garden cropping will be best shown by the following table, which gives the extent of land under the different crops. But it must be borne in mind that some of the land was under two crops; 5½ acres, included in the table, also containing Gooseberry bushes or other fruit trees, Cabbages or other crops being grown between:—

Garden Cropping in 1868.

	Acres.	Roods.		Acres.	Roods.
Potatos	5	1	Strawberries ..	1	1½
Cabbages	2	1½	Fruit trees* ..	0	1½
Peas	1	1	Currants, &c. ..	0	1½
Tares	1	0½	Rhubarb	0	1
Onions	1	0	Grass	0	3
Carrots	0	3	Roads	0	3½
Plantations ..	2	3½			
Cuttings and seeds	1	0	Total	20	1¼
Young Thorns ..	0	2½			

"Many of the above quantities represent three or four different plots, and a few minor crops have been omitted. The fruit trees, it will be seen, occupied nearly 6 acres, but they did not do very well, though perhaps six years is too short a period in which to judge of the success of a new fruit plantation.

"In 1867, 8 acres of nice loamy soil were added to the garden land, and further extension was contemplated.

"At this time the cropping sheet system (explained in another chapter) was just begun, and the gardener showed (on paper) such enormous profits per acre, that gardening threatened to oust farming altogether. Leeks were to clear £76 per acre, Onions £66, and other crops in proportion.

"Below a few figures are given which will indicate the progress of the garden. Like that of the farm, it is a progress in the right direction, the sales per acre reaching £20 in 1871, the expenditure at the same time decreasing. The manure was almost entirely farmyard:

Garden Accounts.

	1864	1865	1866	1867	1868	1869	1870	1871
	£	£	£	£	£	£	£	£
Wages	29	195	332	190	185	167	159	176
Plants and trees ..	42	..	132	50	16	49	13	27
Manure	..	..	12	27	52	54	59	47
Sales of produce ..	12	105	176	249	209	162	215	412
Stock in December ..	..	..	..	128	269	466	554	467
Profit	..	..	..	59	47	31	14	18
Loss	69	91	313	..	..	..	..	..

"It is easily seen that in the earlier years, when planting, &c., were active, the wages greatly exceeded the sales; but after 1866 there was a manifest improvement; so that in 1871 the sales were nearly three times as large as the wages. Indeed, the concern was then clearing itself, and perhaps might have been made really profitable in time. Our critic, however, thinks not; as he says 'each succeeding year brought more weeds, more work, and consequently more wages to pay; and while such was the case, the fruit, which ought year after year to have increased in quantity, seemed to be all but an entire failure. Since Mr. Lawson sold the estate, I have had an opportunity of seeing the subsoil, and find it to be a clean gravel, thus giving at once a clue to the cause of the failure of the fruit.' Certainly the land was, as our critic remarks, very foul by 1871; but that was an unusual year for weeds; and it is doubtful if, taking season for season, the land was much worse than in 1862.

"The balance-sheet for the whole period shows a nett loss of £339 11s. 11d., the land being valued as neither better nor worse; the £2458 10s. 3d. transferred to land and buildings account, including £364 10s. 3d. worth of trees, plants, and other fixed stock. This loss, it will be noticed, occurred before 1867, the later years doing much better; but never making enough to pay rent, which, at £3 an acre, would have amounted to £60.

"Latterly a considerable extent of the garden land was devoted to farm crops, such as hay and Oats, £229 of the sales in 1871 being for such crops; and this prevents a fair estimate of the gardening expenditure. Roughly divided, the wages averaged over the eight years £10 per acre, the manure £1 14s., the sales £11, and the loss (no rent or interest being charged) £2 6s. per acre. Much of the garden land could be reached by the irrigation hose, and to this we largely owe our success in growing Rhubarb and Strawberries, the latter crop in 1869 growing £49 worth of Strawberries on about 1 statute acre."

Ein Beitrag zur Kenntniss der Orangengewachse.—*a Contribution to our Knowledge of the Orange Tribe.* By Dr. Goeze. 8vo, pp. 32. Hamburgh, 1874.

This little pamphlet is dedicated to the King of Portugal, and owes its chief interest to the historical portion respecting the introduction of the Orange, &c., into Portugal; the author being at present engaged in superintending the formation of a botanical establish-

* Besides the 5½ acres planted also with other crops, and included in the list.

ment at Lisbon. In the first place the genera of the Aurantiaceæ are briefly discussed, and the geographical distribution of the group given. Unfortunately this part is disfigured by many typographical errors. Then the genus Citrus itself comes under consideration, and the author gives a good summary analysis of the principal writings on this subject, together with his personal knowledge of the numerous forms in cultivation. The views of different writers respecting the number of species represented by the cultivated varieties, and other questions, are carefully examined, showing great industry and research, but containing little that is new to the English reader.

With regard to the history of the introduction and dispersion in Europe of different varieties and species, we find many interesting paragraphs, a selection from which may serve to supplement the article by "B. M.," at page 740 of the last volume. On the question of the exclusively Asiatic origin of the Seville or bitter Orange, he quotes several Portuguese authors. André Alvares de Almada says in his *Tractado dos Rios de Guiné*, cap. xv., "the river Toto waters numerous Orange trees which grow on its banks," and farther on he adds, "the rivers Tonglecu, Butibum and das Allianças exhibit luxuriant fruitful shores, clothed with many Palms and Orange trees." Also, "Opposite Cape Ledo, which forms the extremity of the Serra Leãs, there are two small well-watered islands, called Bravas, which produce quantities of Oranges, Lemons, Citrons, Bananas, and other fruits." Almada wrote this in 1580. He resided at Cape Verde, and was practically acquainted with the coast of Guinea. The monk Fernãs Guerreiro, in his *Relaçoes* quotes a letter dated February 20, 1606, respecting Serra Leãs, addressed by Bartholomew André to the King, in which he says "Respecting Orange trees of all sorts I will say nothing here, for the forests are full of them." Another monk, Balthaser Tebbes, says that Congo was celebrated for its Oranges. Several other quotations to the same effect are adduced, so that whether or not the Orange tree is indigenous in West Africa, it is exceedingly unlikely that the Portuguese introduced it. Respecting the celebrated Golden Apples of the Hesperides, the investigations of recent writers seem to show that they were Quinces, and not Oranges, as commonly assumed. At all events, the celebrated bas-relief in the medical garden at Rome, in which Hercules is sitting on a stone and leaning against a tree, represents a Quince tree, and not an Orange tree.

On the introduction of Orange trees into Portugal, the author quotes the *Elucidario* do P. Santa Rosa de Viterbo, whose records are dated 1262 and 1374, and who affirms the general opinion that Oranges were not grown in Portugal until after the doubling of the Cape of Good Hope, to be erroneous, as at the time the so-called Chinese Orange was introduced, plantations of Orange trees had been in existence in the kingdom for several centuries. The celebrated geographer, Edrisi, who finished his great work in 1154, speaks of the abundance of Oranges in Morocco. Other evidence of the early cultivation of the Orange is adduced, but there is no doubt that in all instances the bitter, or Seville Orange is intended, and there is nothing to substantiate the belief that the sweet Orange was known in the Peninsula at that time. Jacques de Vitri (1200), speaking of the fruits of Syria, after mentioning Citrons and Lemons, describes the Oranges as of a bitter taste, from which we may infer that the sweet Orange was unknown to him, both in Europe and also in the country through which, in all probability, it passed on its way to Europe. Here is the quotation:—"In parvis autem arboribus quædam crescunt alia poma citrina, minoris quantitatis frigida, et acidi seu pontici saporis, quæ pomæ orenges ab indigenis nuncupantur."

The exact date of the introduction of the sweet Orange cannot be given with certainty, but there is no doubt that it was known in the beginning of the reign of Don Manoel (1550). When the celebrated traveller and missionary, Father Jordan (Jordãs), passed through Asia in 1330 the sweet Orange had probably not reached Europe, or at all events was not very widely spread; for, from his "in India menor, in quibusdam partibus, limones . . . . dulcissimi sient zuchara, et alii limones acerbi sicut nostri," it appears that he there first became acquainted with the sweet Orange. From the context and other circumstances Dr. Goeze thinks that Oranges and not Lemons are intended, though the word Limones is employed. The Editor of *Roteiro de Vasca de Gama* relates that when the Portuguese ships arrived at Bombay in 1498, two Malayan boats brought them baskets of the most delicious Oranges, which were much better than those then known in Portugal. His words lead us to the conclusion that sweet Oranges were meant. But the presence of the sweet Orange on the east coast of Africa at that period does not rest entirely upon the meaning of a more or less ambiguous phrase, for Duarte Barbosa, who wrote twenty years later, reports that both sweet and bitter Oranges were plentiful in Bombay. If the former had been entirely unknown to him in Portugal he would doubtless have expressed his surprise at meeting with a new fruit; hence it is quite evident that the sweet Orange was spread over Portugal at the beginning of the sixteenth century.

The true Chinese and the sweet Orange are often spoken of as one and the same thing, but the superior Chinese variety of the sweet Orange was not introduced into Portugal till about 1630. Through the Jesuit missionaries very glowing accounts of the superiority of the Chinese Oranges reached Europe. Naturally the Orange-producing countries were anxious to secure the Chinese variety; and Portugal was so fortunate as to obtain it first. From Duarte Ribeiro de Macedo we learn that Don Francisco Mascarenhas brought an Orange tree to Lisbon, which had come by way of Goa from China. The superiority of this new variety was soon apparent, and the Portuguese trade in Oranges increased accordingly. To retain the foremost position in the trade, a law was passed in 1671 strictly prohibiting the exportation of Orange trees of any sort. The introduction of this variety by the Portuguese probably gave rise to the general opinion that they were the first to import the sweet Orange. On this point the Monk Antonio do Sacramento gives us some interesting information. When on his journey to Jerusalem through Alexandria he visited the garden of a rich Mohammedan, who pointed out as a great rarity a Chinese Orange tree under the name of Portugal Orange. Chinese Orange afterwards became the general term for all sweet Oranges, and the Chinese varieties received the name of Portugal Oranges. The Chinese Orange must have been propagated by grafting in the earliest time, for the exportation of the fruit was permitted; and, therefore, we may assume that the authorities entertained no fears of its being propagated in other countries from seed.

As mentioned above, both sweet and bitter Oranges existed on the east coast of Africa at the time when the Portuguese sailed round the Cape of Good Hope; and they were soon established in the various Portuguese possessions, Madeira, the Azores, Cape Verde Islands and Brazil.

Pereira describes the true St. Michael Orange as a small, seedless fruit, but Dr. Goeze during his stay in the Azores in 1866 could not discover that it was known to the growers.

Speaking of the Mandarin Orange he says the Tangierine is often mistaken for it, the former being rarely met with in cultivation, whereas the latter is widely grown. Recently some of the growers have recommended grafting the Tangierine on the Mandarin, in order to obtain stronger growth and larger fruit.

For upwards of twenty years the Orange plantations have been devasted by an epidemic disease, respecting which Goeze gives us some interesting details, but we have left no room for further extracts. There is, however, one fact worth mentioning. The only means of at all successfully combating the disease is by grafting, and using seedlings of the common bitter Orange as a stock, which is another proof of the gradual wearing out of varieties continuously propagated by cuttings, &c., where there is no infusion of fresh vigour, but a sort of artificial prolongation of the life of one and the same individual. *H.*

—— The last number of the *Belgique Horticole* contains coloured figures of Vriesia Malzinei and Canistrum viride (two striking Bromeliads), of which we shall have more to say on another occasion, and of Dendrobium Falconeri var., which has flowered in the collection of M. Oscar Lamarche, of Liège. Notices of Maranta leuconeura (*sp. n.*), of Opuntia Rafinesquii and Vriesia regina follow. Of this latter plant we hope shortly to publish an engraving from a photograph kindly forwarded to us by M. Antoine, of Vienna. The remainder of the number is occupied with scientific and practical information of a description which gives this journal so high a place in garden literature.

—— In the last issued number of the *Illustration Horticole* we find coloured plates of Masdevallia Trochilus, Dracæna Casanovæ (a very handsome form, of compact growth, with purplish leaves edged with red), and Cypripedium Schlimii, var. albiflorum. M. André details the following plan, devised by M. Mas, for protecting Vines from frost, and which we mention here as the plan may be applicable to other things. It consists simply in making a hole at the base of each Vine, and then coiling the whole cane within it. The warmth of the soil is said to be sufficient to preserve them from frost.

—— The October number of the *Gartenflora* contains coloured figures and descriptions of Freesia Leichtlinii, a yellow-flowered Iridaceous plant, grown in some gardens under the name of Sparaxis Thonberti, and of Amaryllis (§Hippeastrum) Roezlii, a Bolivian species, closely allied to A. equestris. An uncoloured lithograph is devoted to Polygonum tomentosum (Willd.), a tropical species.

—— The November number of *I Giardini* (Milan) has a coloured figure of Echeveria retusa floribunda, a form with a rather dense panicle of scarlet flowers. The number in question also contains the first part of an Italian translation of Professor Sorauer's treatise on the diseases of plants.

—— The last volume of the *Bulletin de la Fédération des Sociétés d'Horticulture de Belgique* is before us. A large portion is as usual taken up with official reports of the several societies constituting the Federation, together with a list of the gardeners selected to receive at the hands of the Government "decorations," of the first or second class respectively. Then follow biographical notices and portraits of Lambert Jacob-Makoy, and Gilles François Godin. A large space is occupied with a description of the "Floralia" at Ghent in 1873, and translations of articles that appeared in our own columns and in those of our contemporaries are given. Then follows a report on the London Parks, addressed to the Minister of the Interior by M. Oscar Cus, graduate of the School of Horticulture at Gendbrugge, illustrated by lithographs showing the arrangement of the flower-beds, &c. The author's criticism on our fruit culture is not flattering. "Nowhere about London," says he, "have I seen fruit trees which by their form and good pruning rival those of Belgium. In most nurseries, not to say all, the young trees are massacred by routine gardeners destitute generally of the rudiments of knowledge of their art, and that is not astonishing when it is remembered that there are neither schools of horticulture nor public lessons on the pruning and training of fruit trees." This is sweeping criticism, and to some extent it is just, but before accepting it as wholly so we should like to know more as to the average produce and value of the fruit produced from equal areas in the two countries. We should not be at all surprised to find, after all, that we compare favourably in these points. With the writer's remarks on the absence of training schools we entirely concur, and have over and over again lamented the deficiency. M. Cus devotes special sections of his report to our methods of cultivating Hollyhocks, Tree Mignonette, Roses (the Manetti, it appears, is not much used in Belgium, owing to its slow growth and short duration), Cyclamens, &c. The volume terminates with a reprint of Professor Morren's useful *Correspondance Botanique*, to which we have previously referred.

—— The concluding portion of the new edition of the *Micrographic Dictionary* (Van Voorst) has just been issued. This work has long been indispensable as a work of reference, and in its new guise will be specially valuable.

—— Mr. Murray has published a new edition of Mr. Smiles' *Lives of the Engineers*, one of the most interesting and instructive series of biographies that has ever been written. No more acceptable present could be made to an intelligent lad with a taste for mechanics than these elegant little volumes.

—— It seems quite a matter of course for new Rose books, and new editions of old Rose books, to appear, and we cannot wonder at it, for while the popular homage to the Rose seems to grow by what it feeds on, the books which aid in this matter are each in their way good. *The Amateur's Rose Book* (by Shirley Hibberd), of which a new edition has just been published by Messrs. Groombridge, is an "all round" book of great merit, and one which may be consulted by the amateur as a reference book on any subject on which he may require information, with the assurance that he will, as a rule, find all he wants. Another book, an old friend, comes before us for the fourth time. We allude to Mr. W. Paul's *Observations on the Cultivation of Roses in Pots, including the Autobiography of a Pot Rose*. All we need say of it is that we are glad to see it whenever it comes, and trust to see it again and again. One of our greatest horticultural triumphs is manifested in our exhibitions of pot Roses, to which nothing of a like kind on the Continent can be compared. We ought not to forget that the initiative was set by the Horticultural Society of London, and among the very first to practise and preach (and thoroughly in both cases) was Mr. W. Paul. May his exhibitions and his editions increase!

—— The *Botanical Locality Record Club*, an association with an unfortunate title, but one capable of doing good work, as is evident from the document before us, has just issued its *Report* for 1873. It contains a record of localities for wild plants not heretofore noted, and in this way will contribute to the more perfect knowledge of the distribution of our British plants. The attention of members is particularly desired to be given to variations and sub-species, so that ultimately the local conditions favouring these forms may be elucidated, as well as the range in altitude and distribution of our commoner plants. The statements of the collectors are authenticated by specimens forwarded for the Club herbarium, and precautions are taken to prevent the extermination of rarities. Such an association has obviously the means of bringing to light many interesting facts connected with the botanical geography of Britain in its wide sense and apart from mere plant-collecting, and at present its operations have been but commenced. Another season will, we trust, find the association in good working order.

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THE

Gardeners' Chronicle.

SATURDAY, JANUARY 2, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, Jan. 4 { Sale of 10,000 Bulbs of Lilium auratum just arrived from Japan, at Stevens' Rooms.
TUESDAY, Jan. 5 { Sale of 300 Pens of Choice Poultry and Pigeons, at Stevens' Rooms.

IN a recent number of the *New York Tribune*—for advance sheets of which we have to tender our thanks to the Editor—Dr. ASA GRAY has raised once again the question so warmly debated in our own columns some thirty years ago—"DO VARIETIES WEAR OUT? or tend to wear out?" Of course, the question was not definitely decided, or it would scarcely be raised again now. Nor do we think it at all likely that our knowledge is sufficient to enable us to give a definite answer to it at the present time. Still, the general diffusion of Darwinian ideas at present tends to put the matter in a new light, and affords a justification for re-opening the question. The main advocate of the theory that varieties do degenerate and die out was no less a person than THOMAS ANDREW KNIGHT. He, as LINDLEY records in his *Theory of Horticulture*, "finding that the orchards of Herefordshire no longer contained healthy trees of certain varieties of Apples, which were said to have flourished fifty years before, and failing in his attempt to restore health to such varieties by grafting, assumed that old age had overtaken them, and that they were incurable." KNIGHT'S theory was accepted by many cultivators, among others by the late WILLIAM MASTERS, of Canterbury, who, in an article in our columns (1853, p. 373), adduced evidence in favour of KNIGHT'S views, which was considered by LINDLEY to be the best evidence up to that time brought forward in favour of KNIGHT'S hypothesis. Mr. MASTERS showed that several varieties of Apples, such as the Golden Pippin, Lemon Pippin, Winter Nonpareil, and others, used to be grown in large quantities in the neighbourhood of Canterbury, and cites cases where, in spite of all precautions of grafting on new stocks, planting in fresh soil, the acquisition of trees grown on a different soil and the like, failure ensued, though other sorts were grown with good results.

"The whole experience of my life," writes Mr. MASTERS, "shows that in no instance, although I have, under my father and myself, sent out thousands of these trees, in no instance to my knowledge is there a tree living that has acquired a size agreeable to its age, or in a condition likely ever to form a large tree; and, let it be remembered, that some of these older varieties were the largest trees in the old orchard." In the nursery, grafts taken from the old Golden Pippin, placed on no matter what stock, soon showed their weakness, and in the third year, or even sooner, canker set in. From these facts Mr. MASTERS arrived at the conclusion that, as the trees formerly did well, while latterly grafts taken from them did not do so, and as neither climate, soil, nor situation occasioned the change, it must be due to degeneracy of the variety. With such opinions it is no wonder that Mr. MASTERS became (and remained to the end) an adherent of KNIGHT. On the other hand, he quotes SPEECHLEY'S dictum that "Apples properly planted will retain their good qualities so long as sun and earth endure." LINDLEY was of SPEECHLEY'S opinion, and controverted KNIGHT'S views, so did DOWNING and DE CANDOLLE. Admitting the facts brought forward, they rejected the reasoning and inferences drawn from them.

It was actual disease, not mere degeneracy, that was propagated by grafting in such cases as those related by Mr. MASTERS. "But change the circumstances, place the plants under more favourable circumstances, keep off the cause of the evil and the evil will gradually disappear, as has actually occurred when carried to better climates than our own." We are inclined to think LINDLEY here has the best of the argument, and for this among other reasons—If varieties die out and degenerate so rapidly, how is it that so many remain? Ribston Pippins, to all appearance, are as good as ever they were; and numberless instances will occur to the practical horticulturist of varieties of great age which are as healthy and productive as ever they were. But, as Dr. GRAY well puts it, the tendency of scientific thought now-a-days would be much more favourable to the notion that varieties may die out than it was in pre-Darwinian days. Two questions, or rather the answers to them, will, as Dr. GRAY says, cover the whole case. First, will races propagated by seed, purely bred and not crossed, continue indefinitely, or will they run out in time and at last lose their distinguishing characteristics? Without presuming to pronounce definitely Dr. GRAY yet leans to the opinion that they do not do so, since the older a race is the more reason it has to continue true, the presumption of the unlimited permanence of old races is very strong.

The second question is, will varieties propagated from buds, cuttings, grafts, tubers, &c., necessarily deteriorate and die out? As we have seen, KNIGHT answered this question in the affirmative, and was not without supporters among practical men. And now Dr. GRAY himself brings forward considerations in support of this position, and his conclusions are so important that we will not run the risk of distorting them, but will give them in his own words, the more particularly as we believe the view he takes is a novel one, and one which bears not only on the question under review but also on that of Bud Variation or Sports:—

"Finally, there is a philosophical argument which tells strongly for some limitation of the duration of non-sexually-propagated forms, one that probably KNIGHT never thought of, but which we should not have expected recent writers to overlook. When Mr. DARWIN announced the principle that cross-fertilisation between the individuals of a species is the plan of Nature, and is practically so universal that it fairly sustains his inference, that no hermaphrodite species continually self-fertilised would continue to exist, he made it clear to all who apprehend and receive the principle that a series of plants propagated by buds only must have a weaker hold of life than a series reproduced by seed; for the former is the closest possible kind of close breeding. Upon this ground such varieties may be expected ultimately to die out; but 'the mills of the gods grind so exceedingly slow,' that we cannot say that any particular grist has been actually ground out under human observation.

"If it be asked how the asserted principle is proved or made probable, we can here merely say that the proof is wholly inferential. But the inference is drawn from such a vast array of facts that it is well nigh irresistible. It is the legitimate explanation of those arrangements in Nature to secure cross-fertilisation in the species, either constantly or occasionally, which are so general, so varied and diverse, and we may add so exquisite and wonderful, that, once propounded, we see that it must be true. What else, indeed, is the meaning and use of sexual reproduction? Not simply increase in numbers; for that is otherwise effectually provided for by budding propagation in plants and many of the lower animals. There are plants, indeed, of the lower sort, in which the whole multiplication takes place in this way, and with great rapidity. These also have sexual reproduction; but in it two old individuals are always destroyed to make a single new one! Here propagation diminishes the number of individuals 50 per cent. Who can suppose that such a process as this, and that all the exquisite arrangements for cross-fertilisation in hermaphrodite plants, do not subserve some most important purpose? How and why the union of two organisms, or generally of two very minute portions of them, should reinforce vitality, we do not know and can hardly conjecture. But this must be the meaning of sexual reproduction.

"The conclusion of the matter from the scientific point of view is, that sexually propagated varieties or races, although liable to disappear through change, need not be expected to wear out, and there is no proof that they do; also, that non-sexually propagated varieties, though not liable to change, may theoretically be expected to wear out, but to be a very long time about it."

—— On the opposite page we present our readers with an illustration (fig. 3) of the interior of a glass corridor in the gardens of the Duke of WESTMINSTER, at Eaton Hall, near Chester, and which was prepared from a photograph kindly supplied to us by his Grace's head gardener, Mr. SELWOOD. The corridor is 385 feet long, 10 feet wide, and 18 feet high (from floor to apex). The back wall is planted principally with Camellias, the roof being festooned with Rhynchospermum, Lapageria (alba and rosea), Clematis, Bignonia, Mandevilla, Lonicera, Cobœa, Tropæolum, Roses, &c. It is kept at an intermediate temperature, and at present contains an attractive display of such flowers as Eranthemum pulchellum, Justicias of sorts, Poinsettias, Thyrsacanthus, Epiphyllums, Salvias of sorts, Libonia, Tree Carnations, Primulas, Cytisus, Camellias, &c. We shall shortly publish another striking view of a plant-house in this princely establishment.

—— We wish every success to the efforts now being made to extend that admirable institution, the EDINBURGH BOTANIC GARDEN. As a training school for botanists and horticulturists it has rendered immense services, and nothing but increased space and augmented means are required to make it even more useful to botanists, gardeners, and specially foresters. From a document before us we learn that the Botanic Garden of Edinburgh was founded in 1670 by Sir ANDREW BALFOUR and Sir ROBERT SIBBALD, and was at first specially devoted to the cultivation of medicinal plants in connection with the School of Medicine. The first site was in the vicinity of Trinity College Hospital. The Garden was afterwards transferred to Leith Walk, and in 1820 to its present locality in Inverleith Row. The ground at present occupied by the garden embraces 27 acres, and contains a series of hothouses and conservatories, a large Palm-house, and an extensive collection of herbaceous plants, shrubs, and trees, all arranged for the purposes of study. The number of students who visit the garden is very great. The class for the last three years has consisted of upwards of 300 students (in 1874, 354). The lectures given in the class-room of the garden are illustrated by numerous specimens. The number of these specimens required last summer amounted to 86,000. On one day, when there was a competitive examination as well as a lecture and demonstrations, the cut specimens supplied numbered 7000. The School of Design at the Royal Institution is also provided with flowers from the garden. In order to supply these demands, and also to ensure practical work for students, much greater space is required than is at present available, both as regards garden and class-room accommodation. The shrubs and trees have encroached so much on the ground necessary for the herbaceous plants, that not only is the supply of the latter limited, but the plants themselves are injured by shade. The arboretum (even in its present young state) is now so crowded, that it is absolutely necessary, for the sake of the trees as well as for the benefit of students of botany and arboriculturists, that additional ground should be acquired. An opportunity of thus improving the garden is now afforded. At present Inverleith Grounds, which adjoin the Botanic Garden on the west side, are unoccupied by buildings, and the Fettes Trustees, to whom they belong, are willing to give them to Government at a fair valuation. The sum asked is a feu of £35 per acre. There are 20 acres which could easily be made available, and could therefore be secured for £700 per annum, or the feu might be redeemed by purchase. An opportunity of enlarging the garden, and of supplying the want of an arboretum, is thus presented, of which advantage should certainly be taken. It will be a serious matter if the adjoining grounds are feued for building purposes, as thereby the amenity of the garden will be much impaired and the vegetation injured by the smoke from the houses. It should also be taken into consideration, that if the trees in the park are cut down a most injurious effect will be produced on the garden by the removal of the excellent protection against the westerly gales which is afforded by them. If the present opportunity is lost, it is doubtful if the Government will ever have it in their power to purchase the ground, as it will in all proba-

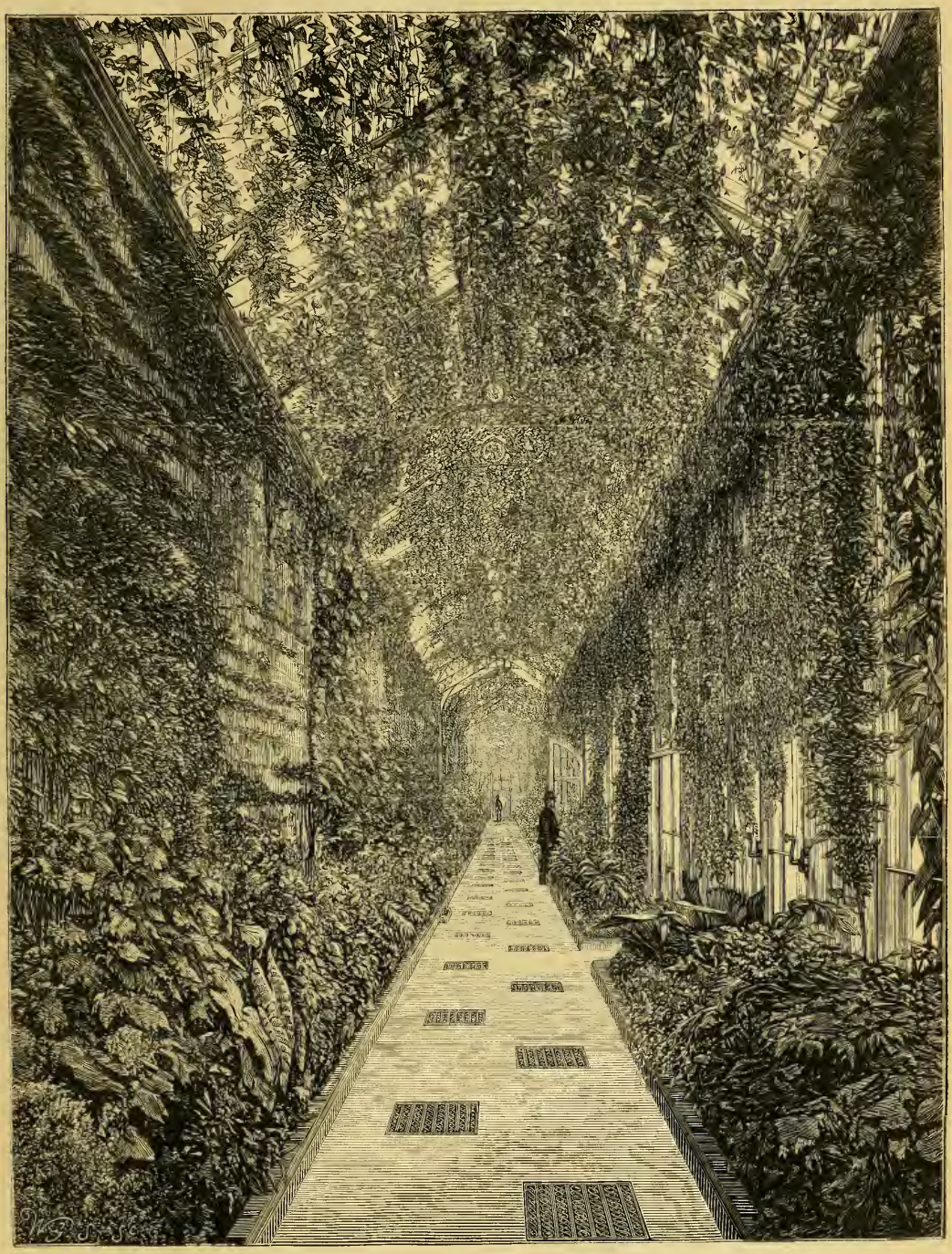

FIG. 3.—GLASS CORRIDOR IN THE GARDENS OF HIS GRACE THE DUKE OF WESTMINSTER, EATON HALL.

bility be occupied ere long by buildings. This might ultimately involve the expenditure of a much larger sum, by necessitating the removal of the garden to another site. We earnestly hope that the Government will seize the opportunity now afforded them, and if they would, as they might, make provision for practical instruction in the physics and physiology of vegetation, as well as in the practical departments of horticulture and tree culture, the University of Edinburgh would become as famous for its school of horticulture and forestry as it now is for its departments of medicine and botany.

—— We have received, through the kindness of Professor WESTWOOD, the following communication relating to THE PHYLLOXERA, from the pen of Professor FOREL, of the Academy of Lausanne:—

"I have been so fortunate lately as to make an observation of considerable importance relating to the Phylloxera. This insect, which was discovered by you in 1863 in some vineries near London, has lately made its appearance among some Vines in the Commune of Pregny, in the Canton of Geneva. On inquiry, I found that the Vines were first attacked in 1870. On making inquiries in the neighbourhood, I ascertained that Baron ROTHSCHILD had planted in his vineries Vines received from England; and quite lately I have ascertained that the Phylloxera is present in two vineries planted in 1869, at such a distance one from the other that the insect could not of itself pass from one to the other; I concluded that the Phylloxera was introduced in 1869 from the English vineries. Upon one point alone I am in doubt—the plants attacked by the Phylloxera in the houses of M. DE ROTHSCHILD are indeed weaker than the others, but they are far from being in a dying condition; they have resisted the disease much better than other Vines cultivated in the open air, and which I suppose to have been attacked afterwards. Whence does this relative immunity arise? Is it to be attributed to the particular varieties, Black Hamburgh, Muscat, and Alicante? Can it be due to the abundant manure placed at the foot of each Vine? Can it be owing to the system of cultivation in vineries? It is in order to arrive at a conclusion upon these points that I take the liberty of addressing myself to you, and to ask if in the vineries of England the plants attacked by the Phylloxera can resist its evil effects as those of M. DE ROTHSCHILD have done.

—— We have received further communications from Mr. GOODACRE and "W. S.," and from Messrs. COPELAND & DORAN, Stretford, with reference to the judging at the late show at the Pomona Palace, Manchester, but which, as the subject is of but little interest to our readers generally, we cannot insert in full. Mr. GOODACRE denies Mr. POTTS' statement that there was an exhibition from Ireland, or that there were West's St. Peter's Grapes in his collection, that variety not being grown at Elvaston. He writes—"My Pines were not damaged in any way; and, if the judges had doubted their weight, they should have examined them, and also have tested the quality of the other fruits." "W. S." says—"After the judges' remarks in your last issue it is too late to say nothing was good enough to win. Black Hamburghs even as good as at midsummer, and no medal! And were not the other varieties as well represented? It is a fact that the plant judges had the power and did award two medals. My own notes differ widely from those of Mr. POTTS respecting the Elvaston collection, except in one particular—namely, the crown of one of the Pines being deformed—but what of that? Surely some of the foreign Pines would also have been much improved by recrowning had such an act been legal in the British Isles." Messrs. COPELAND & DORAN claim that they were the exhibitors of the six splendid Black Jamaica Pines, averaging 4 lb. each, to which our correspondent, "W. S.," alludes, and which were judged by Mr. SMITH and his colleague Mr. POTTS to be inferior to six foreign Cayennes, worth in the market about 10s. each, and they cannot understand how Mr. SMITH reconciles his practice in this instance with the theory of judging which he professes.

—— The Secretary of the Royal Horticultural Society informs us that the dates selected for holding the five evening meetings of the Fellows and others interested in horticulture, at which papers will be read by speakers of acknowledged reputation in the scientific world, and discussion invited on details of the science, are as follows:—January 13 and 27; February 3 and 24; and March 10, at 8 p.m.

—— We are informed that Mr. WM. PAUL's great show of Roses in pots, pictorial trees, Pelargoniums, &c., will this year be held in the Royal Botanic Society's Gardens, Regent's Park, from May 3 to 10, inclusive.

—— The present spell of sharp wintry weather serves to call attention to the necessity that exists for protecting the tender kinds of EARLY WINTER BROCCOLI from the effects of frost. Sometimes whole plantations become irremediably injured through exposure; and the probability that we may have a prolonged and unusually severe winter points to the necessity that exists for mitigating its effects as much as possible. Some gardeners pull up their Broccoli by the roots as soon as they turn-in ready for use, and remove them to an airy shed, and suspend them from the roof till wanted. By adopting this means they are preserved from injury from frost, or from rotting through exposure to heavy and continuous rains; and they remain in a good state of preservation for eight or ten weeks, and are then fit for table use. This appears to be preferable to, and at the same time safer than, the old plan of lifting these plants and laying them in, in a slanting direction, with their heads towards the north.

—— A very good plan for obtaining EARLY FORCED ASPARAGUS is adopted by Mr. J. TEGG, the gardener at Bearwood, near Reading, which, though neither original nor strictly novel, yet serves to show how this much-esteemed vegetable can be had unusually early in the season. In the month of October Mr. TEGG forms in his early vineries a deep bed, fenced with ordinary Hazel or Ash hurdles, and within this is placed, to a considerable depth, a bed of fermenting material, such as leaves and dung, in about equal proportions on the bed, surfaced over with rotten dung, and in this are placed good roots, planted so thickly as that one overlaps the other, and rich old soil is worked in well among the fibres. A bottom-heat of from 50° to 55° is sufficient; but in order to insure high-flavoured and coloured Asparagus, it is necessary that the temperature of the air be lowered as much as can be afforded soon as it fairly breaks through the soil. Three inches of soil, or thereabouts, is sufficient to produce Asparagus of a nice green colour; but if white is preferred, that is, well bleached, the soil must be increased to 8 or 9 inches in depth, and light and air excluded from contact with it as much as possible.

—— Among the many ill-fated passengers who, it is believed, perished by the burning of the ship *Corpatrick* recently, in the region of the Cape of Good Hope, was Mr. J. C. MARSH, for some years gardener to J. O. BACCHUS, Esq., of Leamington, and well known as an exhibitor of stove and greenhouse plants, Ferns, &c., at the various horticultural exhibitions held in that district. At the Midland Counties Exhibition, held at the Lower Grounds, Aston, in July last, Mr. MARSH exhibited in several classes, and materially assisted the display made on that occasion. In company with his wife, who is supposed to have perished with him, he was on his way to New Zealand, to fill a capacity as farm bailiff.

—— Mr. GEORGE THOMSON, whose general management of the pleasure-grounds at the Crystal Palace has given such great satisfaction, and whose bedding-out last summer gained almost universal commendation, has, we are pleased to hear, succeeded to the management of both the indoor and out-door departments of that establishment.

—— The December number of the *American Agriculturist* contains a view of the HORTICULTURAL HALL in process of erection at Philadelphia, in connection with the International Exhibition to be held in that city in 1876. The Horticultural Hall is one of five buidings respectively entitled the Industrial Hall, the Machinery Hall, the Agricultural Hall, and the Art Gallery. The Horticultural Hall is a handsome structure of glass and iron, 310 feet in length by 160 feet in width, giving an area of a quarter of an acre. The main central portion is to be arranged as a conservatory, while at the sides and ends will be placed hot and greenhouses, dining-rooms, &c. A Victoria-house, orchard-houses, vineries, &c., will also be in juxtaposition. The surrounding grounds will be planted as an ornamental pleasure-ground, wherein representative American forest and fruit trees will be planted. The arrangements are entrusted by the Centennial Commission to a National Horticultural Society organised for the express purpose.

—— A new part of the *Journal of the Royal Horticultural Society* has just been issued. It contains a classified list of the Passifloreæ grown in European gardens, by Dr. MASTERS, with illustrations; an article on the Hollyhock mildew, by Mr. BERKELEY; one on a pink sport of Gloire de Dijon Rose, by Dr. MASTERS; and a paper on pollen-eating flies, by Mr. BENNETT. Then follow reports of the Chiswick Board of Directors, including an account of the results of the trials of bedding Pansies, bedding Pelargoniums. Mr. A. F. BARRON contributes a valuable report on the varieties of broad Beans and Potatos grown for trial in the garden, and an interesting paper on the crosses raised between the Black Monukka and the Black Hamburgh Grape, the object being to obtain a Grape which should be as nearly seedless as the Monukka with the flavour of the Hamburgh. Fifteen varieties have been thus raised and fruited, all having more the character of the male or pollen-parent (the Monukka), than of the Hamburgh, as far as foliage goes. As to the fruits great differences exist: eight have white berries, six have long or ovate berries, and seven have round fruits, part of each being black and part white. Three are very early, and two are very late, and, with one exception, they are all small. Two of them have small berries, resembling the female parent (Hamburgh), with the leaves of the Monukka. One resembles the Monukka in the shape and appearance of the berries, but it is a coarse late Grape. Two of them have proved seedless, like the Black Monukka; but the berries are round, and the one white, the other black. Practically, we learn, the results are in their present stage useless. We hope, however, these experiments will be continued and extended. The great and sudden variability developed by a first cross is a familiar phenomenon to hybridists, and, so far from being looked on as discouraging, should be considered as a sign of promise and a harbinger of ultimate success. We greatly regret that circumstances prevent the more frequent publication of the Journal, the contents of which are of a valuable character. The trial reports and records of experiments at Chiswick are especially valuable, inasmuch as they can hardly be published elsewhere.

—— A new horticultural establishment has been founded at Pallanza, Lago Maggiore, by the Marquis FEDERICO DELLA VALLE DI CASANOVA, in conjunction with M. LINDEN. The title of the establishment in question is "Succursal dello Stabilimento d'Introduzione e d'Orticultura di J. LINDEN." It will be seen that the nursery over which the Marquis CASANOVA presides is a branch of M. LINDEN'S establishment at Ghent, and is destined for the more ready introduction into Italy and Southern Europe of the novelties imported by M. LINDEN, and also for trials of hardihood and so-called acclimatisation.

—— According to the *Illustration Horticole*, the first seedling Wellingtonias (Sequoia gigantea) raised from seed ripened in Europe have been grown by M. THIL, near Epernon.

—— A new species of Willow, called by Dr. SYME SALIX SADLERI, was discovered in August, 1874, by the gentleman whose name it bears, during an excursion of the Scottish Alpine Botanical Club to Glen Callater, Aberdeenshire. In habit the plant is like S. reticulata, but the leaves differ in shape and texture from those of that species, the under side not being hoary. In the same neighbourhood Mr. SADLER was so fortunate as to find Carex frigida of ALLIONI in abundance, plants of which are now growing in the Edinburgh Botanic Garden. Figures and descriptions of these interesting additions to our native flora will be found in a forthcoming number of the *Transactions of the Edinburgh Botanical Society*.

—— We see that some of our Belgian friends are welcoming the idea of a horticultural club as a desirable meeting-place for foreign horticulturists on their visits to London.

—— We learn from a Belgian correspondent that the King of the BELGIANS is about to erect a vast circular conservatory in his park at Laeken, from the designs of M. BALAT.

—— We have received from Mr. CORDEROY, of Didcot, some specimens of MISLETO parasitic on itself. The young seedlings have, in fact, attached themselves to the parent branches just in the same way that they usually do to branches of the Lime, or other tree. Mr. CORDEROY mentions also a variegated form, produced as a sport, and alludes to other variations in habit, similar to those which have been described in our pages at different times, and especially in 1873, at p. 1703, fig. 340.

—— We find from the *Cultivador*, a publication devoted to horticulture and agriculture in the Azores, that the number of Pines exported during the month of October from the Azores was 664, of which 323 were despatched to Bristol, 219 to London, 99 to Hull, and only 23 to Lisbon, though the Azores are a Portuguese possession.

—— According to the *Belgique Horticole*, the King of ITALY has conferred the honour of Commander of the Order of the Crown of Italy on MM. LINDEN and RONNBERG, and that of Chevalier on MM. BERNARD, DALLIÈRE, KEGELJAN, and MORREN. The immediate occasion of these honours was the International Horticultural Exhibition at Florence.

—— M. DENIS, of Lyon, according to the *Revue Horticole*, has devised a plan of destroying the Phylloxera, and which he deems a good one. In the winter, when there are no herbaceous shoots, the base of the stem is laid bare to a depth of 10 to 12 inches, and boiling water, mixed with a small proportion of tobacco juice, poured into the hole round the stock. Farmyard manure, or by preference sheep's dung, is then added, and the hole filled up with soil.

—— The methods adopted to prevent injury from spring FROST to the young VINES in France are protection by means of laths supported on posts, forming a sort of roof. This plan is partially adopted in the Burgundy and Côte d'Or districts, but is costly and of

only partial efficacy. In other cases the whole Vine is covered up with netting, a more effectual but a costly process. Straw mats, in the form of extinguishers, are also used with advantage, as they are inexpensive and readily made, and serve as protectors against hail as well as frost. Dense fumes from the burning of gas tar are also made use of as a preservative, but as the direction of the wind may change, removal of the brasiers becomes necessary—too troublesome an operation to render this plan a desirable one to follow. Other preservative means are the burying of the rods, as mentioned previously.

—— We have received from Mr. CARRUTHERS a communication in reply to Professor DYER's observations in our last number, and in which Mr. CARRUTHERS maintains the validity of his position and the correctness of his views, and contravenes those of Professor DYER, especially on points connected with the history of the POTATO DISEASE. On the main point at issue both controversialists are substantially agreed, viz., that it is to Mr. BERKELEY that we in this country are virtually the most indebted for what we know of the Potato fungus. Because there were strong men before him, it does not follow that we should ignore AGAMEMNON himself. The further continuance of the controversy in its present lines would, we believe, be productive of more harm than good, and would, we are sure, be distasteful to our readers. We must therefore, decline to insert any further correspondence on the subject.

—— MM. NARDY & Co. have established at Salvadour, near Hyères, a nursery, which, from the reputation of its founder and its climatic advantages, will probably prove of importance in the introduction of new plants. MM. NARDY liberally offer to botanists, directors of botanic gardens, horticultural societies, and the like, the opportunity of using their grounds as trial grounds for testing the hardiness and applicability of new plants, and promise to report progress regularly to those interested.

Home Correspondence.

Jerusalem Artichokes on Heavy Land.—These are poor the first year after planting, but the second year they furnish good, large, fine-flavoured tubers. This excellent tuber seems to be increasing in demand in families, and in cold heavy-soil districts a difficulty arises in keeping up a supply, and hence it is a decided advantage to let the tubers remain in the ground the first winter after planting, well protecting the surface with stable dung, which may be taken off in spring partly, and the rest allowed to rot and feed the tubers if the ground is poor. Invariably this tuber is planted in any out-of-the-way place, sometimes acting as a screen to an unsightly object, which is all very well, provided the soil is good; but when grown on the same spot for some years it dwindles away, and scarcely produces any tubers at all. They should be planted on a trenched line of ground, and allowed plenty of room between them—2 to 3 feet. Where they are wanted to any extent, and especially when, with good cooking, they are considered *réchercké*, they should have quite as much care and culture bestowed on them as Potatos. Although they are far from being as mealy as some Potatos, they are nevertheless as good, and quite as easily swallowed, and do not require any more water on the table for assistance than does the Turnip—which reminds me of a joke. A friend asking a merchant whether the Potatos she was buying were mealy, replied: "Be sure and have plenty of water on the table, or ye'll all be choked on eating 'em." Of course the Artichoke requires no such assistance, any more than the Turnip. *H. K. F.*

Gardeners' Portraits.—Since you commenced the series of portraits of British gardeners, it has occurred to me that in several instances the accompanying account of their lives and career has been far too short. The lives of many gardeners are full of anecdote. I think it would add greatly to the interest of your portrait gallery if you were a little more exacting in requiring a more detailed account of the career of each individual. The lot of a gardener is peculiar and entirely different from that of most other men; our lives are devoted entirely to producing luxuries, other people's lives are devoted to making money. Had I brought to bear the same amount of assiduity and perseverance which I have found necessary as a gardener on any other trade or profession, the chances are that to-day, instead of only being a working or serving gardener, I might have been a *millionnaire*, employing gardeners having far greater abilities and much more general information than myself. In the solitude of our lives we devote ourselves during the long evenings to study of all sorts, whereas in towns most men of business spend their time on the surface of gay society. No doubt by-and-by you will publish a book of our lives, which will be very interesting. *One of the Craft.*

Conifers for Chalk Land.—I am at this time trenching ground for planting Conifers, and as the soil is of a very chalky nature and much exposed to the west winds, I shall feel greatly obliged if some of your numerous correspondents would kindly give their experience as to what sorts are best adapted to give general satisfaction in such a situation. I am anxious to plant only such varieties as are likely to thrive and do well. I find Pinus insignis, Pinus Cembra, Abies Douglasii, and Picea lasiocarpa, positively refuse to grow on the chalk. Pinus austriaca, as a rule, thrives well in exposed situations: will it do equally well on chalk? *J. V. Holwell.*

A Few Good Vegetables.—Here are a few vegetables which ought to find a place in every garden. They are the kinds which I mainly depend on for a supply, having proved them more satisfactory than others. Of Kidney Beans for out-of-doors I prefer Negro Long-podded; it is early, prolific, and produces Beans throughout the season. In the past season, with the aid of one thorough watering and the old leaves trimmed off, the early lot kept on bearing till October, when they were destroyed to make room for another crop. An excellent vegetable, seldom seen, is the Cottager's Kale; the sprouts which form on the stem after the heads are cut off are superior to anything else amongst Kales in February and March. Amongst Cabbages, Wheeler's Imperial is a grand sort for spring use; it requires sowing later than others: in an open season, like last, seed sown in June will produce heads from November on to Christmas. Little Pixie is a very "good thing"—it may be planted as thick as Coleworts. Enfield Market should be grown to succeed Imperial. Of Carrots for general crop we like James' Intermediate Scarlet. Amongst Celeries, Sandringham Dwarf White and Major Clarke's Solid Red will give satisfaction. Of Lettuces we confine ourselves to few sorts—All the Year Round and Neapolitan, both grand Cabbage Lettuces and thoroughly reliable, as are also the two following Cos—Hick's Hardy White and Paris White. I have grown Alexandra White Cos two seasons, but could see no distinction betwixt it and the last-named. Hick's Hardy is admirably adapted for autumn sowing; Hardy White Dutch Cabbage is a worthy companion to it. James' Keeping and Brown Globe are the most serviceable Onions. I tried the Queen last season, but got very little of it to germinate—it will be a good thing, sown early, to come in after the late kept Onions are past. French Breakfast Radish is a very mild-flavoured and excellent sort. Veitch's Red Globe Turnip is a very superior sort, large, tender fleshed, and stands well. Myatt's Prolific Ashleaf and Veitch's Improved Early Ashleaf Potatos are both excellent sorts, and very suitable for small gardens; Myatt's is not such a handsome Potato nor so prolific as the other, but the tubers grow close together, and small tubers are generally conspicuous by their absence. Coldstream Early is an old and fine round sort. Amongst Cucumbers I like the true Telegraph best. Pearson's Long Gun is a very handsome and prolific summer variety, which will most likely be supplanted by Tender and True, if it comes true from seed. This fine variety is merely Telegraph in a very enlarged form, and it is not possible to say more in its favour. Marquis of Lorne has been holding a false position since ever it was sent out; it is about as ugly a fruit as can be conceived, and yet it has very often been placed before better sorts at provincial shows. Tomatos have had a fine addition in Hathaway's Excelsior, which is incomparably the best variety I have had to do with, the skin being smooth, very thin, and without corrugations; it is also superior in flavour to other sorts. When well grown the fruit attains a larger size than Earley's Defiance and Orangefield Dwarf, and if there be any difference in point of earliness between it and these varieties it is very slight indeed. Trophy, though producing very large fruit, is not really worth growing, being very thick-skinned, and in flavour very inferior. What difference is there between this sort and Hepper's Goliath? A variety named Munn's Seedling, very like Excelsior, was exhibited in a collection of vegetables at the 1873 Chrysanthemum show at South Kensington. Is Munn's Seedling in the trade? Peas are like Potatos, in that there is much difference of opinion concerning them. I note the following as being suitable for small gardens—Little Gem, Ringleader, G. F. Wilson, Veitch's Perfection, and Maclean's Premier. These are all dwarf, prolific, and fine-flavoured sorts, with the pods filled as full as they will hold. As an instance of the mildness of the season up to the time the present cold weather set in, it may be interesting to state that Peas were being picked in the south of Scotland in the second week of November. Pods were filled and fresh flowers developed up to the time the frost set in, but not in quantity sufficient to make up a dish. *R. P. B.*

Correa cardinalis.—This is a fine winter-flowering plant, worth a place in every collection where scarlet flowers are needed. It does best in a planted-out state, and although it is admittedly a slow grower in a pot, in this way it grows freely, and makes long slender shoots a yard or more long, which at this season are laden with its long scarlet flowers, which come in very useful at times, and more especially now when flowers are scarcer than at any time of year. It is really a brilliant, commendable plant, worth attention. *H. K. F.*

Christmas Trees.—Can those whose trade it is to provide Christmas trees and other amusements for the young at our great annual festival, take an idea from Nature when she decks all vegetation in a mantle of silvery sheen? To all who saw the trees and hedges a few days since, when they were literally bedecked with the frosty crystals, the thought must have been present that it was surpassingly beautiful. Probably since that severe hoar-frost of Christmas Eve, 1860, there has not been seen such a wondrous coating of frozen vapour on our trees as was seen but the other day; and it will be a matter for regret if the skill of the artist, or the art of the photographer, has not committed some of those examples of transitory beauty to a more lasting existence. Of all our large trees the Elm seemed to stand out in the most perfect beauty, its small and abundant spray permitted the hoar-frost to be seen to the greatest possible extent. The Birch, Beech, and other fine-sprayed trees were also exceedingly beautiful, and in all cases the effect was enhanced when some lofty fellow lifted his head singly against the murky sky, thus rendering up its beauties to the utmost. Beautiful as were the evergreens under the frost, Deodars, Wellingtonias, and all the varied forms of the Pinus tribe, none equalled in beauty the fine-sprayed deciduous trees; and if these latter refuse during the winter to lend the charm of leafiness, they at least amply compensate in special beauty on such an occasion as this hoar frost. What I would suggest is this: cannot our confectioners or toy merchants offer to our children at the Christmas festivity genuine deciduous trees coated or silvered over with some substance that shall make them exact copies of the tree in a state of Nature, as seen so recently. This would be something at once novel and striking, and yet not unnatural, seeing that, according to our common notions of Christmas weather as it ought to be—notions that have received a rude support during the past fortnight—vegetation should be either covered with hoar-frost, or be laden with the weightier snow. How would this silvery rime glisten in a strong artificial light, sparkling and reflecting all the rays that gas and fire emitted!—how pleasing, too, would be then the contrast of coloured toys, *bonbons*, and the thousand and one little nick-nacks that make up the dressing of a Christmas tree. The whole would create a sensation for the young not easily forgotten. Such deciduous trees as would be needed for this purpose could be easily obtained at our nurseries; and, indeed, if it became a special branch of trade, without doubt special means would be taken to produce trees suited for the purpose. *A. D.*

Rivina humilis.—We have had various opinions as to the most suitable plants for decorative purposes, but few, if any, I think, can come up to the old but lovely Rivina humilis when well done. In a hurried visit to the gardens at Colwich Abbey some short time since, I saw a half span-roofed stove, 30 feet by 10 feet, in which plants principally for decorative purposes were grown, but excelling all others was the Rivina humilis, plants from 6 inches to 2 feet high, and all laden with the brilliant drooping racemes of scarlet berries—such a sight as is rarely met with at this dull season of the year. Such plants cannot be too extensively grown for decorative purposes. If Mr. Bradshaw, the intelligent gardener, would kindly give us, through the pages of the *Gardeners' Chronicle*, his mode of treatment of such plants, I have no doubt it would interest many of your numerous readers. *E. Gilman, Wootton Gardens.*

Fruiting of Stephanotis floribunda.—I observe your correspondent's, Mr. Harry Hepburn, article in last Saturday's *Gardeners' Chronicle* requesting information regarding the fruiting of the above creeper, which he supposes to be uncommon. I beg to inform him that we have fruited it either five or six times, and have raised a quantity of young plants on two different occasions from seed of our own ripening. We had on one season three pods on one plant, two of them being on the same stem. We have a fruit at the present time on a plant, which has been growing there for upwards of twelve months, and is only just showing signs of changing to ripeness. The others, which I raised the seedling plants from, were on the plants about the same time. The pod we now have is about 4 inches long by 2 inches in width. I attri-

bute our success in seed-bearing to the plants being kept in a cool airy situation while in flower. *John Webster, Gordon Castle.*

—— Would some of the correspondents of the *Gardeners' Chronicle*, who have lately mentioned that they have been fortunate enough to fruit specimens of the Stephanotis floribunda, be obliging enough to spare one specimen for modelling? Fac-simile models were taken of the outside, and also of the internal arrangement of the fruit, for the museum at Kew, from the specimen lately mentioned as exhibited by the Horticultural Society in the *Gardeners' Chronicle*, but this would not afford more perfect casts, and another model is much desired for scientific purposes. If any of the correspondents who might be kindly disposed to spare a fruit, would mention it to "O." in the *Gardeners' Chronicle*, the direction and the carriage for the parcel would be gratefully forwarded at once. *O.*

Limekiln Heating.—Mr. John Cowan is not quite correct in stating that the system of limekiln heating used by him has nothing in common with that originally invented by me, for his, like mine, consists of a boiler heated by a limekiln. They differ strikingly indeed in detail, but Mr. Cowan's "improvements" may probably in time make them less unlike. He also errs with regard to the chimney. I never stated anywhere that I did not use one, and in point of fact I had one attached to my first kiln years before his "invention" was patented. *Alex. Colles, Mill Mount, Kilkenny.*

The Gardeners' Royal Benevolent Institution.—It gave me great pleasure to read the earnest appeal of Mr. Fish on behalf of the widow of Mr. John Scobie. While he was gardener at Holland House I was employed there as journeyman, and experienced many acts of kindness from him. I now feel glad to be able to give a helping hand to his widow, and I beg most earnestly to second Mr. Fish's appeal, and trust that those who knew Mr. Scobie, and are subscribers to the Gardeners' Benevolent Institution, will give their votes in favour of the widow, and so assist in placing her above actual want. *H. Beasley, Ecton, Northampton.*

The Severity of the Weather.—Those who have deferred transplanting evergreens will have reason to congratulate themselves, as we are now getting very severe weather, the thermometer having registered 17° of frost on the morning of the 24th, 25° on the 28th, and 20° on the 29th. This part of England has not been visited by such severe frosts since the winter of 1860-61, when the glass went down to zero. The winter of that year will be remembered as a very fatal one for many kinds of evergreens. Euonymus, Laurustinus, Sweet Bays, and even common Laurel, were then killed to the ground. At that time the frosts were accompanied by that pernicious blast—a cutting north-easter—that dried everything to the core. Fortunately for vegetation just now, the air is very still; and plenty of snow having fallen previous to the frost, everything is well protected. This protection of snow is doubly valuable, as most things continued growing very late this season, owing to the soaking rains and splendid weather that prevailed in the autumn after such a dry summer. The barometer is still rising, with every appearance of a continuance of sharp weather. Every berry-bearing plant will soon be stripped, as thousands of fieldfares have made their appearance, clearing all before them. I do not remember ever seeing them in such numbers before, and their appearance now points to very severe weather in Norway. *J. Sheppard, Woolverstone.*

New Roses.—I too, like your correspondent, "Old Subscriber," have grown Cheshunt Hybrid, and, strange to say, my experience is totally different from his, for almost every shoot had a bloom on it. Nay more, when I was at the Cheshunt Nurseries last summer I saw it in all conditions—standards, half standards, dwarf, and on its own roots, and in every case it was covered with bloom. I consider it to be a very attractive and useful Rose. My opinion of Madame Lacharme is better than that of your correspondent, and indeed of most Rose-growers, and I should say wait for another season, and see what it is on cut-back plants. Perle de Lyon I have not grown, but I am told it rarely opens well. *D. Deal.* [Mr. Geo. Paul sent us the other day a nice bloom and bud of Cheshunt Hybrid, taken from two plants plunged out-of-doors up to a day or two before the frost. EDS.]

The Paraffin Lamp.—In your issue of November 7 last, "W. H. T." states that he can carry coloured Pelargoniums through the winter by merely burning a small paraffin lamp. I should like to see what "W. H. T." has to state now that we have had a continued frost, with the thermometer registering 20° within the last few days: how are the Tricolors looking now? Perhaps some other correspondent who has tried, or is now trying the system, will be able to throw some light on this subject. *J. J.*

Flower Shows.—Mr. Shuttleworth's letter of December 26, which I suppose is intended as a reply to mine of the 19th, though it entirely fails in being so, requires a few remarks from me. The question at issue is not whether I or he is "immaculate." But he believes it to be wrong for persons to wait until others have staged their plants, so that they may see what best to do, and, if necessary, to put more than one plant in a pot; he believes also that the judges are inefficient, and is of opinion that because a man has not grown Ferns he knows nothing about them. Mr. Shuttleworth's opinions are—1. It is wrong to wait for others to stage before doing so yourself. To this I reply that he did so at Bath, 1873, and at Kensington, 1874. 2. It is objectionable to put more than one plant in a pot. This he did at Bath, 1873. 3. That the judges are inefficient, and a man who has not grown Ferns is incapable of telling a good lot from an inferior one. I am of opinion that the judges are selected with care, and from a large class of proved men. Why should not a man who has passed most of his time growing Heaths, Azaleas, and Pelargoniums, be able to tell a well-grown Fern from a bad one? The question with a judge is, not which is the rarest or newest, but which is the handsomest, best grown, and best adapted for general cultivation. These are the objects which horticultural societies have in view when offering the prizes, and I doubt if there are any gardeners (properly so called) that have had Ferns to grow, who have not found them the easiest things they had to manage. I was not aware of Mr. Shuttleworth's great triumph over me in every competition for Mr. Bull's cups. I always thought it was his purse that beat me, not his cultivation. Before my first purchase for the purpose I had three of the plants; in February, 1873, I bought sixteen plants for £36 10*s*. The price will tell their size. I grew these on, and selected from them for Kensington, and at Bath showed some of the others. Having nineteen at first I do not see why I needed fortifying at Bath. Now I have grounds for suspecting that Mr. Shuttleworth gave more than that for one of his plants, and double for the remainder. This I do not complain about, he was quite at liberty to do so, only it detracts from the triumph. When speaking to my employer about purchasing the plants, he left me at liberty to spend what I chose; but I said if I couldn't get the cup by buying small plants and growing on I would go without. I am not aware that I attacked the judges at Bath the moment the card was on, for I was not in the tent at the time, nor that I got a "severe reprimand from Mr. Parker." I spoke to him about it when I went into the tent, and he, being annoyed, retorted, but said nothing that affected me. The other judges I did not know, nor do I to this day—though even if I had given vent to words which on reflection I should not have done, through being "shocked and scandalised," Mr. Shuttleworth has felt the same, and might excuse it in a younger man. Mr. Shuttleworth then says, "this is the man who is tolerated as a judge," but he does not give a single reason why I should not act in such a capacity. On the contrary, he says I am "immaculate;" surely these are the kind of men we want as judges, though I don't lay claim to the title. Mr. Shuttleworth in his first letter writes of "favouritism, tricks, dishonesty, and ignorant judging." Now these are serious charges, and if founded on fact will bear publishing, and if not they ought not to have been made. *J. Croucher, Sudbury House, Dec.* 26, 1874.

—— If you will turn to your issue of June 14 last, you will find at p. 816 a short letter from me. I wrote it in consequence of your reporter having stated, in his account of the show held the previous week at South Kensington, that some of my cup plants were staged in my name, the inference being, of course, that they were not really my own. Now, that report was written, after his defeat, by Mr. Croucher—[Mr. Croucher was not the writer of the remarks in question. EDS.]—so he informed my own servant when they met at Bath; and he added that I had no occasion to have written my letter to you above mentioned, though how any honourable man could allow an insinuation of such gross dishonesty to rest upon him uncontradicted for a moment I confess I cannot see. I certainly could not. *T. M. Shuttleworth, F.R.H.S., Howick House, Preston, Dec.* 29, 1874. [Will Mr. Shuttleworth say how long the identical plants shown by him for Mr. Bull's cup at the June exhibition last year, had been in his possession previous to the day of competition? EDS.]

The Boston Squash.—At a season of the year when the common dishes of vegetables on our tables, exclusive of the universal Potato, are a constant variation between varieties of the Cabbage tribe and Turnips, it is a relief to turn to anything that offers at once variety and a most pleasant dish. This is found in the Boston Squash—one of the large round American kinds that has been largely grown in this country, but still not nearly so extensively as it deserves. This Squash is distinguished by its tall, erect leaf-stalks, round cup-shaped leaves and long robust vines. The fruits are Apple-shaped; skin greenish-yellow, much netted; flesh deep golden-yellow, and when cooked, of a sweet marrowy texture, and devoid of that stringiness so common to the white Marrow. Apart from its colour, which is of little moment when a good dish is in question, I think it to be by far the best of all summer-eating Marrows. But its real merits are most forcibly displayed in midwinter, when it is quite as nice as at any other time. If grown in good ground the fruit will come to a large size, and if these be gathered when about two-thirds ripe, just before the skin is firmly set, they are easily cut up, peeled, and cooked, and constitute a most acceptable dish, especially when, as during the past severe weather, other vegetables are scarce. *A. D.*

Charlotte Rothschild Pine-apple.—This is a free fruiter, and an excellent Pine in every way; but what I wish to call attention to is this—that it seems to start easier into fruit at this season than any other variety. Starters at this season come in at the winning-post at a time when they are most wanted as a rule, viz., May, and this is why I think we have in this Pine-apple an advantage over most other kinds. We have a quantity, that were potted in 10-inch pots in May this year, now putting forth their embryo fruit freely. My opinion is, that it will in time entirely outrun the Queen Pine for general supply; for, although it is a little stronger or longer in the leaf than her majesty, it has fewer leaves, and can be grown, consequently, quite as closely together. Moreover, as far as I can judge, it matures its fruit quite as soon, or sooner, than the Smooth Cayenne or Black Jamaica. *Henry Knight, Floors.*

The Origin of the Green Rose.—There appears to be some uncertainty in regard to the origin of this Rose. It is a sport from Rosa indica (the China Rose of England and Daily Rose of America). It was caught in Charleston, S.C., about 1833, and came to Baltimore through Mr. R. Halliday, from whom I obtained it, and presented two plants to my old friend, Thos. Rivers, in 1837. The first clustering Rose was also found in Charleston and sent to Noisette, of Paris, and there founded the Noisette family of Roses. *R. Buist, Rosedale Nurseries, Philadelphia.*

London Jobbing Gardeners. — In looking through a recent number of the *Gardeners' Chronicle* I see that reference is made to the London jobbing fraternity, and from many years' practice I can quite confirm all your contributor says. Now how to remedy this evil is rather a difficult point, and if you or any of the numerous readers of the *Gardeners' Chronicle* could show the way to get over the difficulty I am sure every one would be pleased, as at the present time men who know how to do their work decently are scarce. I really believe that one half of the so-called "gardeners" are men who, having at one time or another done two or three weeks' work in a garden when men were scarce, and who found they could "make" more at gardening (?), at once set up for themselves, to the great detriment of the men who know their business; and as no good workman will work under price, these self-styled "gardeners" get the largest share of the work, many of them at the present time charging as low as 3*s*. 6*d*. per day. I do not wish to praise myself, neither do I want to hurt or "run down" others, but had I a garden, rather than employ this class of men I would pay them to keep away. I have generally two men at work for me, and men I can trust, but if extra help is wanted in the fall or spring I generally cannot get decent workmen, although I give 4*s*. per day. The men that are really wanted are those that have a fair knowledge of their work, are sober, and can at a pinch do a little in laying out; by saying, a little, I mean that they can do the work under competent supervision. Take the whole of the men who are gardeners (?) in the London district, I do not suppose that half of them can do so simple a job as Box planting, and the style of putting in tiles is simply hideous—not a true line anywhere; and as to being level—well, there is nothing to be compared to it. Now, at the same time there are scores of men who do their work well, and, as a consequence, never lack work; but, in proportion to the "duffers," their numbers are few. In the nurseries, too, great difference exists in men, but as in all cases they are under good supervision, no very ordinary man is required long. I am not alluding to others than "jobbers." At present inside men don't trouble the public. I think, however, that the men should have 4*s*. per day, as 6*d*. per day and the profit from the plants supplied is certainly enough—a shilling a day from each man being certainly too much. From this cause I think the men object to stay in a nursery longer than they can procure a situation, and, in consequence, both the customer and nurseryman lose in the end. Now, I really do not see anything to prevent the inhabitants of towns being as well served as those in the country who keep regular gardeners, if the mode of application were regularly carried out. A rise of wages is not desired, neither a reduction of the hours of labour; the only requirement that I can see, is to get competent men

to do the work. We do not want the best men, men who have a staff of under-gardeners and labourers, but what we want is some of the under-gardeners (not boys) who can do their work. The only way I can see out of the difficulty is to form a union of gardeners—masters and journeymen, and admit only those men who can do their work in a manner to bear inspection. Let there be a council in each large town of masters and men, and one in each county—the town council to be composed solely of masters and "jobbers," and the county councils of head and under gardeners, in equal numbers. By this means bad workmen (and those I mentioned in the first part of my letter are bad) would be weeded out, and people employing men would be better served. Many ways of trying the men will readily be suggested, one, for instance, would be by certificate from the chief of the garden where the man had been employed, and by other means. The chief rule to be borne in mind should, however, be that on no account should strikes be allowed, and while a small sum should be paid for entrance and annually, to pay expenses and assist brothers in *bonâ fide* distress or illness, not one farthing should be paid as strike money, or where a man was discharged for misbehaviour or abusiveness. The advantage to be gained by dividing the country into counties is that in each county the same rate of wages would be kept up, without reference to any other county, and the masters and men being equal would protect each other's interests. The preceding is the best method that I can see to adopt, but at the same time some of my fellow-readers may be able to propose a better plan; and although I am aware that the malpractices of the many incompetent men referred to have cast a shade on the few competent men who do work as "jobbers," and which causes the whole of us to be looked on with an eye of contempt, I do not see why the subject should not be aired a little. As you are doubtless aware, we cannot all be head gardeners, nor would it be advisable for us to be so; neither is it right that gentlemen who employ men to do garden work should be imposed on by a parcel of fellows who work most in the public house, and when outside spoil everything they lay hands on. And after drawing my letter out so long, I suppose I must cut it short, and subscribe myself, *A Hater of Imposition*.

Prize Gardens.—I fully concur with your correspondent as to the advisability of offering a prize for the best managed fruit and vegetable garden. Grapes are the luxury of the few, but the production of the outdoor fruits should by all means be encouraged, as contributing more to the common weal, How would this be compatible if vineries and fruit gardens were included in one prize? Is it a general rule that where the vineries are in a high state of cultivation, the same proportion of care is exercised on other parts of the garden? From some examples I have seen I should say the reverse. Where the houses supply so much fine fruit the outdoor productions are little thought of. Would it not also cause some difficulty in the judging? Whereas, if there were a separate prize for each, one would feel sure then that each was the best in its way. *E. O. M.*

Primula Parryi.—This Rocky Mountain Primrose is, by the collectors, said to be one of the rarest and most beautiful of the alpine plants of those regions. The leaves are lanceolate, entire, and somewhat leathery, 6 to 10 inches long. The flowers are borne on stalks 9 to 12 inches high, and generally look one way (toward the north); they are large and handsome, varying in colour, some being of a deep magenta, whilst others are lilac-purple, and some lilac. It was introduced into our English gardens about five or six years ago by Mr. Thompson, of Ipswich, but, I believe, was soon lost again, until about two years ago, when it was reintroduced by Messrs. Backhouse & Son, of York, at whose nurseries it has continued to thrive well, and has flowered the last two summers. It proves not to be so difficult to manage as was supposed when it was first introduced. The plant in its native habitat is found by the sides of mountain streams tightly wedged between stones, its roots frequently penetrating down to the water. Now, if we take into consideration for a moment the condition of a plant growing in such a situation, it is quite obvious that the first essential under culture for the full development of the plant is moisture. And as it is found, also, at such a great elevation (some 5000 to 8000 feet above the level of the sea), it will not only be the roots of the plant that will be constantly supplied with water, but at that elevation the atmosphere is so heavily charged with moisture that the whole plant, during its growing season, will always be moist. As an illustration of this I may mention that I have found Hymenophyllum Wilsoni on exposed rocks, on one of our mountains in the North of England, at an elevation of from 2500 to 3000 feet, although I need hardly say that this miniature is essentially a moisture-loving Fern, being generally found clinging to rocks near small waterfalls. If the above described conditions are imitated as far as circumstances will permit in the culture of this Primrose, it will be found to grow freely. The soil most suitable is stiff loam, with an admixture of peaty bog, or well-decayed leaf-mould, compressed quite firm when the plant is placed in it. *R. P.*

Singular Sport upon a Grape Vine.—Will you kindly allow me to relate the following somewhat remarkable circumstance in connection with the Trebbiano and the Golden Champion Grapes? The Trebbiano is a well-known white variety, producing large handsome bunches, not remarkable for high flavour but exceedingly valuable as a late keeping sort; while the Golden Champion, on account of its fine appearance, great size of berry, as well as of bunch, and its by no means inferior quality when well grown, will no doubt for long be admittance into most choice collections. The fruit, however, seldom keeps well for any considerable time after it is ripe, consequently it is unadvisable to associate it with late keeping varieties, its great drawback being its unfortunate propensity to become spotted as soon as, or even before, it becomes quite ripe. It is not, however, of the merit or demerit of this remarkable fruit that I am about to write, but merely to narrate what appears to be a very remarkable circumstance in connection with it, which is as follows. Some twenty or more years since a house here was planted with the variety of Grape known as West's St. Peter, and some seven years afterwards several of these Vines were grafted with the Black Alicante and the Lady Downe's varieties, and some time after this one Vine was re-grafted with three distinct varieties, viz., Trebbiano, Golden Champion, and Mrs. Pince — each variety forming distinct rods which were annually pruned according to the spurring system, and during several years each rod continued to produce its respective kind of fruit. Last January, however, when the Vines were pruned, on account of the fruit of the Golden Champion variety not keeping so well as the other sorts which the house contained, this rod was cut out altogether at a point some inch or two below its union with the Alicante variety, on which it had been grafted, as is shown in the accompanying rough sketch, leaving only the rods of the Trebbiano and the Mrs. Pince varieties upon the Vine; both of which varieties have produced their respective kinds of fruit during the present season as usual, excepting that the Trebbiano rod produced upon one spur a bunch of the true Golden Champion variety, true as to size and form of berry, and of bunch, colour, flavour, and even to the characteristic spot. This bunch was produced about the middle of the rod, or about 8 feet from where it is united to the Alicante stock, so that several bunches of the true or ordinary Trebbiano variety are produced below, as well as above, this very unlooked for production, which appears difficult to account for; but it naturally suggests the question, viz., can it be ascribed to the circumstance of the Golden Champion variety having for several years grown upon the same stock as the rod of the Trebbiano, which has produced the bunch in question? And if this be admitted, it still seems very strange that this, or a similar result, should not have been developed during the years when the Golden Champion sort actually existed upon the plant. It would, doubtless, be very interesting to know if anything similar to this has ever come under the notice of others of your many readers and correspondents, whether in the case of the Grape Vine, or among any other kinds of fruit trees. It would also be interesting to many to know something of the origin of the Golden Champion Grape—as to whether it was originally the result of a sport, and if so from what variety? or, if it was a seedling, from what variety was it raised? Possibly Mr. Thomson may kindly furnish this information. *P. Grieve, Culford, Bury St. Edmunds.* [A remarkably interesting case, but not unparalleled, if our memory serve us right. We shall revert to the subject shortly. Meantime here is another proof that the scion does affect the stock even as the stock affects the scion. EDS.]

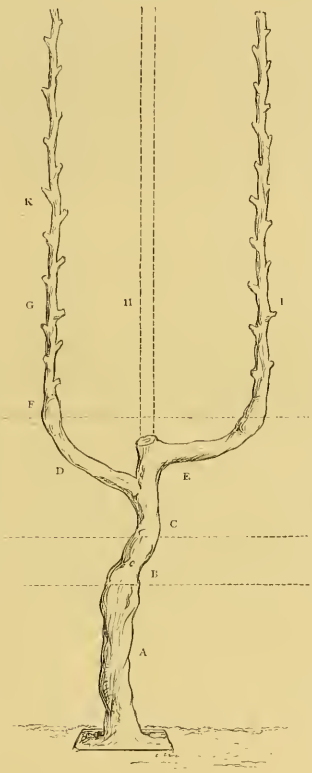

FIG. 4.

A, Stem of West's St. Peter Vine; B, Showing where it was grafted with Black Alicante; C, Showing height of front wall; D, E, The Black Alicante stem grafted at the point F with G, Trebbiano, H, Golden Champion (removed), and I, Mr. Pince's Black Muscat. K indicates the position on the Trebbiano rod where the bunch of Golden Champion was produced.

Digging and Dunging about Fruit Trees.—Where I first began my gardening career, it so happened that a change of gardeners took place; the newcomer being a very energetic man. Finding the outdoor fruit trees in a similar condition to what "H. M." had to contend with (see p. 528), he set us at once to work to remove all the old soil out of a Peach border to the depth of about 2 feet, the border being about 150 feet by 12—commencing at the front and working the soil out behind us to be taken away, with the exception of about a foot and a half of the surface soil, which was mixed with the new, for placing on the surface again. The border contained only poor light soil, with a yellow, stiff, and also poor rocky subsoil, through which the roots were trying to penetrate: hence the starved condition of the trees. Proceeding with our work, we carefully preserved all the roots both good and bad, until we had worked all the soil out with forks, keeping the desired depth, which allowed the soil to fall from among the roots with greater facility. After the old soil was removed, it was replaced by turf, cut some months previous from a meadow, mixed with a little dung (not leaf-mould) taken from a farmyard. When we came up to the level for the roots to be laid down, we spread them openly and evenly, leaving only the best, which were very few for such large trees. We then put the same compost above the roots, treading the whole firmly, and lastly the old fine soil on the top, which completed the task. The following spring the trees broke out with renewed vigour, looking all that could be desired, but I did not remain to see the first year's crop. However, on paying my late master a visit last year, he informed me that they were now all he desired, producing heavy crops of the finest and best-flavoured fruit. *A Young Gardener.*

Sericographis Ghiesbreghtii.—Few winter-blooming plants excel this, either for usefulness, continuity of bloom, or general effect. Its pleasing, shining, bright green leaves set off the feathery scarlet flowers to great advantage. The habit of the plant, too, is all that can be desired, and as it will stand well in a temperature of 50° to 55° during the winter, its value is much enhanced on that account. Sericographis mixed with Libonia floribunda and × L. penrhosiensis form a charming group for *jardinières* or stands, as they associate well together—the latter forming a capital edging on account of its dwarfer habit. × Libonia penrhosiensis is a true cross, partaking equally of the characters of the Sericographis and Libonia floribunda. [It is the more interesting as being a cross between two distinct genera. EDS.] The leaves and habit are exactly those of the Sericographis in miniature, while the flowers resemble those of the other parent. These three plants are indispensable for winter decoration, and will add a charm to any house. The Sericographis should be propagated early, so as to get strong useful plants during the summer, and afford them time to mature their growth, as late struck plants seldom flower well. As soon as the plants go out of bloom they should be

placed in a brisk, moist heat for a week or so, to get them into free growth, when the tips may be taken off and inserted in cutting pots, and if placed in a close, moist heat they will strike freely, after which they should be potted in small pots and nursed carefully on in moist, gentle heat. When well rooted, the points of the shoots should be pinched out, so as to induce a nice bushy growth; and after breaking again they should be placed on light airy shelves till the middle or end of May. If well-rooted at that time, they should be potted on into 48-sized pots, and gradually hardened preparatory to being placed in cold frames to complete their summer's growth. Here the pots should be plunged in half-spent leaves, and the plants kept well syringed once or twice a day according to the state of the weather. If syringed and shut up early in the afternoon the growth will be rapid, so that by the end of July they may receive their final shift into 6 or 8 inch pots, according to size and strength of plant. During September the plants will be much benefited by having the lights drawn off for a few hours in the day, as this will harden and mature the growth and induce a good head of bloom. The Sericographis is not at all subject to insects, except scale and mealy-bug, and these seldom occur unless they are grown in too much heat, or near other plants already infested. If either of these insect pests occur, nothing but a careful sponging of the whole plant will rid them of their presence. The soil most suitable to grow the Sericographis is an equal mixture of loam and peat, with a dash of sand. By the end of September the plants should be removed to a cool stove or warm greenhouse, where they will soon begin to show bloom, and if kept in a temperature of from 50° to 55°, they will continue flowering the greater part of the winter. If large plants are required, it will be necessary to save some of the old ones after blooming. After they are cut back, they should be kept rather dry till they break again, when they must be carefully shaken out and repotted in small pots, to be shifted on, and treated as recommended for young plants as growth proceeds. *J. Sheppard, Wolverston.*

The Melting of Snow on Long and Short Grass.—Mr. Fish has started a very interesting subject for inquiry. Previous to reading his remarks on the above, I had observed how rapidly the snow was disappearing from certain parts of the garden here compared with others. In every case where it was melting most rapidly it was where it lay on the bare undisturbed soil, and this led me to the opinion that it is there acted on by heat escaping from the soil beneath, as well as from the atmosphere above. I think that the fact of the snow melting faster on the long grass than on the short may be accounted for by the rush of heat escaping from the ground where the surface has not probably become cooled to the same extent as the other, owing to the slight protection afforded by the longer grass; and the snowy particles, lying somewhat loose and hollow, would allow the air either from above or below to act more readily on it. That on the short grass would lie more compact, and would consequently form a better non-conductor than the more scattered atoms, presenting considerably more surface. I have often noticed that snow melts sooner on bare ground than it does if there is anything to cut off contact and intercept the escape of heat, and there may be other than mechanical reasons for what your correspondent observed. Do plants absorb heat? If so, this will account for snow lying longer on grass than it does on bare ground. Before the snow fell I had mulched a good many newly planted fruit trees, and I found that the snow lying on the mulching thawed much more slowly than it did on the ground immediately adjoining. This shows that the warmth is thus kept below for the benefit of the roots, instead of being allowed to escape into the atmosphere. Trenching is generally supposed to add to the warmth of the soil, but on ground recently broken up, a yard deep, the snow is thawing very much slower than on that which is undisturbed. It may be that during the operation of breaking it up it had parted more rapidly with the stored-up heat than it would otherwise have done. *W. P.*

Reports of Societies.

Market Gardeners, Nurserymen, and Farmers' Association.—The usual quarterly meeting was held at the committee rooms, Bedford Head Hotel, Covent Garden, W. Haward, Esq., in the chair. An application was made by Mr. W. Brandon for the reward offered by the Society for the detection and conviction of any person stealing goods or provender from the waggons of members in their transit to or from the London markets, on behalf of his carman, for detecting a policeman taking some Celery from his waggon. The policeman, it appeared, was on duty at the time, but would not let the carman take his number, and being obliged to return to his horses, he could not detain him. Upon inquiries being made at the station, it was stated that the policeman had decamped, and has not been heard of since. The committee decided to award the sum of one guinea to the carman. Application was also made by Mr. G. W. Alderson, for the reward to be given to Detective Boatwright, of the V. division, for the detection and conviction of his carman in stealing goods from his waggon. The committee granted the reward of two guineas, and hoped it would have the double effect of putting carmen on their guard and policemen on the alert, although in the first case the policeman was the thief, and not the carman. Several new members having been proposed and elected, the question of the alteration in the Borough market was postponed for fuller particulars. *M. C.*

Obituary.

WE regret to have to record the death, on December 23, of Mr. CHARLES NORVAL THOMPSON, only son of the late Mr. Robert Thompson, of Chiswick. Inheriting a large share of his father's abilities, and a most industrious worker, Mr. Thompson possessed a wide and varied knowledge of all subjects appertaining to horticultural pursuits. He was for a few years in the Excise Department of the Civil Service, but his tastes lay not in gauging spirits, and he afterwards entered the office of Messrs. James Veitch & Sons, Chelsea; subsequently becoming sub-editor of the *Journal of Horticulture*, which post he held for the last fifteen years. Modest and unassuming in disposition, Mr. Thompson gained the respect and esteem of a large circle of friends, who now regret his early death. He died somewhat suddenly on the afternoon of the 23rd ult., aged about forty years, leaving a widow and four children, who are, we are sorry to say, but slenderly provided for, to mourn his loss.

The Villa Garden.

FORECOURT GARDENS.—In dealing with this subject in a previous paper, the remarks made had reference to gardening as it is, and may be, in many of the oblong strips of ground fronting the houses that line some of the main thoroughfares on either side. That much more in the way of real ornamental gardening can be done in these gardens than is now generally accomplished is placed beyond doubt. An occasional attempt at something higher than the usual aspect of decorative gardening proves this conclusively.

In many of the less modern parts of London, such as Old Brompton, can be seen lines of quiet streets that are simply connecting links between main thoroughfares, without being considerably used for the purposes of traffic. A kind of respectable gentility pervades such streets; the forecourt gardens which belong to the houses are in the main shut in by high walls instead of open railings; the gardens are as a rule kept clean and neat; there is almost certain to be a tree or two or some evergreen shrubs, the proverbial sooty and attenuated Privet, and a few other evergreens of sorry appearance. In these small enclosed spaces, the trees, where they are present, effectually prevent anything like free and healthy undergrowth of shrub and plant. If the trees are to be maintained, aught else must be to a great extent sacrificed, and one would be sorry to lose the trees, as their leafy garniture in summer does much to relieve the naked monotony of lines of brick or stuccoed dwellings, without much claim to architectural beauty. If there is sufficient space below the branches overhead, let a small circular bed about a foot in depth be made and edged with a sloping bank of turf, choosing, if possible, that of a thick texture from a light sandy pasture in preference to that taken from stiff land, in which case the grass grows thin and rank, and soon gets bare. In this bed could be planted a nice bushy plant of Aucuba japonica, which invariably does well in an enclosed shady place. The marbled and blotched leaves of the Aucuba will contrast well with the green hue of the turf, and if occasionally sprinkled overhead in warm weather, and well watered in dry weather, it will add much to its appearance and well-being. The remaining part of the ground-work of the garden might be planted with the Irish or Algerian Ivy, and against the walls could be placed the Cotoneaster microphylla, Pyrus japonica, Escallonia macrantha, Ceanothus azureus, and Jasminum nudiflorum, alternated with a few of the hardy summer-flowering Clematises. It would, perhaps, be somewhat presumptuous to suppose that all these would do well, but their well-being in a great measure depends on the attention they receive. If left to grow untrained and wildly, if suffered to lack water in dry weather, and starved for want of some necessary stimulus when the soil becomes impoverished, the plants must of necessity decline and decay. A little careful attention works wonders, even when plants are growing under disadvantageous circumstances.

The foregoing remarks are intended to be suggestive rather than authoritative as to how such gardens can be planted. The subjects, as well as the arrangement, can be varied, supposing that position and fitness be considered. It is not well to have a rigid uniformity in the planting of gardens, a stereotyped sameness palls on the taste, and becomes monotonous and very irksome.

There is yet another type of town or forecourt garden that is eminently capable of being made a sweetly pleasant thing to look upon; that is, the gardens attached to many handsome villa residences in the pleasantest suburbs of London. The Clapham and Brixton Roads, the Kentish Town Road, parts of Highbury, Canonbury, Stoke Newington, Hackney, &c., furnish abundant illustrations in point. Already many of such gardens, being cultivated according to the custom of contract with some local nurseryman, are nicely done during the summer months, but are left bare and tenantless during the winter. This is much to be regretted, for a naked grass plat and bare beds are as much out of place at midwinter as in the middle of summer. What has always struck us as being a charming garden, cheerful alike in winter as in summer, can be seen in the Kentish Town Road, near to the foot of Highgate Hill. A fair sized oblong strip of land reaches from the house to the pathway skirting the road; it is wholly laid down with grass, excepting, of course, the pathway leading to the front door, and it is planted entirely with evergreens, both plain-leaved and variegated. The fence in front is of brickwork, about 2 feet in height, with an iron palisading fixed on it, next this is a low Laurel hedge, and then the turf. The centre bed is in the form of a raised mound, with two tiers of border, one above the other, that can be planted; it is edged and lined wfth turf, and at the top there is a specimen evergreen. This bed, with its tiers, is filled with Aucubas, Euonymus, Laurustinus, Bay, Portugal Laurel, Hollies green and variegated, common Laurel, Box, and Rhododendrons, all nice compact symmetrical specimens, and so arranged as that the Aucubas and variegated Hollies and Euonymus freely alternate with the green-leaved types. Specimen evergreens, large and small, the size answering to the place they fill, are dotted about the grass plats; and as the grass is always kept closely trimmed and swept, the dead leaves picked off the plants, and their growth kept within bounds, and all well watered when required, this little garden has at all times an exceedingly cheerful appearance. Ivies and certain creepers line the walls, and cover the lower portion of the walls of the house also. There are spaces in these beds of shrubs to plant a few tender flowering plants in summer, and some bulbs, &c., in winter for blooming in early spring. On the whole, perhaps, there is no better arrangement for a London forecourt garden of this character than the one just described, if it be only intelligently worked out and properly maintained. There is always something refreshing to feast the eyes on, and at the hottest part of the year it has a surprisingly cool and pleasant appearance.

There is one feature that used to characterise town gardens in former years of anything but a highly satisfactory character—the employment of statuary and vases. They are now being pretty generally abolished, and we witness the substitution of green-leaved trees in their stead. A witty and clever, but anonymous writer has laid down the doctrine, paradoxical as it may appear, that no man or woman has a right, within the bounds of law, to do anything he or she chooses or pleases with his or her own; and he goes on to say—"Neither has a man any right to do what he pleases with his garden. Has a landlord any title to let a house with a garden to a tenant known to possess a cartload of the ugliest and most lumpish vases that have ever been turned out of clay? If not, what damages may the landlord of the house next-door be liable to, unless he will serve a *distringas*, or a *fieri facias*, or something else that is potent upon his new tenant to compel him to arrange his vases round his dining-room, or round his bed, or anywhere, so that he may have private enjoyment of them, and respect the eyesight

of his neighbours. Vitriol works are nothing to these vases, with which some people speckle their grass. They are of all sizes, and, of course, perfection of disorder is the sense of order that has governed the arrangement. The pipkins are laid near the house, and the further we go the bigger they grow—none being on pedestals—until we come to the big boilers at the bottom of the garden." The force of wit has perhaps laid a little undue colouring on this imaginative picture; there are yet elements of truth in it that were very true a few years ago, but it is none the less certain that the display of gewgaws of this character is fast ceasing so be an aspect of London gardening.

THE FARM.

THE POULTRY YARD.—The early winter season is often one of much difficulty to amateur poultry keepers. Round country homesteads many of the summer growths remain loaded with clinging leaves, the hedges abound with Briars and Ferns dripping with wet, the grass is long, matted together, and sodden, whilst the roads are muddy and full of puddles, and in the yards the ground is often in little better order. If the fowls are permitted to roam abroad they get chilled and soaked, and confinement at home is as bad for their health in other ways.

Some comfortable accommodation to which the fowls may have access at will on wet days is highly desirable, especially for the stock of the lady amateur, as the days on which she will be most unwilling to face discomforts of weather are precisely those on which her dependents will most require an eye to their comforts, and, failing her superintendence, they are very likely to go short of necessary care.

The difficulty of management varies in some degree with the breed. Black Spaniards are comparatively easy to manage, for where they can be allowed the use of some warm shed or outbuilding abutting on a bake-house or boiler in regular use, they will probably retire early to their perches and roost dry and warm without giving trouble. Cochins, on the contrary, from their feathered legs, are particularly difficult to keep dry and clean, and high-bred Dorkings are sufferers from cramp and various illnesses induced by chills, whilst any young broods necessarily require a constantly watchful eye.

Now is the time when the run of a farmyard, with its adjacent sheds, is particularly valuable. The fowls may then be safely let out on a wet morning, and can dispose of themselves comfortably throughout the day, and where there are young broods the hens may be cooped under shelter, and the chickens will probably thrive far better than in the dirt and confinement of a small pen; but where this protection, with its warmth and various food is not attainable, an open shed, where wood, or old barrels, or any dry lumber is stored, which the fowls may perch on so as to keep their feet from being wet and chilled, is a valuable help, especially if a sheaf or two of threshed straw can be thrown for them to nestle in.

Where nothing better can be arranged, it is worth while to have two or three rough logs placed in the yard for them to perch on, so as to keep their feet from being constantly on the sodden ground, and also to give them a little wholesome exercise in flying up and down to their temporary perches. If, however, the arrangements are such that any young broods must necessarily be confined to their pens, it is of the greatest importance to remove the hens regularly about the same time in a morning, for a five minutes' run in the yard, whether the weather is wet or dry. If this matter is not attended to the hens' health will probably suffer, but the chickens certainly will, from the accumulations of foul matter, and the necessarily accompanying foul smells. Whether in the chickens' pens or the sheds for the full-grown poultry, all matters of cleanliness should be most scrupulously attended to at this season; all drips of wet from the roofs should be carefully stopped, as also leakage across the floors from outside gutters, and the accumulations of dirt being greater now than in the summer, from the longer confinement of the poultry, the eye of the overlooker should especially be directed to the due use of brooms and scrapers, to throwing down lime and dry rubbish where necessary, and also to making sure that the little heaps of hay (which add so much to the comfort of the fowls for nestling in) are dry. If these are neglected, and allowed to remain as wet masses, they are only a cause of mischief.

The amateur who loves his pets needs only an occasional hint to secure their comfort, but where the fowls are kept in the way too often seen in country farmyards, and which the poultry maids are too apt to return to unless well watched, some improvement is requisite. Here the shed and the contained small pens may be found coated with filth, apparently never disturbed from one year's end to another, and the damp, the smells, and the legions of fleas, which might defy even the wormwood of Ragusa, requires a practical acquaintance with them to be appreciated. Here a middle course in poultry treatment would be a great improvement. On going into a farmhouse you may find the back kitchen with fowls in every place where they have no business to be, and occasionally coming to an untimely end in the boiler, a couple of hens as snug as possible in the kitchen fender, and another sitting a batch of eggs in a drawer. But still, when the feathered gentry are turned out, there is no better accommodation for their comfort than the almost pestilential hole above described, dangerous in its neglected state alike to the fowls and their owners.

The various diseases to which fowls are liable from cold and wet and want of good housing, when sufficiently developed to appear under a distinctive name may be generally classed under the heads of consumption, bronchitis, catarrh, roup, cramp, and rheumatism, especially induced by the fowls being allowed to run in the wet grass early in the day. In all cases the preventive treatment is the same—warm and dry lodgings and nutritious food; but the cure, when once disease is developed, is a much more difficult matter.

In consumption and roup it is recommended by good authorities to sacrifice the affected fowl, the consumptive tendency being a taint in the breed, and the roup infectious in the yard. In the other diseases the cure and the preventive treatment correspond. The best that can be done is to provide dry lodging with sunny exposure, and freedom from draughts and drips, and plenty of warm nooks to nestle in, a possibility of dry outdoor exercise, and nutritious and varied food, with the addition, in the case of catarrh, of some stimulant to the diet. A little pepper dusted over the food is said to answer well at times.

Commonly, however, instead of a developed form of some recognised disease, the fowls only look thoroughly miserable and spiritless, their feathers draggled, tails hanging down, and no heart in them to stir about for warmth or food. In this state of things a good meal of waste bits of meat, with some rough bits of sinew and gristle amongst it, which they can fight and struggle over, is an excellent prescription to begin with. The amount of animal food swallowed does good, but the fighting and struggling over the large pieces is almost more beneficial, restoring circulation, and (so to say) mental energy, enabling them to help themselves; a dry shelter where they can get their wet plumage into order is the next step, and in especially bad cases it is well to put the invalid fowl with some hay in a covered basket large enough to hold it comfortably in some warm room, a corner of the kitchen away from the fire for instance, or if very wet to dry it with warm cloths.

A little bread soaked in beer is also a good thing for rousing a batch of fowls too moping with the damp to take care of themselves, and a dish of fresh milk just a little warmed is beneficial as a variety; but the whole secret of successful poultry keeping in bad weather lies in constant care and thought. There is always some delicate fowl requiring attention, or some matter of diet, whether of food or clean water, equally requiring an eye, and the proper housing equally will need daily supervision. Whilst the worse the weather, the more chilling, wetting, and uninviting it may be to the amateur, and especially to the lady amateur, so much the more necessary is it in the same proportion that they should personally be on the spot to counteract its effects amongst their poultry. *O.*

WHEAT MIDGES.—The yearly amount of injury usually caused to our Wheat crops by these minute insects, and the enormous amount of harm of which they are capable when left unchecked, makes some attention to them at the present season highly desirable, as now is the time when their larvæ are but too often thrown aside in myriads in heaps of chaff left undisturbed through the winter, thus affording a secure and suitable shelter for the grubs till the time of their change in the early summer. If any one will be at the pains to stoop down and examine the chaff and dust which are accumulated after threshing on an ordinary barn floor, he will see the mass sprinkled with small orange or scarlet larvæ of various shapes and shades of colour, according to the amount of drying they have undergone, and in them see, at the same time, the germ of next summer's crop of Wheat midge, a minute dipterous fly, Cecidomyia tritici or Lasiopteryx obfuscata, as the case may be.

In my own observations in Gloucestershire, the fly proved to be the L. obfuscata, but in the large mass of observations which have been made by various naturalists in England, Germany, and America, the fly referred to is apparently the Cecidomyia tritici. The Wheat midge larvæ are variable in colour (yellow, lemon colour, orange, red, or bright red), about a line in length, and pointed towards the head; the tail is blunt and tuberculated, so as to assist the progression of the grub, and in the more advanced stage of larval growth it is to be found cased in a transparent membrane. As far as I am aware, the larvæ of C. tritici and L. obfuscata are indistinguishable.

The pupa of the C. tritici is stated by Kollar and Kirby to be reddish in colour and pointed at both ends. The developed female fly hardly exceeds an eighth of an inch in the spread of the wings, and is ochreous in colour, with yellowish white iridescent wings longer than the body.

The Lasiopteryx obfuscata is of similar size, but easily distinguishable by its black colour, and by the double fork of the median nerve of the wing.

For a detailed account of the time of appearance and oviposition of the female C. tritici, and the early habits of the larvæ, the observations of Kirby in the *Transactions of the Linnean Society*, vol. v., p. 97, can hardly be surpassed in precision and clearness of description. He mentions the appearance of the "Tipulæ" (Cecidomyæ) in myriads on June 3, and continuing till the end of the month, the insects usually not coming out till about seven o'clock in the evening, the process of egg-laying proceeding vigorously about eight, and the flies disappearing again about nine.

He observes that these countless hosts appeared to be entirely composed of females, and in one case noticed as many as twelve ovipositing at once in one ear of Wheat, and by careful watching he succeeded in making out the minutiæ of oviposition, even to the passing of the eggs down the tube of the exserted ovipositor, following one another like minute air bubbles, whilst the extremity (the "aculeus," as he terms it) was steadily inserted in the floret. This insertion of the aculeus appears only too firmly effected occasionally for the security of the Wheat midge, as Mr. Kirby notices its withdrawal as now and then impossible, and its proprietress consequently firmly fixed at the mercy of the first passing enemy. On June 7 the eggs were observable in a floret (oblong, transparent, and pale buff in colour), and after June 17 many larvæ were noticeable on the plumose stigmata, and with their heads buried in the summit of the germen. The whole passage, of which the above is but a slight sketch, is given at p. 263 and the following pages in Curtis' *Farm Insects*, and is well worth careful study.

The injury caused by the Wheat midge larvæ lies in the abortion of the grain, and its precise cause has given rise to much speculation. The food of the larvæ appears to be the pollen of the anthers; but how, where so many loose grains exist, none of them should effect their appointed task of the fertilisation of the grain, is a curious subject of investigation. The consumption of the moisture on the stigma—a possible secretion on the larvæ themselves acting on the stigma or the anther dust in some way detructive to the fertilising principle; or again, the destruction of the essential organs of production by the nibbling of the larvæ, have all been suggested as the cause of abortion, but whatever the detail of the method of injury may be, the result is often very serious.

Looking over the notes of various observers, the result of loss is given as, in one case, two to six grains in an ear; in another, a third of the crop; and Professor Henslow mentions Wheat midge larvæ being present in almost every ear of the fields under his observation, and his calculations give the presence of 834,952 larvæ and pupæ of the Wheat midge in seven bushels of chaff and barn-floor sweepings.

The vitality of the larvæ is extraordinary, dried and shrivelled specimens threshed out of the Wheat appearing little the worse, either in appearance or power of movement, on the application of moisture; but, nevertheless, there is great difficulty in rearing them to development in artificial circumstances; and my own experiments, continued through a winter and spring with every possible care, failed in producing any appreciable result as long as the larvæ were placed with artificial surroundings. Under other circumstances, however (and unfortunately in the very arrangement too often made in small country farms), they prosper perfectly, and I have seen them thus developed in myriads. If any one wishing to ascertain the point will go about three o'clock in the afternoon, early in June, to some wheat-chaff heap, which has been left lying untouched during winter in some shady spot, he will probably see almost a cloud of minute flies hovering close over it, settling and making short flights, and only waiting a light wind to waft them in all directions; and here also, as far as my own impressions go, are to be found the preliminary stages, which Mr. Kirby regrets as missing in his own observations. He mentions the entire absence of the male fly in the swarms appearing in the evening, and suggests its previous disclosure from the pupa as a necessity of the social economy of the insect; and from my own observations I should conjecture the pairing to occur almost immediately on hatching from the pupa, and that the short subsequent duration of the life of the male accounts for its absence in the swarms on the growing corn.

In my own observations the insects proved to be the Lasiopteryx obfuscata (*Agricultural Gazette*, for August 20, 1870), and their numbers were enormous, such as would have made it well worth while to be at the cost of a man's labour for a couple of hours to put a stop to the rapidly developing mischief.

It is some little trouble certainly to get rid of masses of chaff; but whilst the custom remains unchecked of allowing these heaps to accumulate through the winter, there, in the favourable shelter, will the nurseries of Wheat midges still exist, fostering and rearing this destructive insect to the detriment of the neighbourhood, whilst, by a little attention being paid to burning, rotting, or in some way thoroughly destroying the chaff with its contents, we should get a sure diminution of the number of Wheat midges, instead of an arrangement especially adapted for their propagation. *O.*

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, DECEMBER 30, 1874.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Mean of 18 Years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure from Average of 59 Years.	Dew Point.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
Dec.	In.	In.	°	°	°	°	°	°			In.
24	29.36	−0.50	36.8	33.0	3.8	34.0	− 3.8	32.0	92	S.: N.N.E.	0.03
25	29.58	−0.29	35.7	31.6	4.1	33.1	− 4.5	31.3	94	N	0.00
26	29.85	−0.04	32.7	26.5	6.2	29.3	− 8.1	28.9	98	NNE.: WSW	0.00
27	30.00	+0.11	33.5	29.0	4.5	32.0	− 5.3	29.3	89	N.N.E.	0.00
28	30.08	+0.19	33.7	27.5	6.2	31.2	− 6.0	29.3	93	W.: S.E.	0.02
29	30.06	+0.16	29.1	20.0	9.1	24.8	−12.5	16.1	67	S.E.	0.00
30	30.10	+0.20	29.5	19.8	9.7	24.7	−12.7	21.0	85	E.	0.00

Dec. 24.—Overcast. Rain fell in the early morning hours and occasionally in the afternoon and evening.
— 25.—Overcast generally. Very gloomy and foggy in the morning.
— 26.—Overcast. Foggy and gloomy in the morning. A little granular snow fell in the evening.
— 27.—The amount of cloud was large, and the weather dull; slightly foggy at times.
— 28.—Cloudy generally; snow and sleet fell frequently during the day.
— 29.—Fine and partially cloudy till 2 P.M.; generally cloudless afterwards. Lowest reading of thermometer on grass, 13°.
— 30.—Generally cloudy. Fog was prevalent in the low grounds. Lowest temperature of vegetation, 14½°.

The following was unavoidably omitted in our last issue:—

In Scotland the highiest temperatures ranged from 47° at Paisley to 38° at Greenock, the general average over the country being 42½°. The lowest temperatures varied between 22½° at Aberdeen and Greenock, and 16° at Paisley, the general average being 20¾°. The mean range of temperature in the week was 22°. The mean temperature for the week was 32¾°, being 11½° lower than the corresponding week in 1873; the highest being at Paisley, 33½°, and the lowest at Dundee, 30¼°. Rain was measured at each of these stations, varying in amount from nine-tenths of an inch at Aberdeen to one-hundredth of an inch at Greenock and Paisley, the average fall over the country being three-tenths of an inch.

At Dublin the highest temperature was 42°, the lowest 23¾°, the mean 34¼°, and the rainfall 0.48 inch.

—— In the neighbourhood of London the reading of the barometer at the level of the sea decreased from 29.78 inches at the beginning of the week to 29.46 inches by the evening of the 20th, increased to 30.01 inches by noon on the 23d, decreased to 29.48 inches by the afternoon of the 24th, and then increased to 30.04 inches by the end of the week. The mean reading for the week was 29.74 inches, being 0.12 inches lower than that of the preceding week. The mean daily readings were all below their averages, the greatest departures in defect being 0.48 inches on the 20th and 21st and 0.50 inches on the 24th.

The highest temperatures of the air at 4 feet above the ground ranged from 36¾° on the 24th to 30° on the 22d, the mean for the week being 34°. The mean of the seven low night temperatures was 26¾°, the extreme readings being 33° on the 24th and 19° on the 23d. So low a minimum as this last named value has not been recorded since December 8, 1871, when the temperature was 18½°. The mean daily range of temperature was 7½°, the greatest being 14½° on the 23d, and the least 3½° on the 24th.

The mean daily temperatures of the air were all much below their averages, the values being as follows:—20th, 32°.1; 21st, 30°.8; 22d, 26°.6; 23d, 23°.5; 24th, 34°; 25th, 33°.1; 26th, 29°.3; and the departures in defect of their respective averages were 7°, 8°, 11°.9, 14°.6, 3°.8, 4°.5, 8.1°. The mean temperature for the week was 29°.9, being 8°.3 below the average of the corresponding week, as deduced from fifty years' observations.

The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in the sun's rays, were 40¾° and 40¼° on the 20th and 21st respectively, the other maximum values were all below 40°, and that on the 26th was as low as 33½°. The lowest readings at night of a thermometer placed on grass, with its bulb fully exposed to the sky, were 18½° on the 22d, 13½° on the 23d, and 20¾° on the 26th, and the mean of the several lowest values was only 22¾°.

The weather was generally cloudy, the sky on the 22d, 24th, and 26th, being entirely overcast.

The direction of the wind was very variable, and its strength was gentle throughout.

A little sleet and snow fell on the 24th; the amount measured was only three-hundredths of an inch.

In England, the extreme high day temperatures ranged between 42° at Sheffield and Sunderland and 36° at Norwich, with a general average of 38½°. The extreme low night temperatures ranged from 24° at Sunderland to 11° at Hull, with an average value of 19½°. The mean range of temperature in the week was 19°, varying from 26° at Hull to 15° at Leeds. The mean high day temperatures varied from 38½° at Sheffield to 31½° at Norwich, the general average all over the country being 35½°. The mean low night temperatures ranged from 28° at Bristol to 20½° at Hull, the general average being 25½°. The mean daily range of temperature in the week was 10½°, the greatest range being at Eccles, 13½°, and the least at Norwich, 6½°. The mean temperature for the week was 30°, being 12½° lower than the value for the corresponding week in 1873, 17° lower than in 1872, and 13° lower than in 1871. The highest in the week occurred at Liverpool and Sunderland, 32½°, and the lowest at Hull, 27°. Rain or melted snow was measured at each of these stations, varying in amount from six-tenths of an inch at Sunderland to three-hundredths of an inch at Blackheath. At Sheffield no rain was measured. The average amount over the country was three-tenths of an inch.

The weather during the week was very cloudy, dull, and the frost severe. Snow fell at several stations on December 21, 22, and 23.

In Scotland the highest temperatures varied from 51° at Paisley to 35° at Dundee, the general average over the country being 40½°. The lowest temperatures ranged between 22° at Greenock and Leith, and 12° at Aberdeen, with an average value of 18¾°. The mean range of temperature in the week was 21¾°. The mean temperature for the week was 29¾°, being 11½° below the value for the corresponding week in 1873.

Rain was measured to the amount of eight-tenths of an inch at Aberdeen; at Greenock and Paisley no rain was measured, the average fall over the country being two-tenths of an inch.

At Dublin the highest temperature was 43°, the lowest 23½°, the mean 32½°, and the fall of rain 0.25 inch.

JAMES GLAISHER.

Garden Operations.

(FOR THE ENSUING FORTNIGHT.)

[The subjoined directions are intended to supply general information, and must, of course, be adapted to the peculiar circumstances of each locality. Other departments of the garden will be treated on from week to week in succession, according to the requirements of the season. Special directions for the management of "The Villa Garden" will be found in the preceding columns.]

PLANT HOUSES.

GREENHOUSE HARD-WOODED PLANTS.—If the new year brings us a continuance of such weather as we have experienced through December, the principal thing required in connection with hard-wooded plants is to keep them safe from the effects of frost without using more fire-heat than is necessary to ensure their safety, for if once these plants are induced by overheating to grow so unseasonably early, there is no means of stopping the movement afterwards, and growth so made is of the worst possible description. With such plants as flower before commencing their growth it is by no means desirable to hasten on their bloom before the proper season, and in the case of those that are required for exhibition during the spring very little fire-heat so early will destroy all hopes of bringing them out in good condition, for it necessitates their being kept back in the last stages of opening their flowers, which is fatal to a free and healthy development of the bloom. Therefore use no more fire than will keep them at a temperature of 40° during the night, and this should as near as possible be evenly maintained through the hours of darkness, not to just simply have the thermometer down to the point indicated at daybreak, if it has been ranging through the early part of the night some 5° or 10° higher. For checking this there is nothing more necessary than registering thermometers in the different houses in which all valuable plants are grown. If any plants are very near the glass, especially the roof, it is well during very severe frost to lower them a little; the points of the shoots that are within a few inches of the glass are much more liable to suffer than those that are an equal number of feet removed from it. See that no plant is allowed to stand upon open trellised stages in such close proximity to the hot-water pipes as to be affected thereby, for, if in good health, quantities of the best roots are generally lying thickly at the bottom of the pots, in which position they are most likely to be affected in the manner shown. To prevent injury in the above way thin boards may be placed immediately under the plants, or upon the pipes, sufficiently wide to disperse the heat. Keep the atmosphere as dry as possible in the houses devoted to this description of plants. With this view, whatever watering is done should be completed as early in the day as possible, after which open the roof ventilators a little, according to the state of the outside temperature. Give no side air whilst severe weather continues, even if the internal temperature would seem high enough to warrant such, for the cold air rushing amongst the plants is always injurious.

Azaleas will bear a lower temperature than other hard-wooded plants, not being injured by the thermometer falling down to the freezing point, or even a few degeees of frost at this early period. I have seen them frozen so that the soil was slightly crisped on the surface of the pots without injury, opening their flowers to all appearance as well as if they had never been subject to frost; but it was when the plants were quite at rest, in the middle of the winter. And under no circumstance is there anything gained by subjecting them to so low a temperature, except where the plants are required to flower very late in the spring—say, in June; this can only be assured by keeping them during the winter months as cool as possible. Although kept very cool, they must not be allowed to get so dry at the roots as Cape or New Holland plants require to be at this season; being indigenous to the cool moist hill regions of India they cannot bear, even when quite at rest, to have the soil about their roots too dry. *Heaths* like a low temperature all through the winter; less fire-heat will excite growth in them than most other plants, and if the atmosphere is dry they will bear anything except actual frost. Do not admit air at the side lights during frosty weather, but a little may be given at the roof in the day when not very cold, and admit it on all favourable occasions both at the roof and side lights. Look over all the stock, large and small, every other day, to ascertain what water is required, for although their requirements in this respect are now at the lowest, still the roots are never quite at rest, and must be supplied when they need it.

SOFT-WOODED GREENHOUSE PLANTS.—*Pelargoniums.*—The night temperature for these should not be allowed to fall lower than 45°, nor should it rise above this in the night. The use of fire-heat in frosty weather will cause them to require more water than they otherwise would, but, for some time yet, until they are making more progress, they must be kept much drier in the soil than most plants will bear, or they run to leaf, forming coarse, rank shoots, with a small amount of roots. A portion of the stock may be stopped by pinching out the points of the shoots. These will succeed the first unstopped plants in flowering. *Pelargoniums* of the *Zonal* and *Nosegay* section require similar treatment, as to warmth, light, and moisture. These, from their free and continuous flowering disposition, are, for decorative purposes, even more useful than the show varieties, but should by no means be allowed to supplant them. Those that are intended for summer-flowering should, where they require it, be potted on, being careful not to give them too much root-room, potting firm and not using too much sand in the soil. Stop the shoots as they require it, not allowing such as are intended for summer blooming to flower at the present season, and tie them well out. *T. Baines, Southgate.*

FLOWER GARDEN, &c.

PARTERRE AND MIXED GARDEN.—There is but little of an attractive nature in the outdoor department of a garden just now, therefore it is of the greatest importance that this deficiency should in some measure be made up by keeping the walks and grass frequently rolled, and the beds and borders as neat and clean as possible. If lawns or grass verges are the least unlevel they should be taken in hand at once, as nothing disfigures a place so much, or is so offensive to the eye, as a crooked edging or an unlevel piece of turf. The first ought to be as straight as a line can make it, and the latter as level as a billiard table. Any alterations involving the relaying of turf should be proceeded with as soon as the weather is favourable, so as to afford time for the grass to get established before dry weather sets in. Before laying the turf, and during the process of levelling, the ground should be thoroughly rammed, so as to prevent any after settling, and at the same time care should be taken, by using plenty of guide sticks, to get the surface perfectly level. Lawns that are at all coarse or mossy should be swept and rolled frequently, as nothing improves the texture and quality of the grass so much as this

In sweeping, use good stiff half-worn birch brooms, and if moss is at all troublesome, give a good dressing of fresh slaked lime or wood ashes, or both combined. Shrubbery and herbaceous borders should be dug over as deeply as the nature of the soil will allow, and where it is intended to grow any of the strong gross-feeding plants, such as *Ricinus*, *Solanums*, *Cannas*, *Wigandias*, &c., a good dressing of manure should be dug in. Most of the herbaceous plants will be greatly benefited by the same treatment, or by stirring the soil deep, so as to allow their roots to ramble in search of moisture—they will last in bloom much longer: *Phloxes* especially delight in a deep rich soil. Such plants as *Hemerocallis*, *Iris*, *Phygelia* and other strong growing herbaceous plants soon outgrow the space allotted them, and while digging the borders, advantage should be taken of the opportunity to re-arrange or reduce them to proper limits. *J. Sheppard, Woolverstone.*

Seeds of sub-tropical plants, such as *Ubdea*, *Canna*, *Ferdinanda*, *Wigandia*, and *Solanums*, should be sown, and placed in a good brisk, moist heat, as soon as possible, so as to afford time to grow them to a good size before planting out. Any old plants of the above that have been kept for propagating should now be pruned, and plunged in bottom heat, to induce them to throw out side-shoots for cuttings. *Aralia papyrifera* increases best from the root. The large fleshy portions of these should be cut into lengths of 2 inches or so, and placed in pans or pots of sandy loam, and plunged in heat, where they will soon break and form nice plants. *Aralia Sieboldi* should be obtained from seed, as it is slow in giving cuttings. Where the stock of succulents is likely to be short, the fleshy leaves of such things as *Echeveria miglallica*, *Pachyphiton bracteosum*, *Kleinia repens*, *Cotyledon Umbilicus*, &c., should be put in at once in dry heat, where they will soon root. If sufficient leaves cannot be procured for this purpose, seeds of any sown now will make nice plants by bedding-time if grown on in gentle heat. Carpet-bedding is coming much into favour, and most of the low-growing succulents are indispensable to work out the different patterns, and their rigid outlines associate well with the architecture of a garden. *J. Sheppard, Woolverstone Park.*

FRUIT HOUSES.

PINES.—The character of the structures which are extensively employed in the cultivation of this kind of fruit at most places is such as to render during the winter months the performance of certain indispensable operations, such as repotting or transferring the plants, or the renewing of beds with fresh materials which contain them, solely dependent upon favourable climatal influences for its accomplishment. As such opportunities happen with great uncertainty, and are not of frequent occurrence generally at the season referred to, the forthcoming requirements in that respect should be considered, so that whatever may be wanting to enable the work to be proceeded with should be in readiness, that at the proper time it may be executed with despatch, as much more injurious effects result from Pine plants being out of their proper quarters than is generally supposed. With a little forethought such matters can be accomplished beforehand at times when external operations are impeded by natural causes (as is the case at the present time). In pot culture the soil, if properly prepared (which is by hand), occupies considerable time in preparation. If this material is in proper order for potting, it should be got ready for that purpose in quantity sufficient to meet all demands for the next three or four months, provided it be kept together where it will not become parchingly dry. Pots and crocks should also be prepared, and tan or other fermenting materials should be at command. A good heap of tan in a dry shed will give the needful supply of that material in a warm state, an expedient which is very desirable during the cold winter months. Let the temperatures, as before indicated, continue in force, excepting under the pressure of severe cold outside (which is now the case); the minimum degrees as noted will then suffice. Continue to examine all plants which are in pots weekly, or fortnightly at the most, and water as usual with weak manure water at about the temperature of the bed whenever necessary. This important matter in connection with cultivation should never lack attention at any season, as the rapidity with which Pine-apple plants are developed and the fruit brought to perfection at the present day demands an active condition at the roots to be maintained throughout the whole process. There are a few sorts which are an exception to this rule, amongst which may be named the Queen and Black Jamaica as being prominent in that respect. *G. T. Miles, Wycombe Abbey.*

CUCUMBERS.—The weather is now, and has been for the past few weeks, "very slow" for Cucumbers, rendering the greatest care and attention necessary to maintain a healthy and fruitful condition. It is in such weather as this that we discover the form of house that best adapts itself to the winter requirements of the Cucumber, and we should provide accordingly. My own experience is that "roomy" houses are quite unsuitable for winter work, and that small lean-to's, about 10 feet wide and 9 feet high, built at an angle of from 35° to 40°, having four rows of 4-inch hot-water pipes run through, are the structures that produce the best supplies. Be careful not to over-excite the plants, either by extra sharp firing, or by repeated doses of strong liquid manure; on the contrary, let everything go on quietly and evenly, and especially the temperatures, for it is abundantly proved that great disparities in the temperatures, or sudden fluctuations in the same, will result in a plentiful supply of yellow and stunted fruits, and other evils. The night temperatures should not fall below 68°; employ night coverings to secure that end. Be sparing in the supply of moisture; at the same time avoid a too dry atmospheric condition, and take care the roots do not suffer, consequent on the sharp firing. Continue to pick off all male blossoms, and do not suffer the foliage and wood to overcrowd. It would be an advantage, too, to fertilise the female blossoms every day or two, during a continuance of this weather. Directions for Melons will be given in the next Calendar. *Thos. Simpson, Broomfield.*

Answers to Correspondents.

ANSWER TO DOUBLE ACROSTIC (p. 808, 1874): GothiC; AsH; RobuR; DourO; EdeN; NaomI; ExotiC; RimmeL; ScythE—*Gardeners' Chronicle. Œdipus.*

BOOKS: *T. W.* We are not aware that any of the many treatises on Cucumber growing are now in print. There has been no recent issue.

"GOD TEMPERS THE WIND TO THE SHORN LAMB": *W. W. B.* This quotation is from Sterne's *Tristram Shandy.*

HARDY HEATHS: *T. J. Marshall.* You cannot get seeds of these; but you may furnish your proposed beds with plants from the Surrey nurseries, such as that at Knap Hill, where peat-earth plants are extensively grown.

INSECTS: *J. R.* The caterpillars sent are the destructive larvæ of the moth Agrotis segetum. The ground round the roots attacked must be carefully stirred and looked over. The grubs are easily seen, as they do not go deep into the ground. The snail is a rare species, Testacellus; salt will destroy it. *I. O. W.*

NAMES OF FRUITS: *George Crowder, Ochtertyre.* We believe the Apples sent to be the true Blenheim Orange; but how very different are they grown in your northern latitude! They are quite acid, or entirely wanting in flavour, and mostly out of the usual normal form.—*Charles Dillen.* 1, may probably be Besspool, a finely-flavoured fruit; 2, Winter Strawberry. *A. F.* We do not recognise the Apples sent. *A. O. Walker.* 4, London Pippin; 3, Fearn's Pippin, probably, but with an unusually long stalk; 1, 2, not known.

NAMES OF PLANTS: *H. Hughes.* Six specimens is our limit at one time, as we constantly give notice, yet you send twelve. 1, Pteris argyræa; 2, Asplenium marinum; 3, Asplenium Fabianum; 4, Gymnogramma tartarea; 5, Pteris serrulata; 6, Hypolepis distans. —*M. J.* 1, Hypnum tamariscinum; 2, H. triquetrum; 3, H. purum; 4, Dicranum scoparium.—*W. H. M.* Stephanophysum Herbstii.—*G. T. S.* Ilex Aquifolium scotica, certainly.—*H. and S.* Streptocarpus Rexi.

VINE-STEMS DYING: *M. W.* We cannot assist you in determining the cause of your Vines dying. It must be due to some local cause. The stems have perhaps been injured in some manner.

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*** Correspondents are specially requested to address post-paid, all communications intended for publication to the "Editors," and not to any member of the staff personally. The Editors would also be obliged by such communications being posted as early in the week as possible. *Letters relating to Advertisements should be addressed to the Publisher.*

CATALOGUES RECEIVED.—Benjamin S. Williams (Victoria and Paradise Nurseries, Upper Holloway, London, N.), Descriptive Catalogue of Flower, Vegetable, Agricultural Seeds, &c.—James Carter & Co. (237 and 238, High Holborn, London, W.C.), List of Novelties for 1875—Vick (Rochester, New York), Floral Guide for 1875—Richard Dean (Ealing, London, W.), Catalogue of New and Choice Potatos, also his Catalogue of New and Choice Primroses, Polyanthuses, Daisies, Hepaticas, &c.

COMMUNICATIONS RECEIVED.—Surgical.—D. D.—F. G. H.—J. B.—G. G.—J. G.—H. P. (Yes).—J. T.—W. A.

Markets.

COVENT GARDEN, December 31.

A very quiet week, both in the wholesale and retail markets, business being much influenced by the weather, which has caused a little advance in the price of rough outdoor produce. Apples in bulk still making very low prices. St. Michael Pines good and plentiful. *Thos. Taylor, Wholesale Apple Market.*

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, per ½-sieve	1 0–	1 6	Melons, each	..	1 0– 3 0
Chestnuts, per bush.	10 0–	20 0	Nuts, Cob, p. lb.	..	1 6– 2 0
Grapes, English, p. lb.	....		Oranges, p. 100	..	8 0–12 0
— Muscats, do.	.. 4 0–	8 0	Pears, p. doz.	..	3 0– 6 0
Lemons, per 100	.. 8 0–	12 0	Pine-apples, p. lb.	..	3 0– 6 0
Medlars, per doz.	..	....	Walnuts, p. bush.	..	16 0– ..

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, Fr., each	0 8–	..	Horse Radish, p. bun.	3 0–	5 0
Asparagus, English, per bundle	..	10 0–15 0	Leeks, per bunch	.. 2 0–	4
— French, p. bund.	2 0–	..	Lettuces, per doz.	.. 1 6–	..
Beans, French, p. 100	2 0–	..	Mushrooms, per pott.	1 0–	2 6
Beet, per doz.	.. 1 0–	2 0	Onions, young, bun.	0 4–	0 6
Broccoli, p. bundle	.. 0 9–	1 6	Parsley, per bunch	.. 0 4–	0 6
Brus. Sprts., p. bush.	12 0–	..	Parsnips, p. doz.	.. 0 9–	1 0
Cabbages, per doz.	.. 1 0–	2 0	Radishes, per bunch.	0 2–	0 4
Carrots, p. bundle	.. 0 6–	0 9	— black, Turnip, do.	.. –	0 6
Cauliflowers, per doz.	2 0–	6 0	Seakale, per bundle	2 6–	3 0
Celery, per bundle	.. 1 6–	2 0	Shallots, per lb.	.. 0 2–	..
Cucumbers, each	.. 2 0–	4 0	Salsify, per bundle	.. 1 6–	..
Endive, per doz.	.. 1 0–	2 0	Tomatos, per doz.	.. 1 0–	3 0
Herbs, per bunch	.. 0 2–	0 4	Turnips, per bundle.	0 6–	0 9

Potatos:—Early Shaws, 110s.; Early Myatt's, 140s.; Early Regents, 120s.; and Early Dons, 120s. per ton.

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Azaleas, p. 12 sprays	1 6–	3 0	Mignonette, 12 bun.	4 0–	6 0
Camellias, 12 blooms	4 0–12 0		Pelargoniums, 12 spr.	1 6–	3 0
Carnations, 12 blooms	2 0–	4 0	— Zonal, 12 spr.	0 9–	1 6
Chrysanthem., 12 bl.	3 0–	6 0	Roman Hyacinths, per 12 spikes	.. 2 0–	6 0
— 12 bunches	.. 9 0–18 0		Roses, indoor, p. doz.	2 0–	6 0
Cyclamen, 12 blooms	0 3–	0 6	— French, do.	.. 2 0–	3 6
Epiphyllums, 12 bl.	1 0–	2 0	Stephanotis, 12 sprays	9 0–15 0	
Eucharis, per doz.	.. 9 0–15 0		Tuberoses, p. doz.	.. 2 0–	4 0
French Lilac, p. bun.	10 0–15 0		Violets, per 12 bun.	.. 3 0–	6 0
Heliotropes, 12 sprays	0 6–	1 0			

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Begonias, per doz.	.. 6 0–12 0		Heaths, in var., doz.	12 0–30 0	
Bouvardias, do.	.. 9 0–18 0		Mignonette, do.	.. 4 0–	6 0
Chrysanthemums, do.	4 0–	9 0	Myrtles	.. do.	3 0– 9 0
Cyperus, do.	.. 6 0–12 0		Pelargoniums, dble., per doz.	..	6 0–12 0
Dracæna terminalis	12 0–30 0		— Scarlet, do.	..	6 0– 9 0
— viridis, per doz.	12 0–24 0		Primula sinensis, do.	4 0–	8 0
Epiphyllums, each	.. 1 6–	3 6	Solanums, do.	..	6 0–18 0
Ficus elastica	.. 1 6–	7 6			
Fuchsia, per doz.	.. 6 0–12 0				

SEEDS.

LONDON: *Dec.* 30.—In consequence of the holidays, the business passing on our seed market has during the past week been exceedingly limited. All descriptions of red Clover seed are held with considerable firmness. With regard to Alsike and white Clover seeds choice samples are still very scarce. Trefoils continue in fair supply at late rates. We have a moderate inquiry for foreign Italian. Bird seeds show no change since our last. In feeding Linseed a fair trade has been doing. Very high prices are asked for new spring Tares. The cold weather has increased the demand for boiling Peas and Haricot Beans. Mustard and Rape seed move off slowly at recent currencies. *John Shaw & Sons, Seed Merchants*, 37, *Mark Lane, E.C.*

CORN.

At Mark Lane on Monday little activity prevailed in the trade. Fine descriptions of Wheat were held for the extreme rates of Monday last, but inferior produce remained neglected. Barley was firm, and good malting qualities experienced a steady sale. Malt was rather dull, but not cheaper. Oats were abundant and difficult to move, though rates were maintained in all instances. Maize, being in a very few hands, commanded very full prices. Beans and Peas were purchased sparingly on former terms. The flour trade was very slow, and prices were unaltered.—The market on Wednesday was firm, and extreme rates were paid for all classes of Wheat. Barley was a little more sought after, and rather disposed to improve; but Malt was dull, and a very moderate demand prevailed for Oats or Maize. Beans and Peas were steady, and recent prices were well supported for flour.—The average prices for the week ending December 26, 1874, were: Wheat, 44s. 8d.; Barley, 44s. 5d.; Oats, 29s. 4d.; and for the corresponding week in 1873: Wheat, 61s. 8d.; Barley, 44s. 6d; Oats, 26s.

CATTLE.

There was a large supply of beasts at market on Monday, but a dull trade, consequently prices generally were lower. Sheep were also plentiful and buyers scarce. A few choicest qualities made nearly as much as of late, but on the average prices were decidedly lower. Trade was very dull for calves, at lower prices. — On Thursday the supply of beasts far exceeded the demand; only a few choice animals were wanted, and they were lower in price. Scarcely anything was done in sheep. Choice calves were dearer, and more activity was observable in milch cows.

HAY.

Good supplies were on offer at Whitechapel, but there was also a brisk demand, and a fair clearance was effected at fully late rates:—Clover, best, 120s. to 128s.; inferior, 80s. to 100s.; hay, best, 114s. to 120s.; inferior, 70s. to 90s.; straw, 35s. to 40s. per load. Cumberland Market quotations:—Superior meadow hay, 120s. to 128s.; inferior do., 90s. to 112s.; superior Clover, 120s. to 130s.; inferior do., 100s. to 112s.; and straw, 40s. to 45s. per load.

COALS.

At Wednesday's market there was a large supply on offer, and the price fell 1s. 6d. per ton.

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CONTENTS.

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Professor W. T. THISELTON DYER will Lecture on the Growth of Ferns from Spores, on WEDNESDAY EVENING, January 13, in the Council Room at South Kensington, at 8 o'Clock P.M.

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ROSES.—Illustrated CATALOGUES on application to EWING AND CO., Norwich.

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B. S. WILLIAMS has a large and fine stock of FRUITING and PLANTING CANES, of all the best kinds. Prices on application.

Victoria and Paradise Nurseries, Upper Holloway, N.

ASPARAGUS, forcing.—Several thousand fine strong crowns to be Sold, cheap. Price and particulars on application to

R. FENNESSY AND SON, Nurserymen, Waterford.

WANTED, 1-yr. and 2-yr. seedling HAWTHORN QUICK. Send samples and price to Messrs. CRANSTON AND MAYOS, Nurseries, King's Acre, near Hereford.

WANTED, Six Standard and Six Dwarf-trained MOORPARK APRICOT TREES, of four or five years' growth; must be healthy and well rooted. State price to

GEORGE LAMB, Blythe Street, Woodbrough Road, Nottingham.

WANTED, HOLLY BERRIES. State quantity, with lowest price.

RICHARD SMITH, Nurseryman, Worcester.

WANTED, LARCH, transplanted, 12 to 18 inches; also 1-yr. and 2-yr. seedlings. Send samples and prices to

WITTY AND SON, The Nurseries, Cottingham, Hull.

WANTED, strong 1-yr. seedling LARCH. State quantity and lowest price, to

FRANCIS & ARTHUR DICKSON & SONS, The "Upton" Nurseries, Chester.

Amateurs, Nurserymen and Gardeners, having been SUCCESSFUL in RAISING NEW FLORIST FLOWERS or VEGETABLES, are invited to communicate with F. SANDER AND CO., who give highest Prices for the Seed of those that are of sterling value and merit.

New and Rare Seed Importers and Growers, St. Albans.

For the best Vegetables see

SUTTONS' AMATEUR'S GUIDE for 1875. Large edition and coloured plates, 1*s.* post free. Miniature edition, 3*d.* post free.

For the best Flowers see

SUTTONS' AMATEUR'S GUIDE for 1875.

For the best Cucumbers and Melons see

SUTTONS' AMATEUR'S GUIDE for 1875.

For the best Potatos see

SUTTONS' AMATEUR'S GUIDE for 1875.

SUTTON AND SONS, The Queen's Seedsmen, Reading.

LILIUM AURATUM.—The annual importations from Japan have now arrived. The bulbs this season are in the finest condition possible. Price 12*s.*, 18*s.*, 30*s.* and 42*s.* per dozen.

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

Surplus Stock of Roots.

HYACINTHS, NARCISS, TULIPS, CROCUS, at a very low price, to clear out.

HY. CLARKE AND SONS, 39, King Street, Covent Garden.

CAMELLIAS. — Cut flowers for Bouquets during January and February. Price per hundred wanted. Address

P. JOIRIS ET FRÈRE, Horticulturists, Liège, Belgium.

WHITE CAMELLIAS, and other CUT FLOWERS.

WILLIAM E. DIXON, Norwood Nursery, Beverley.

SEMPERVIVUM BOLLI, 1*s.* 6*d.* and 2*s.* 6*d.* per packet.

WILLIAM E. DIXON, Norwood Nursery, Beverley.

E. WILSON SERPELL (late PONTEY), NURSERYMAN AND SEED MERCHANT, Plymouth.

Fruits Cultivated in the United Kingdom.

A DESCRIPTIVE LIST, by LITTLE AND BALLANTYNE, Knowefield Nurseries, Carlisle, free, by post, for twelve stamps.

Flower Seeds.—To the Trade.

WENZEL BROTHERS' Wholesale CATALOGUE of CHOICE FLOWER SEEDS is now ready, and will be forwarded post-free on application.

WENZEL BROTHERS, Seed Growers and Merchants, Quedlinburg, Prussia.

LAWN TURFS for SALE—10,000 or more, of first-class herbage, 6*s.* per 100, delivered at Railway Station in London. Address

Mr. JONES, Arundel Hotel, Arundel Street, Strand, W.C.

PLANTS for WINTER FORCING.—Any one desirous of Successfully Forcing Flowering Plants during the coming Winter Months, should apply at once to JOHN STANDISH AND CO. for a LIST of their PLANTS specially prepared and adapted for this purpose.

Royal Nurseries, Ascot, Berks.

EUCALYPTUS GLOBULUS.—A Consignment just arrived, in fresh and good condition; also fresh SEED of PICEA GRANDIS, P. AMABILIS, and P. NORDMANNIANA.

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

THE NEW AMERICAN POTATO, THORBURN'S EARLY PARAGON.

Combining more superior qualities in a higher degree than any of the early sorts of late introduction.

For Sale by all the leading London Seedsmen.

Seed Potatos.

H. AND F. SHARPE'S Wholesale Special Priced LIST of SEED POTATOS is now ready, and will be forwarded, post free, on application. It includes all the best English and American sorts in cultivation, and the prices will be found very moderate.

Seed Growing Establishment, Wisbech.

COCOA-NUT FIBRE REFUSE, at this season, is invaluable to all gardeners. Reduced price, 4*d.* per bushel, delivered free to any Railway. Samples free.

JAMES STEVENS, Fibre Works, High St., Battersea, S.W

COCOA-NUT FIBRE REFUSE — 3000 bushels, cheapest in the Market. Free on to rails. Price and sample on application. Tenders received for 50 and 100 bushels.—H. WRIGHT, Fibre Merchant, 4, Peterborough Terrace, King's Road, Fulham, S.W.

Hyacinths, Tulips, Crocus, &c.

The best material in which to grow the above is COCOA-NUT FIBRE REFUSE.—Price 1*s.* per bushel, or 6*d.* per bushel for quantities of 20 bushels and over.

DAGNALL AND TILBURY, Steam Cocoa-nut Fibre Works, Farm Lane, Walham Green, S.W.

SALE BY AUCTION.

Extensive Importation of Odontoglossum Alexandræ (BLUNTII).

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, January 11, at half-past 12 o'Clock precisely, a quantity of choice ORCHIDS, in good condition, from New Grenada, including 500 Odontoglossum Alexandræ (Bluntii), 250 O. gloriosum, 60 O. Roezlii, strong plants of O. hastilabium, Cattleyas from a new locality, Cattleya Trianæi, C. Mendeli, Ionopsis pulchella grandiflora, Oncidium Weltoni, and a very beautiful Comparettia; also 20,000 splendid Bulbs of LILIUM AURATUM, just arrived from Japan, in the finest possible condition, being quite as fresh and plump as English-grown Bulbs.

On view the morning of Sale, and Catalogues had.

RODERICK NICHOLSON, ADVERTISING AGENT and GENERAL COMMISSION AGENT, 112, Fleet Street, E.C.

Wood Engraving.

MR. W. G. SMITH, ARTIST and ENGRAVER on WOOD, 15, Mildmay Grove, London, N.

Window Glass, Sheet Lead, Paints, &c.

THOMAS MILLINGTON AND CO., IMPORTERS and MANUFACTURERS. New LIST of PRICES, very much reduced, on application.
87, Bishopsgate Street Without, E.C.

Government Emigration.

SYDNEY, NEW SOUTH WALES.—Assisted Passages are provided for Married Couples not exceeding forty years of age, with or without children, and Single Men and Women not exceeding thirty-five years of age, being FARMERS, POLICEMEN, MECHANICS, MINERS, LABOURERS, and FEMALE DOMESTIC SERVANTS, on payment of the following rates:—Twelve years and not exceeding forty, £5 10s.; one year and under twelve, £2 15s.

For further information apply to the Office of the Agent-General, 3, Westminster Chambers, Victoria Street, S.W.

TO BE LET, about 30 Acres of FREEHOLD LAND, in the Parish of Streatham, annually or upon Lease, if preferred, situated about six miles from London, and particularly adapted for a Market Garden, having many breaks and a small stream running through the centre.
ALEX. BELL, Esq., 5, Regency Square, Brighton.

TO BE LET, or SOLD (on the South Coast), a piece of LAND, 100 by 175 feet, covered with Glass, fitted with Hot-Water Apparatus throughout; at the present time well stocked with Grapes, Pines, &c. Capitally adapted for a Nurseryman.
T. P., *Gardeners' Chronicle* Office, W.C.

Victoria Colony, Kansas, U.S.—To Farmers and OTHERS.

TO BE SOLD, fine STOCK FARMS of 640 Acres and upwards, Freehold, from 10s. to 25s. per acre. Grass in its natural condition unsurpassed for feeding Sheep and Cattle.—For PAMPHLET containing full particulars respecting this Property, apply to
ROBERT W. EDIS, Esq., F.S.A., 14, Fitzroy Square, London, W., Architect to the Estate.

BEECH, 3 feet, very fine and well rooted, 7s. 6d. per 1000.
WILLIAM IRELAND, Pilton Nurseries, Barnstaple, Devon.

Vines.

FRANCIS & ARTHUR DICKSON & SONS have a large stock of strong, short-jointed, well-ripened FRUITING and PLANTING CANES, of all the leading kinds. Prices on application.
The "Upton" Nurseries, Chester.

To the Trade.

HUGH LOW AND CO. have to offer dwarf maiden PEACHES, NECTARINES, and MOOR-PARK APRICOTS by the 100.
Clapton Nursery, London, E.

MINIER, NASH AND NASH'S Wholesale CATALOGUE of GARDEN and FARM SEEDS is now ready, and may be had upon application. Friends who have not received a copy will please write.
60, Strand, London, W.C.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS: also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.
Mr. WEBB, Calcot, Reading.

NUTTING and SONS having now posted their Annual Wholesale GARDEN, AGRICULTURAL and FLOWER SEED CATALOGUE, and complaints being made of non-delivery, any of their friends not having duly received it, on application one shall be immediately forwarded.
Seed Warehouses, 60, Barbican, London, E.C.

Home Grown Agricultural and Garden Seeds.

H. AND F. SHARPE are now prepared to make special offers to the Trade of their home-grown choice selected stocks of AGRICULTURAL and GARDEN SEEDS of this season's growth. They have been harvested in very fine condition, and are quoted low in price.
Seed Growing Establishment, Wisbech.

The Nurseries, Dumfries, N.B.

FOREST, FRUIT, and ORNAMENTAL TREES, DECIDUOUS and EVERGREEN SHRUBS, ROSES, GREENHOUSE PLANTS, &c.

Our Stock of the above is one of the largest in Scotland. The Trees and Shrubs are of all ages and sizes, and are well adapted for extensive Planting, or giving immediate effect in the Formation and Improving of Ornamental Parks, Pleasure Grounds, &c.

Priced CATALOGUES free on application.

THOMAS KENNEDY AND CO., Seed and Nursery Establishment, Dumfries.

VIOLETS.—LEE'S VICTORIA REGINA, very strong, 6s. and 9s. per dozen.

TO THE TRADE.—Extra choice POLYANTHUS SEED, superb strain, 5s. per oz. Also, LEICESTER RED CELERY, true, 1s. per oz. Cheaper in quantity. Postage extra.
B. R. DAVIS, Seed Warehouse, Yeovil, Somerset.

Bouvardias—Vreelandii, jasminiflora, &c.

MESSRS. JOHN STANDISH AND CO.'S Stock of the above beautiful Winter-flowering Plant is exceptionally fine this season. 15s. to 18s. per dozen, fine plants. They are now sending out the New BOUVARDIA HUMBOLDTII CORYMBIFLORA, which is a great acquisition, in fine strong plants, 24s. to 36s. per dozen.
Royal Nurseries, Ascot, Berks.

PEACHES and NECTARINES, in pots, for Forcing; strong pyramids and bushes, in fine fruiting condition.

ROSES (a choice selection) for Forcing or Greenhouse, strong plants, in 6 and 8-inch pots.

STANDARD ROSES, very fine.

Descriptive CATALOGUES sent post free on application.

THOMAS RIVERS AND SON, Sawbridgeworth, Herts.—(Great Eastern Railway.)

ROSES.—Fine Standard and Half-standard Roses of the following Proved New Varieties now ready:—Etienne Levet, François Michelon, Madame Maria Courtet, Monsieur Claude Levet, Madame Hippolite Jamain (H.P.), Souvenir John Gould Veitch, President Grévy, Niphetos, Madame Hippolite Jamain (Tea), Souvenir Paul Néron, Catherine Mermet; and all the Old Varieties.

VERBENAS.—Fine Stock Plants of the leading varieties can be supplied by
JOHN KEYNES, Salisbury.

STRONG FOREST TREES.

LARCH, 2 to 3, and 2½ to 3½ feet.
SCOTCH, 2 to 2½, 2½ to 3, and 3 to 3½ feet.
SPRUCE, 2 to 2½, 2½ to 3, and 3 to 4 feet.
OAKS, English, 3 to 4, 4 to 5, and 5 to 6 feet.

The above, with other sorts, are all strong and good, and there is a considerable quantity of each size on offer. Apply to JOHN HILL, Spot Acre Nurseries, near Stone, Staffordshire.

CRANSTON'S NURSERIES, Established 1783.—The following CATALOGUES are just published, and will be forwarded on application:—
DESCRIPTIVE CATALOGUE of ROSES (1874 and 1875).
DESCRIPTIVE CATALOGUE of FRUIT TREES.
DESCRIPTIVE CATALOGUE of CONIFERS, SHRUBS, and FOREST TREES.
DESCRIPTIVE CATALOGUE of BULBS. Address,
CRANSTON AND MAYOS, King's Acre Nurseries, near Hereford.

EUCALYPTUS GLOBULUS (Tasmanian Blue Gum).—SEEDS of the Blue Gum, and other Tasmanian and Australian Forest Trees and Shrubs, can be obtained of
C. F. CRESWELL, Wholesale and Retail Seed Merchant, Hobart Town, Tasmania; or at his Branch Establishments, 478, George Street, Sydney, New South Wales; and 37, Swanton Street, Melbourne, Victoria.
Price LISTS sent gratis to any part of the World on application.

Planting Season, 1874-75.

MESSRS. JOHN STANDISH AND CO. invite the attention of intending Planters to their large and valuable Stock, consisting of all the newest and best varieties of the Japanese Importations, as well as a vast quantity of SPECIMEN CONIFERÆ, HOLLIES, LAURELS, DECIDUOUS and EVERGREEN PLANTS, ROSES, FRUIT TREES, &c., all of which are in excellent condition for removal.

Their NEW CATALOGUE is now ready, and will be sent, post free, on application.
Royal Nurseries, Ascot, Berks.

ORCHARD PLANTING.—Stong Standard APPLES, strong Standard Table and Perry PEARS, Pyramid and Dwarf-trained PEARS. A choice Collection of ROSES; strong Common, Colchic, and Portugal LAURELS; LAURUSTINUS, BOX, YEW, and other Evergreens; Evergreen and Decidnous Flowering SHRUBS; Scotch and Spruce FIRS; CHESTNUT, LIMES, and other Forest Trees, up to 12 feet. Prices on application.
CHARLES BURGESS, The Nurseries, London Road, Cheltenham.

GLADIOLI—GLADIOLI.—Our AUTUMN CATALOGUE is now ready, and contains all M. Souchet's (and others) NEW VARIETIES for the present season. Also collections for Exhibition or general purposes, all at the most reasonable prices consistent with good bulbs. Delivered free in London, Edinburgh, or Glasgow. LISTS, as usual, sent to all Gardeners and Amateurs free, on application to Messrs. MERTENS AND CO., Walbrook House, Walbrook, London, E.C., or to ourselves, direct—
ANT. ROOZEN AND SON, Overveen, near Haarlem, Holland.

THE GAINSBOROUGH SEED ESTABLISHMENT.
Dixon's X L Celery—1s. 6d. per packet.

JOHN ETHERINGTON DIXON, Seed Grower and Merchant, Lord Street, Gainsborough, having grown a quantity of this, one of the finest Red Celeries extant, begs to offer it to those who are particularly fond of this vegetable. It is very crisp and delicious, and a sort that when once tried will be well appreciated, as it is very early and will stand forcing better than any other variety.

The usual discount allowed to the Trade.

On account of the short crop of this Celery early orders are requested.

J. E. DIXON, Seed Merchant, &c., Lord Street, Gainsborough.

Hollies.

ANTHONY WATERER respectfully invites the attention of Holly buyers to the very fine Stock to be seen growing at Knap Hill. It comprises upwards of Thirty Thousand Plants, from 3 to 10 and 12 feet high, of the finer Gold, Silver, and Green-leaved kinds, affording a choice in size and variety such as can be met with in no other Nursery in Europe. Every Plant has been recently removed, and will be guaranteed.

The Stock of Common Green Hollies alone occupies 5 acres of land, and Purchasers will find them in large numbers of all heights up to 15 feet.
Knap Hill Nursery, Woking, Surrey.

Genuine New Seeds.

WILLIAM FROMOW'S Descriptive CATALOGUE of VEGETABLE and FLOWER SEEDS, GENERAL GARDEN REQUISITES, &c., is now ready, and may be had post-free on application; also LISTS of ROSES, CLIMBERS, NURSERY STOCK, &c.
Sutton Court Nursery and Seed Establishment, Turnham Green, London, W.

Vines, Vines, Vines.

VINES.—Fruiting and Planting Canes, strong, well-ripened, short jointed, and with fine plump eyes, of Black Hamburgh, Black Alicante, Muscat of Alexandria, Lady Downe's, Foster's Seedling, Gros Colman, Madresfield Court, Mrs. Pince, Bowood Muscat, White Tokay, West's St. Peter's, Trentham Black, White Frontignan: 2s. 6d. to 5s. each; a few extra strong canes, 6s. 6d.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

Seedsmen  **to the Queen.**

SEEDS OF FIRST QUALITY ONLY.

JOHN AND CHARLES LEE'S Descriptive Priced CATALOGUE of KITCHEN GARDEN and FLOWER SEEDS for 1875 will be forwarded, post free, on application. Please to write if not received in the First General Distribution.
Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

FOR SALE.—A large quantity of the following to be sold, cheap, as the ground must be cleared, viz.:—

Beech, 3 feet	Laurel, common, 2 to 6 feet
Birch, Weeping, 6 to 8 feet	,, Portugal, 2½ to 3 feet
Box, Tree, 2½ to 3 feet	Limes, 8 to 10 feet
Chestnut, Horse, 8 to 10 feet	Oak, 4 to 6 feet
Fir, Spruce, 2 to 6 feet	Poplar, Black, 8 to 10 feet
Hollies, Green, 9 inches to 2 ft.	Privets, 2 to 2½ feet

5000 large Purple Periwinkle.
Price on application to
W. HANDSCOMB, Nurserymen, Aspley Guise, Woburn, Beds.

Shaw House Nursery Grounds, Melbourne.

THE CLEARANCE SALE, belonging to Mr. Robinson, will take place on TUESDAY, January 19. The Stock consists of over 1500 fine HOLLIES, from 3 to 8 feet high; SCOTCH FIRS, 3 to 8 feet; OAKS, 5 to 8 feet; SPRUCE, 4 to 7 feet; ALDERS, LIMES, ELMS, and BIRCH, 5 to 7 feet; upwards of 200,000 QUICKS of various growths; a large quantity of large healthy ASPARAGUS ROOTS for forcing; VICTORIA RHUBARB ROOTS, for transplanting; STRAWBERRY ROOTS of the best market-garden kinds. Melbourne, Jan. 6, 1875.

Special Offer to the Trade.

A. M. C. JONGKINDT CONINCK, Tottenham Nurseries, Dederasvaart, near Zwolle, Netherlands, offers several thousand well-grown, transplanted, Standard OAKS, from 8 to 14 feet, at 12s. 3d. each, franco Rotterdam and Harlingen.

Maiden APPLES on Doucin, best varieties, guaranteed true to name, 30s. per 100.

GUINNERA SCABRA, strong plants, 40s. per 100.

Samples can be seen at Mr. T. S. WARE'S, Hale Farm Nurseries, Tottenham, near London.

Planting Season.—Avenue Trees.

LIMES, 12 to 16 feet high, straight stems, girting 4 to 8 inches at 4 feet from the ground, with well-balanced heads, and splendidly rooted. A stock of more than 5000 of these fine Trees to select from.
PLANES, OCCIDENTAL, 12 to 16 feet.
HORSE CHESTNUTS, 10 to 12 feet.
SCARLET HORSE CHESTNUTS, 10 to 12 feet.
NORWAY MAPLES, 10 to 16 feet.

All being stout, straight stemmed, and finely rooted. Every Tree has been removed within two years.

POPLAR, CANADENSIS NOVA, 18 to 20 feet.—This new variety of Poplar, far exceeding in rapidity of growth any tree I am acquainted with, is strongly recommended as a Town Tree, especially in smoky districts. There are hundreds in this Nursery 3 years old, measuring 18 to 22 feet high, and stout in proportion.

ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey, S.W.

PLANTING SEASON.

LARCH, SCOTCH FIR, ENGLISH OAK, and all other Forest Trees.
QUICK, and all other Hedge Plants.
COVERT PLANTS in great variety.
FRUIT TREES, including all the best and most esteemed varieties—quarter of a million trees.
ROSES, Standards, Dwarfs, the newest and best varieties—100,000 to select from.
VINES, all the leading varieties in 2000 well ripened canes for fruiting in pots and for planting out.
EVERGREENS in great variety, including large quantities of all the choicest Hollies, &c.
CONIFERS, including Picea Nordmanniana, &c.
ORNAMENTAL TREES and Plants of all sorts.
*** The whole in very great quantity and stout vigorous condition, with fine roots for safe removal.
Priced LIST and all particulars on application.
JAMES DICKSON & SONS, Newton Nurseries, Chester.
☞ The "Newton" Nurseries are within eight minutes' walk, by the new road, from the Chester Railway Station.

To the Trade.

JOHN PERKINS AND SON beg to offer the following:—
BOX, Green, fine and bushy, 1½ to 2 feet, 12s. per 100.
BERBERIS AQUIFOLIA, 1 to 1½ foot, 18s. per 1000.
LAURELS, Common, 2½ to 3 feet, 80s. per 1000.
,, Portugal, 1½ to 2 feet, 100s. per 1000.
OAK, English, fine Standards, 7 to 9 feet, 40s. per 100. [1000.
PRIVET, Evergreen, strong, transplanted, 2 to 3 feet, 18s. per
YEW, English, fine, 2 to 2½ feet, 25s. per 100; ditto, 2½ to 3 feet, 25s. per 100.
BLACKTHORN, strong, transplanted, 14s. per 1000.
WHITETHORN or QUICK, strong, transplanted, 8s. per 1000.
CURRANTS, Red, extra fine, 60s. per 1000.
,, Black, extra fine, 80s. per 1000.
NECTARINES, fine dwarf-trained, 30s. per dozen.
ROSES, fine Standards, 3 to 4 feet stems, 70s. per 100; ditto, 2 to 3 feet stems, 60s. per 100.
ROSES, on Manetti, 30s. per 100.
52, Market Square, Northampton.

SPLENDID NEW APPLE, "LADY HENNIKER," Sent out by EWING AND CO., Norwich. Circulars on application.

The following Nurserymen have been supplied :—

J. Veitch & Sons, Chelsea.
Thos. Hewitt, Solihull.
J. & C. Lee, Hammersmith.
D. Ward, Wisbech.
H. & F. Sharpe, Wisbech.
J. Harrison & Sons, Leicester.
Thos. Studd, Heaton Mersey.
Watts & Son, Northampton.
Thos. Perkins, Northampton.
J. Bird, Downham Market.
J. Prettingham, Beeston.
Osborn & Sons, Fulham.
Geo. Berry, Ipswich.
Simon-Louis Frères, Metz.
R. Smith, Worcester.
Stewart & Mein, Kelso.
Wood & Ingram, Huntingdon.
R. Bradley & Sons, Halam.
F. & A. Dickson & Sons, Chester.
Geo. Swailes, Beverley.
Wm. Knight, Hailsham.
Fisher, Holmes & Co., Sheffield.
J. Cattell, Westerham.
J. Fraser, Leyton.
Lane & Son, Berkhampstead.
H. Shaw, Sheffield.
Little & Ballantyne, Carlisle.
John Scott, Merriott.
Daniel Bros., Norwich.
G. Smith, Birkenhead.
W. Crowder, Horncastle.
Jas. Dickson & Sons, Chester.
Thos. Laws, Beccles.
J. S. Schiebler & Sohn, Celle.
Cocks Bros., Donnington, Spalding.
W. Potten, Sissinghurst.
B. S. Williams, Holloway, N.
W. Ireland, Pilton, Barnstaple.
Carter & Co., Forest Hill, S.E.
Ivery & Son, Dorking.
P. & E. Transon Frères, Orleans.
R. Mason, Windlesham.
W. R. Harrison, Maidstone.
Cranston & Mayos, Hereford.


WELLINGTONIA AUREA VARIEGATA.

Planted by H.R.H. the Prince of Wales at Sandringham.
Planted by H.R.H. the Princess of Wales at Blenheim.
Planted by H.R.H. the Duke of Edinburgh at the Vice-Regal Lodge.
Planted by H.E. the Earl Spencer at Althorpe.
And by the leading Noblemen in the United Kingdom.

Splendid plants, finely rooted, 5 feet high, and covered with Golden Variegation, at £5 5s.; smaller, £3 3s., £2 2s., and £1 1s.

CIRCULARS, with List of Prizes taken, and Testimonials received from the leading Coniferæ Growers of Europe, can be had on application to

R. HARTLAND, The Lough Nurseries, Cork.
November 26, 1874.


GLADIOLI.—All the First Prizes, for Eleven Years in succession, in Open Competition, offered at the Royal Horticultural Society and the Crystal Palace Shows, have been awarded to

KELWAY AND SON,

who are the Only Raisers and Propagators for Sale in the United Kingdom.

CATALOGUES, describing all the varieties worth growing, with Instructions for Cultivation, gratis to applicants.

Selections left to us, 25 for 21s., 25 for 42s., 25 for 63s., 25 for 105s., 25 for 210s.

Blooming Bulbs of our unblooomed seedlings, saved from the choicest varieties, 100s. per 100.

The Royal Nurseries, Langport, Somerset.

POTATOS for PLANTING.

The undersigned has just imported from one of the leading Houses of New York more than 100 barrels of American New POTATOS, which he offers to the Public for cash until the present Stock is sold.

	Per lb.	Per Peck of 14 lb.	Per cwt.
	s. d.	s. d.	s.
Snowflake	2 0	25 0	160
Eureka..	0 6	30 0	200
Acme	0 8	7 0	50
Nonesuch	0 8	7 0	50
Early Gem	0 8	7 0	50
Brownell's Beauty or Vermont Beauty	0 6	6 0	40
Compton's Surprise	0 6	6 0	40
Extra Early Vermont ..	0 6	6 0	40
King of the Earlies	0 4	3 6	24
Climax	0 4	4 0	24
Late Rose	0 4	4 0	24
Alpha	12 0		

Retail prices of the English grown on application.

1 peck bags, 3d.; 2 do. 6d.; 1 bush. 7d.; 4½ bush. sacks 1s. 4½d. each, Remittances to accompany all Orders.

CHRISTMAS QUINCEY,
Wholesale and Retail (Seed) Potato Grower and Merchant,
Peterborough.

N.B. Trade Prices of Imported and English grown on application. *This advertisement will not be repeated.*

WRIGHT'S GIANT WHITE CELERY.—This is quite a distinct pure white variety; it is very crisp, and of excellent flavour, combining a robust, compact habit, forming very solid hearts, which blanch very easily. Heads of this variety have been grown weighing from 8 to 10 lb. each, and can be highly recommended for exhibition, private or market purposes. 1s. per ½ oz. packet.

WRIGHT'S RED GROVE and WHITE GROVE CELERIES.—These possess all the good properties of the Giant White, but do not grow quite so large. 1s. per ¼ oz. packets. The usual discount to the Trade.

The following fourteen firms have secured supplies of the above for this season, for which I beg to thank them, soliciting extended patronage :—

Hurst & Son, London.	Lawson Seed Co., Edinburgh.
Cooper, Robt., London.	Downie, Laird & Laing, Edinburgh.
Daniel Bros., Norwich.	Drummond & Son, Sterling.
Dickson, Brown & Tait, Manchester.	Howden & Co., Inverness.
Dixon, E. P., Hull.	Laird & Sinclair, Dundee.
Holmes, Ed., Lichfield.	Finney, S., & Co., Newcastle.
Brotherton, Wm., Leeds.	Umpleby, Geo., Leeds.

CUCUMBERS.—Wright's Wonder, fine white-spine, and Wright's Improved, black-spine; these will grow 24 to 30 inches long, are very prolific and of mild, good flavour. Pearson's Long Gun, Rollinson's Telegraph, Berkshire Champion, Improved Sion House, Masters' Early Prolific. 1s. per packet.

Lowest price quoted per 100 seeds on application.

W. WRIGHT, Seed Merchant and Nurseryman, Market Square, Retford, Notts.

JAMES TYNAN, Seed Warehouse, 68, Great George Street, Liverpool, offers :—

GLOXINIA CRASSIFOLIA GRANDIFLORA.—Magnificent and distinct strain; leaves broad and fleshy, recurving so as to almost cover the pot; flowers much larger than in the older sorts, very brilliant and varied in colour. Sown in January or February, they bloom the following autumn. Erecta and horizontalis, separate or mixed, 1s. and 2s. 6d. per packet.

STEPHANOTIS FLORIBUNDA.—Fine variety from the Mauritius, flowering profusely at every joint, and possessing in a high degree the delightful fragrance of this beautiful climber. 1s. 6d. per packet.

CYCLAMEN PERSICUM, Prize strain.—Seed saved from one of the best collections in the kingdom. 1s. 6d. per packet.

DOUBLE PETUNIA, large flowering.—Will produce a large percentage of splendid double flowers of great size, and charmingly varied shades of colour. 1s. 6d. per packet.

Post-free on receipt of Stamps or Post Office Order.

Send for CATALOGUE of CHOICE VEGETABLE and FLOWER SEEDS.

JOSEPH SMITH, JUN., Moor Edge Nurseries, Tansley, near Matlock, begs to offer at p. 1000 :—BROOM, 1-yr., 25s.; White, 2-yr., 5s. PRIVET, 1-yr., 4s.; 2-yr., 6s.; 1 to 1½ foot, 15s.; 2 to 3 feet, 20s.; 3 to 4 feet, 25s. ASH, 1 to 1½ foot, 14s.; 1½ to 2 feet, 18s.; Mountain, 1½ to 2 feet, 18s.; 2 to 3 feet, 22s.; 3 to 4 feet, 27s.; 6 to 8 feet, 80s.; 8 to 10 feet, 120s. BEECH, 1 to 1½ foot, 18s.; 1½ to 2 feet, 25s.; 2 to 3 feet, 30s. BIRCH, 5 to 6 feet, 100s. CHESTNUT, Horse, 3 to 4 feet, 50s.; 4 to 5 feet, 80s. ELM, 1½ to 2 feet, 12s.; 2 to 3 feet, 18s.; Scotch, 1½ to 2 feet, 20s.; 2 to 2½ feet, 25s.; 3 to 4 feet, 30s. LIMES, 1 to 1½ foot, 35s.; 2 to 3 feet, 60s.; 3 to 4 feet, 80s.; 4 to 5 feet, 100s. MAPLE, Norway, 2 to 3 feet, 30s.; 4 to 5 feet, 40s.; 8 to 10 feet, 100s. ACER NEGUNDO, 1 to 1½ foot, 12s.; 1½ to 2 feet, 18s. PINUS AUSTRIACA, 1 to 1½ foot, 15s.; 1½ to 2 feet, 20s.; 2 to 3 feet, 30s.; 3 to 4 feet, 100s. POPLAR, Italian, 5 to 6 feet, 50s.; Ontario, 2 to 3 feet, 20s.; 4 to 5 feet, 35s.; 5 to 6 feet, 60s.; 6 to 8 feet, 100s. WILLOW, Bedford, 1½ to 2 feet, 15s.; 2 to 3 feet, 18s.; 3 to 4 feet, 25s.; 4 to 5 feet, 30s.; 6 to 8 feet, 60s.; 8 to 10 feet, 80s. SYCAMORE, 4 to 5 feet, 35s.; 5 to 6 feet, 60s.; 6 to 8 feet, 100s. SPRUCE, 1 to 1½ foot, 12s.; 2 to 2½ feet, 25s.; 2½ to 3½ feet, 40s.; 3 to 4 feet, 70s. per 100. QUICK, 2-yr., transplanted, 8s. ARBOR-VITÆ, 1½ to 2 feet, 60s.; 2 to 3 feet, 80s.; 3 to 4 feet, 120s.; 4 to 5 feet, 150s.; 5 to 6 feet, 250s. BERBERIS AQUIFOLIUM, 9 to 12 inches, 20s.; 1 to 1½ foot, 30s. TREE BOX, 1 to 1½ foot, 50s. LAUREL, 9 to 15 inches, 30s.; 1 to 1½ foot, 40s. RHODODENDRONS, &c. LIST of General Stock free.

Special Offer to Noblemen, Gentlemen, the Trade, And OTHERS engaged in PLANTING.

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ASH, Common, 3 to 4 feet, 30s. per 1000.
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WILLOW, Kilmarnock, 18s. to 24s. per dozen.
,, American, fine, 12s. to 42s. per dozen.
LABURNUM, 5 to 6 feet, 20s. per 100.
ARBOR-VITÆ, American, 5 to 6 feet, 60s. per 100; 6 to 7 feet, 80s. per 100.
,, Siberian, 3 to 4 feet, 50s. per 100.
LAUREL, Portugal, 2½ to 3 feet, 50s. per 100; 3 to 4 feet, 65s. per 100.
YEW, Irish, 3 to 4 feet, 60s. per 100.
,, Common, 2½ to 3 feet, 60s. per 100.
LIGUSTRUM JAPONICUM, 2 to 2½ feet, 50s. per 100.
HOLLY, Common, 1½ to 2 feet, 50s. per 100.
BERBERIS DARWINII, 3 to 4 feet, 75s. per 100.
LAURUSTINUS, in pots, 50s. to 75s. per 100.
IVY, variegated, in variety, 12 to 18 inches, 12s. per dozen.
PEARS, Pyramid, fine fruiting trees, 75s. to 100s. per 100.
APPLES, do., do., 75s. to 100s. per 100.
PLUMS, do., do., 75s. to 100s. per 100.
CHERRIES, do., do., 100s. per 100.
CURRANTS, Black, 10s. per 100, 90s. per 1000.
GOOSEBERRIES, sorts, 10s. per 100, 90s. per 1000.
QUICKWOOD, 12 to 18 inches, 10s. 6d. per 1000; 18 inches to 2 feet, 16s. per 1000; 2 to 2½ feet, 25s. per 1000.
MYATT'S PROLIFIC POTATOS, true, £7 per ton.

CATALOGUES may be had free on application to
WITTY AND SON, The Nurseries, Cottingham, Hull.

NEW and SELECT VEGETABLE SEEDS.

BROCCOLI, Christie's Self-Protecting Late White.—This valuable Broccoli has been raised by Mr. Christie of Aswarby, and is pronounced by all who have seen it as the finest self-protecting late Broccoli in cultivation. See Testimonials. Sold only in sealed packets, 1s. 6d. each.

BORECOLE, Variegated Triple-curled, extra selected.—This stock includes all the best varieties for decorative purposes, for garnishing, the embellishment of the flower garden and the dinner-table. Price 6d. and 1s. per packet.

BRUSSELS SPROUTS, Roseberry, extra selected.—Price 1s. per ounce.

CELERY, Dixon's X L Red.—A very strong grower, early, hardy, remarkably solid and crisp. Has obtained a First Prize wherever exhibited during last season, and is acknowledged to be a very decided acquisition. Price 1s. 6d. per packet.

CELERY, Dixon's Mammoth White.—The best White extant. Price 6d. and 1s. per packet.

CUCUMBER, Burnett's Perfection.—Growing from 24 to 30 inches long, fine flavour and very productive. Price 1s. 6d. per packet.

CUCUMBER, Rollisson's Telegraph.—True, handsome, and very prolific. Price 1s. per packet.

LETTUCE.—Dixon's Champion Green Cos still maintains its well-known reputation as being the largest and most delicious Lettuce in cultivation. Price 6d. and 1s. per packet.

PEA, Dixon's Yorkshire Hero.—My stock of this magnificent variety of the wrinkled Marrow is grown from the original stock introduced by me a few years ago. It is exceedingly prolific, having as many as sixty or seventy pods on a single stem. The Pea, of a most delicious Marrowfat flavour, is fourteen days earlier than Veitch's Perfection, and withstands the effects of mildew better than any other variety. Price 1s. 6d. per quart.

TURNIP, Silver Ball.—A superb white, solid root, fine shape, flesh tender and delicious; very select stock. Price 1s. per ounce packet.

EDMUND PHILIP DIXON, The Yorkshire Seed Establishment, 57, Queen Street, and 75, 76, and 77, High Street, Hull.

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1 Collection for 2s. 6d.
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60 Collections for £6 15s.
120 Collections for £13.
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1 Collection (12 varieties) for 1s. 6d.
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60 Collections for 85s.
120 Collections for £8 5s.
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These Collections are intended for the exclusive use of Cottagers, and are worthy the attention of all who desire to increase the comfort of the Working Classes.

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JAMES VEITCH & SONS

HAVE MUCH PLEASURE IN DIRECTING ATTENTION TO THE FOLLOWING

NEW AND CHOICE VEGETABLE AND FLOWER SEEDS.

TENDER AND TRUE CUCUMBER.

This splendid new Cucumber was raised by Mr. Douglas, Gr. to F. Whitbourne, Esq., Loxford Hall, Ilford.

It is a seedling from Telegraph and Blue Gown, combining the good qualities of both these fine kinds.

It is very symmetrical in shape, with scarcely any neck, and grows to a length of about 24 to 30 inches. The colour is of a beautiful deep green shade, and the flavour is excellent. It is a free bearing variety, of very strong constitution, and is equally suitable both for winter and summer use. It received a First-class Certificate from the Royal Horticultural Society on May 3, 1871, and was awarded 1st prize at each of the spring shows for the past three seasons. It also gained first honours at Birmingham on July 7, 1874, in competition with twenty-one other kinds.

Price, 3s. 6d. per packet.

CULVERWELL'S PROLIFIC MARROW PEA.

This remarkably fine late Pea has been placed in our hands for distribution by Mr. Culverwell, Gardener to Mark Millbank, Esq., Thorpe Perrow, Bedale, Yorkshire.

Mr. Culverwell describes it as one of the finest late Peas grown for productiveness, as it bears pods from within a short distance of the ground to the top of the haulm, and thus the crop lasts a long while. The pods are straight, pale green, and contain from five to six exceedingly large peas of excellent quality. It is of strong and robust growth, from 5 to 6 feet in height.

We have letters from Mr. Westcott, Raby Castle, Darlington, and Mr. Saul, Stourton Park, Knaresborough (to whom it was sent for trial), speaking of its wonderful quality. The former says, "There is not the slightest doubt in my mind of its being the greatest acquisition among Peas that we have had for many years past, and truly deserving the term 'new and distinct,' the flavour quite equalling, and if possible surpassing, the world-wide-famed variety Veitch's Perfection." Mr Saul speaks of it as follows: "It is a most deliciously-flavoured Pea, and its great merits when known must soon cause it to become a standard variety of the very first-class."

The ripe seed is very large, bright green, wrinkled, and very distinct in appearance.

Price, 5s. per quart.

CAULIFLOWER, VEITCH'S AUTUMN GIANT.

This extremely valuable variety is perfectly distinct from any other sort. The heads are magnificent, beautifully white, large, firm, and compact, and, being thoroughly protected by the foliage, remain longer fit for use than any other kind.

Price, 1s. 6d. per packet.

PREMIER RUNNER BEAN.

A very distinct Runner Bean, growing from 4½ to 5 feet high, and producing continuously a large number of pods, in appearance like those of a Dwarf French Bean; very tender, and invaluable for table purposes.

The Editors of the *Gardeners' Chronicle*, in reviewing the Novelties of 1868, speak of it in the following words:—"Amongst Runners, Premier is a decided acquisition, a true Kidney Bean, with a running haulm, and consequently a continuous bearer."

We extract the following description of this variety from *The Garden* of March 14, 1874, p. 230:—"Premier is really a runner form of the Dwarf French Bean, and when grown with a large number of other kinds at Chiswick it was considered sufficiently meritorious to receive a First-class Certificate, and since then, in its peculiar form, it has not been excelled. The plant grows to a height of about 5 feet, and does best on ordinary pea-sticks. It commences to crop close to the ground, and continues to bear heavily until the winter. The green pods are very tender and delicious when cooked, and it is altogether a really useful garden vegetable."

Price, 5s. per quart.

EASTNOR CASTLE GREEN-FLESH MELON.

This splendid Melon, a hybrid between Beechwood and Victory of Bath, was raised by Mr. Coleman, Eastnor Castle, Ledbury. It has been exhibited at several of the principal shows during the past season, and has been universally admired. It was also in Mr. Coleman's First Prize Collection of Fruit, exhibited at the great Birmingham Meeting, July, 1874.

It takes its netting, colour, and depth of flesh from Beechwood, and ripens off pale yellow. It is a free grower, free setter, and bears a profusion of fruit, generally averaging about 3 or 4 lb. in weight.

When exhibited at the Royal Botanic Society, where it gained the First Prize on June 24, 1874, it was acknowledged to be the deepest green-fleshed and best flavoured Melon ever shown.

Price, 2s. 6d. per Packet.

FLOWER SEEDS.

BLUMENBACHIA (CAJAPHORA) CORONATA.

This very pretty plant was introduced by us from Peru, through our late collector, Mr. Pearce. It is a dwarf, shrubby-growing annual, forming handsome tufts about 1½ foot high by about 1 foot through. The flowers, which are borne in great profusion, are of a striking orange-red colour, coronal-shaped, and are about ¾ inch deep by 1½ inch in diameter.

Mr. Worthington Smith, in describing the stinging hairs of this plant in the *Gardeners' Chronicle*, of September 6, 1873, p. 1211, commences his article thus:—"The presence of danger always renders beautiful objects still more fascinating. 'The Rose, with all its thorns, is best of all.' This is the reason why the beautiful plant of Blumenbachia coronata, exhibited by Messrs. Veitch at the Royal Horticultural Society, proved so attractive to many a visitor in the Council-room. The beautiful habit and fine large orange-coloured flowers of this plant were fascinating enough in their way, but the label, requesting no one to touch it on account of its stings, completed the charm."

A Coloured Plate of this plant was given in the *Floral Magazine* for November last.

Price, 1s. 6d. per packet.

Blumenbachia (Cajaphora) coronata.

RICINUS GIBSONII.

A very fine dark-leaved variety of this useful group of sub-tropical plants. It grows from 4 to 5 feet high, has a fine branching habit, and particularly distinguishes itself from every other variety by the intense deep red colour of its foliage, reminding one of some of the dark-leaved varieties of Amaranthus, which are so much grown for the purpose of giving colouring and effect to groups and masses. It will undoubtedly take a high position in the sub-tropical garden on account of its bright hue, which is retained during the whole of the season. It is in every way so distinct and fine a kind that we have considered it worthy of being named after Mr. Gibson, late of Hyde Park, who has done so much for the advancement of sub-tropical gardening in this country. It was imported by us from the Philippine Islands.

Price, 1s. 6d. per packet.

CELOSIA HUTTONII.

This very beautiful plant was introduced by us through our collector, the late Mr. Hutton, after whom we have named it. It is of compact pyramidal form and bushy habit, profusely branched, each leading branch being tipped with a small spike of bright crimson flowers. In colour the plant resembles the well-known Iresine Lindeni, the upper surface of the leaf being of a deep claret colour, while the under side is of a bright crimson shade. It grows to a height of 1½ to 2 feet, by about 1½ foot in diameter, the leaves measuring 3 to 4 inches long by ¾ to 1¾ inch wide at the broadest part. As a bedding or sub-tropical plant it will take a high rank, from its fine habit and rich and effective colouring.

Price, 1s. 6d. per packet.

ILLUSTRATED PRICED CATALOGUE of SEEDS, now published, Post Free on application.

Special Offer to the Trade of this Season's Novelties and other Choice Seeds forwarded on application.

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, LONDON, S.W.

SATURDAY, JANUARY 9, 1875.

A HOLIDAY IN NORWAY.

(*Continued from p. 8*).

APPROACHING Vasenden, the road descends by bold, sweeping zig-zags down a fearfully grand gap in the mountains, the cleft sides of the gorge rising black and threatening, and becoming more awful and oppressive in their shadowy vastness as we descend more deeply into the valley. A waterfall at the head of the gap falls in a great white sheet over the rocks, and roars in a succession of cataracts down the abrupt declivity. Enormous masses of rock choke the space on each side of the road. Wild Raspberries grow abundantly amongst these fragments of rock. From Vasenden it was necessary to relinquish the carriole, and to take a horse (pony in our comprehension of the fact), as the roads across the mountains to Ulvig are too precipitous for carriages. A Norsk horse can climb a mountain and go over stony ground better than it can travel on a level road, at least, in my experience of riding, the only time a horse fell with me (or that others made false steps) was on smooth roads. Going over a somewhat bare and desolate region towards Ulvig, the crests of the hills above being covered with snow, the vegetation on the sour black peaty soil was not striking or varied—dwarf Willow, Vaccinium, Calluna vulgaris, occurring more abundantly than other forms. I was tempted to dismount, and clamber over some rough ground, on seeing a whitish plume of flower hanging from the face of a black mica slate precipice; on reaching it I found it to be Saxifraga Cotyledon. I subsequently discovered the same plant in great profusion, and gathered specimens of it with delight. Tufts of the Parsley Fern grew by the rocks that skirted a small mountain lake further on the road.

Reaching Ulvig, I found a very good resting-place at Madame Wilhelmson's, which was not unwelcome after a tedious ride and walk encumbered with a knapsack and travelling bag. Very early on the following morning I took a boat to go to Eide Fjord, a sail that occupies from three and half to four hours. On landing and inquiring for a horse to take me to the Voring Foss, I learned that the hotel was full, that every animal was taken up; visitors from the yacht moored off the place had also swelled the number of excursionists to this noted foss, and there was nothing for it but to walk, or give up the visit to the waterfall. I chose the latter course, and re-engaged the boatmen to pull me back to Ulvig. The wonderful beauty of the scenery that encompasses this branch of the Hardanger Fjord, the loveliness of the day, the sparkling purity of the rippling waters, made the voyage up the inland sea one of unmixed enjoyment. No words can convey an adequate idea of the grandeur of Norwegian scenery, and even the pencil but imperfectly represents its glories. On each side of this fjord the rocks, in endless diversity of form, rise grandly from the water, sometimes precipitously, often in bold sweeping slopes; Pines cluster on the hill-sides in every possible spot, and where a little ledge or less abrupt slope occurs, there the farmer has fixed his dwelling; there we see the closely-shaven grass, every blade of which is treasured; the plot of Barley, the field of Oats, and outbuildings enough to secure all the produce of the farm, for stacks are never made as with us, and everything is housed in Norway. Boats and nets tell us that the waters afford a harvest as well as the land.

At the head of the fjord, the bay round which Ulvig is situated is encircled by mountains, the most prominent rising to a height of 5200 feet. This and others about it are capped with snow, which, slowly melting, send down ceaseless torrents, that run like lines of silver down the steep sides of these frowning masses of rock. At Ulvig during the summer the roar of falling water is continuous; there is a very fine waterfall and a succession of cascades at the head of the fjord, one of which is spanned by a wooden bridge, and along the sides of the broken stream saw-mills are placed, each mill having its own conduit. The water-power available for machinery in Norway is enormous; much of it is readily accessible, and it may probably be more utilised as coal becomes more precious.

Returning over the hills that intervene between Vasenden and Ulvig I saw, while traversing this solitary and sterile region, some mountain sheep, free, active, handsome creatures, with little of the stolid stupid fatness about them that characterises our advanced breeds; they had a half-wild and watchful, wary look, as if scenting the mountain air had given them dim visions of ancient freedom.

The boy who accompanied me to take back the pony I rode, left me for a short time, and, returning, brought me a handful of Multebar, Rubus arcticus—a fruit that would surely pay for cultivation in Norway, as it will grow and thrive in these upland situations, and on soil so adverse to ordinary hardy fruits. The northern slope of the range has a straggling growth of Pine, Birch, and Alder upon it, amongst which, with tinkling bells, I saw a herd of cows feeding on the scant herbage that was afforded by the poor and often swampy ground.

Waiting for a fresh horse at the station, I went into the family-room to sign the day-book and take shelter from the rain, which had begun to fall. A line of wooden bedsteads occupied one side of the room. The cradle, within reach of the chief bed, was a wooden box, suspended by cords to the thin end of a long pole, which was fastened to the rafters above. A very slight pull caused the hensky to spring rapidly up and down, imitating the movement of a mother's arms more naturally than our rocking cradles.

After a night's rest at Vossevingen I started for Gudvingen. The intervening stations are not inviting, but the country presents many scenes of savage grandeur. Just after leaving Twinde, the rocky bed of the river is contracted, and is spanned by a simple bridge of wood, beneath which pours a volume of foaming water, pitching down a fall with a great roar and rush. It is most tantalising not to be able to carry off pictural recollections of such charming bits of river scenery. In Norway, if a man sketches, he must travel slowly, and be prepared to linger at unexpected spots. He should have a tent and ample provisions. An angler must remain by his river, a sportsman must go to the mountains, an ordinary traveller, with limited time, and a desire to see as much as possible, must push on. The last arrival at stations sometimes a distance of 10 miles from similar houses, often has but a poor chance of lodging or entertainment. I have the picture before me of two wet and weary pedestrians, who came to the Vossevingen Hotel late one evening, and were, owing to the crowded state of the little place, sent away without rest or refreshment.

Travelling in Norway is rendered less fatiguing and more enjoyable by the excellence of the public roads. The labours of the engineers employed in the task must have been enormous, in carrying out some of the great works that have rendered stations before inaccessible to

vehicles of easy attainment. Thus to reach Gudvingen, which is situated at the lower end of a profound valley close to a branch of the Sogne Fjord, a road has been carried from the heights above by a series of gradually sloping curves, by which the traveller can descend with his carriole, without the least danger, to the comparatively level road that is formed along the lower part of the valley. No tourist in Norway should fail to visit Gudvingen. Before the descent is accomplished the view of the mountain region, which this great rift in the hills opens up, is magnificent. To the right and left of the sloping road waterfalls pour over the black cliffs, and, uniting, form the river that runs down the valley. Enormous blocks of granite, gneiss, quartz, and porphyritic rock lay tossed about, seeming the theatre of the sudden disruption of the subterranean world. The dark walls of rock rise up to a giddy height, and appear to gather in vastness above the wondering gazer, and dwarf him into pigmy proportions the more he descends to the lower depths of the gorge. It is awful and awe-inspiring to stand at the foot of a great black cloud-crested rock, that rises before you like a veritable presence. The element of danger adds to the sublimity of the scene. The masses scattered about, which have been hurled from its greatest heights, tell you that danger lurks in its craggy frown. The ceaseless splash of waters from the melting snows show that agencies are at work that even these masses of rock cannot resist; and the tiny cascade that falls like rain-dust from its crest, is scoring time-marks that surely forbode decay and destruction. The great masses of rock that are scattered about the valley are covered with what may be likened to miniature forests, composed of the most beautiful mosses and lichens; these afford a protective covering to the stone, preserving it from the decay to which exposed surfaces are liable.

Leaving Gudvingen with the utmost regret the following day, the obligation being enforced by the arrangements of the steamer, which only calls once a week, I passed down the Sogne Fjord, and landed at Lierdalsören in the afternoon. A crowd of carts and carrioles met the vessel, but delays and difficulties occurred in securing a suitable conveyance, and late in the day, with several English tourists, I started on my journey to the Fille Fjeld. A glorious salmon river bounded the road for some distance. Changing my horse at Blaaftoten, I pushed on with all possible speed towards Husum, but the abruptness of the ascent made the way long; though every hill gained, and every turn of the road brought the finest imaginable mountain scenery into view. At one point I saw some distinct river or lake terrace, formed evidently when this region was at a lower level than it is at present. There are other and similar evidences of a gradual upheaval of large areas in different parts of the country; but the night closed in, and as it was quite dark when we reached the station, it was no slight disappointment to find that the house was full, and that not even the accommodation of a floor could be afforded, and we had no choice but to change horses and proceed towards the next station. There are some impressions which are never effaced, and this journey through scenery of such savage grandeur, magnified by the sombre shadows of the night, and often rendered terrible by the roar and rush of waterfalls and foaming rivers, dashing in white foam hundreds of feet below, or sometimes from the topmost cliffs above the narrow road, that seemed itself oftentimes suspended in mid air, is one that can never be forgotten.

Murray describes the scenery which the obscurity of night only allowed me imperfectly to realise. "The road continues to ascend, the torrent thundering close alongside all the way. The falls and cascades which this stream makes are most numerous, and afford fine subjects for the sketcher. Some of the peasants' cottages are particularly picturesque. They are built of solid trees on foundations of rock, generally one storey high; when more, a gallery is made outside. The roofs are constructed with planks, overlaid with Birch bark, and then covered all over with turf. The church of Borgund, a singular and interesting edifice, built in the eleventh or twelfth century, is passed on this road. The road keeps the bank of the river almost all the way, and runs through a magnificent pass, at times so narrow that the road is blocked out of the face of the perpendicular rock. In one place it passes through a cleft in the rock, just wide enough to allow a carriage to pass. In a narrow part of the pass the road is carried across the stream a great distance above it. The views both up and down are very fine."

At 2 A.M. we reached Husum, and found, fortunately, that we were in advance of the rush of travellers. After resting here for a few hours, I again mounted my carriole and continued on my way, influenced by the thought that, as many tourists were behind, any delay would deprive me of the accommodation I required near the fjeld, and my companions were urged by the desire to secure horses to carry them well on towards Christiania. Keeping by the banks of the Lierdals Elf the road goes through a magnificent pass; huge masses of rock lie scattered beneath the mountain, like relics of the earlier world. Approaching more nearly the plateau of the fjeld the scenery becomes more savage in its grandeur—the wastes of snow come nearer, vegetation becomes more alpine in character, trees have a stunted and weather-worn look, and horses and travellers are not sorry to rest for a short time at Maristuen. This station is 3900 feet above the sea. Looking round at the great snow-covered wastes there seemed little to tempt one to linger, and I decided to proceed to the next station. *William Ingram, Belvoir.*

(*To be continued.*)

New Garden Plants.

MASDEVALLIA POLYSTICTA, *Rchb. f.*

This novelty has just flowered in two places—at the Royal Exotic Nursery of Messrs. Veitch, and at the garden of Donaueschingen belonging to the Prince Carl Egon zu Fürstenberg, under the able management of Herr Hofgärtner Kirchhoff. It produces numbers of flowers at once, and if there are very many spikes at once in a mass it may well deserve the name of a gem. I must, however, state that all the three inflorescences I have obtained are of the variety with very numerous small dark brown spots on a white ground colour, while that variety which has few great dark spots may better explain M. Roezl's allusion to Odontoglossum nævium. I have it in my herbarium, and hope it may appear among the, no doubt, rather numerous imported specimens. *H. G. Rchb. f.*

NEW FRUITS OF 1874.

IN the fruit department the acquisitions during the past year have not been quite so abundant as usual. The season, although extremely trying during the early part to the fruit cultivators, was not on the whole an unkindly one for fruits in general. But for the frosts in May the crop of fruit everywhere would have been excessive, and, as a consequence, helped by the succeeding dry summer, very inferior. The crop of Plums was perhaps more affected by the cold spring than any other fruit, and that of Strawberries by the excessive drought. There were, indeed, excepting in such favoured spots as the county of Kent, scarcely any good Strawberries last year. We have, therefore, no new varieties of this most popular fruit to call attention to, but we would just remark, *en passant*, as a most noteworthy fact, that the winning Strawberry of the past season was Sir Joseph Paxton. Its great size and beauty made it conquer at almost every exhibition.

In *Apples*, the number of new seedling varieties submitted for public opinion has been unusually great. There has not, however, been any of very startling merit. The variety amongst Apples is now so great, and the quality so good, that it is extremely difficult to secure any advance. We must here note, if not as a novelty as a very important addition to our pomological knowledge, the fruiting, or the observation of the fruiting, for the first time in the gardens of the Royal Horticultural Society at Chiswick of the true Pommier du Paradis (the French Paradise Apple). This is the stock so much used in France as a dwarfing stock for Apples, and about which there has been so much controversy in our columns during the past few years. The fruit is of medium size, pale yellow, with a flush of light rose on the exposed side, and would pass muster very well in a basket of Keswick or Manks Codlin. It ripens early in August, and is then of very good quality; so that not alone is it valuable as a stock, but it is also worthy of cultivation as a useful fruit on its own account. It may be described as precocious in every sense of the word. It flowers and fruits at a very early stage, and induces the same habit or character in any variety grafted upon it. It blossoms early in the season, which is rather a demerit, and is one of the earliest sorts to ripen.

Of *Pears* we have not many to notice, yet here is one of sterling merit—Lucy Grieve, an English seedling, raised by Mr. Grieve, of Culford Hall. It is not unlike a small Glou Morceau, and is of equally good quality. The following, although not exactly new, yet have stood so prominently forward this season as worthy of extensive cultivation that we think well to mention them, viz., Pitmaston Duchesse d'Angoulême, Beurré de l'Assomption, and Souvenir du Congrès. We must not forget to mention, either, the Pyrus Maulei, the fruit of which we were introduced to for the first time last season. It is a sort of Quince, the ripened fruits of which make an excellent marmalade. It is doubtful, however, whether it will be most appreciated as a useful fruit or as an ornamental plant.

Amongst *Melons* we had many claimants, and size actually carried the day. The biggest Melon we have ever seen was the most remarkable, and was certainly not the worst in quality. To Mr. Groom, of Stradbroke Hall, Suffolk, we are indebted for this great mountain, being no less than 18 inches in length. It is stated to be of African origin, and is worthy of preservation for hybridisation purposes, for the introduction of some new blood into our present very abundant class of "turnips." For another novelty in the fruit line we have to thank Mr. Woodbridge, of Syon House, for the Musa Champa, a variety of paradisiaca, from Trinidad. This is a very free fruiting sort, and considered of superior flavour to Cavendishii, and so is extremely welcome.

Lastly we come to by far the most important introduction of the past year, and again it is amongst *Grapes* — and again have we to thank our indefatigable friend, Mr. Pearson, for his splendid new Grape, Mrs. Pearson. This delicious Grape is of the same origin as Golden Queen, which was noticed last year. It is a seedling from the Alicante crossed with Ferdinand de Lesseps, and so partakes of a good deal of the peculiar Strawberry-like flavour of that variety. The bunches are large; berries of medium size, roundish oval, of a fine amber colour; the flesh firm, juicy, and exceedingly rich. This may be noted as one of the finest white Grapes yet introduced. It has not only been awarded a First-class Certificate, but received Mr. Alfred Smee's prize as the best new fruit of the year. There is another newish Grape of considerable excellence, which, although it has been already noticed, we may again advert to as coming this season more especially before the public—we allude to Venn's Seedling Black Muscat. This is of the character of the well-known Muscat Hamburgh, and is stated to inherit all its good qualities without any of its defects. If so we need nothing better.

MASDEVALLIA CHIMÆRA.

IN the *Gardeners' Chronicle* for May 16, 1874, p. 639, will be found a figure and description of the "night-bird,"—Masdevallia nycterina, a plant illustrated and sold by M. Linden under the name of the "true Chimæra," but, as my friend Prof. Reichenbach has conclusively shown, the coloured plate and plant alike are altogether chimerical. I certainly cannot agree with the Professor that M. nycterina is a "miserable thing" (*G. C.*, 1873, p. 1238), but that it should ever be figured and sold as the true Chimæra is certainly most improper. The present picture of the actual Masdevallia Chimæra (fig. 5.) will serve to set some dubious points at rest regarding the two species here mentioned, for, however much they may seem alike in the descriptions, they are very different things in the life. Chimæras and "night-birds" are notoriously ugly, discordant, fascinating, and not to be trusted; they bewitch mortals, and have an occult influence over terrestrial affairs, and in this respect the two Orchids under consideration and the mythological monsters resemble each other.

FIG. 5.—MASDEVALLIA CHIMÆRA.

No one who sees M. Chimæra for the first time can say it possesses any intrinsic beauty of its own, for its aspect is grotesque and whimsical in the extreme. The prolonged extremities of the sepals are the snakes' tails of the dreadful Chimæra itself, and the abundant hairs are the bristles of its horrible flaming mouth. M. Chimæra is like certain sounds, odours, colours, and persons familiar to all thinking people, disagreeable in themselves, yet possessing irresistible hidden attractions to which one is ever bound to return. Who is not familiar with certain themes in the music of Beethoven or Schubert, disagreeable, discordant, and stirring in themselves, yet the very notes one is always wishing to hear again. The same holds good with odours: certain scents (as the aroma of the Truffle) are to many persons actually hateful, yet the odour has such a peculiar fascination when once smelled that it must always be returned to. It is the same amongst tastes, colours, forms, persons, and all other things—things not in themselves positively ugly and offensive, but deficient in pure beauty and consonance, the deficiency being made up by some irresistible attraction, to which most people are bound to submit. M. Chimæra will always be esteemed for its peculiarities: the flowers are yellowish with deep reddish brown markings, and densely clad on the interior surface with long hairs; they remind one of acrobats walking on stilts with a balancing pole, and the front view of a flower is not unlike a twisted clown's face distorted with a grimace. The accompanying figure was taken last month from a living specimen in Mr. Bull's collection at Chelsea, obtained from that "stronghold of Masdevallias, the United States of Columbia." *W. G. Smith.*

NOTES BY THE WAY.

BIRMINGHAM AND LIVERPOOL.

So recently have the general complexions and contents of the Botanic Gardens at the above-named places been described in the columns of the *Gardeners' Chronicle*, that a new notice of them would, at present, be quite superfluous. Wherever horticulture is extensively and skilfully practised there is always plenty, nevertheless, that remains to be talked of another time, for the simple reason that to see everything at once is quite impossible, and more particularly because every day something different is developed. I never visit a fine and well-managed collection of plants without feeling that in Nature a good garden is just what one of those grand old achievements in Greek marble is in Art—a thing inexhaustible in its lines of beauty; and this feeling having just been experienced anew, both in Birmingham and Liverpool, I cannot refrain from jotting down some half dozen of my observations. Going again and again to such gardens, it becomes almost amusing to discover how much we have missed when we have thought we were securing the whole. To get it all at once, we very soon become aware, is no more possible than to comprehend the classic sculpture at a glance. Every one, of course, has found this out. To let the mind rest sometimes upon the fact is, nevertheless, a salutary course. I specially commend it to the consideration of every young gardener, who, because he was born with eyes, considers himself entitled to say that he can "see," and who imagines that the world of plants is to be viewed as easily as a cow eats grass. Another and yet larger class might profit perhaps by the application of the principle. The prospectuses of our great and fashionable schools are accustomed to give at the end of the proffered banquet a list of "accomplishments," charging extra for them. They appear to me always to forget one of the most important of human accomplishments, viz., the art of learning to see. Happy the day when it shall reckon with the music and the dancing, and be followed with the intimation, "These lessons given in the garden and the fields;" for there is no place where this delightful and most practical art is acquired so well—where seeing, that is to say, is discovered to consist not in simple casting of the eyes to the right and left, but in minute and thoughtful observation of delicate outlines, and the adjustment of parts, plus their symmetry, varying tints, and illustrations of adaptation of means to ends. Many people fancy that the power of seeing comes "by Nature." The principles do, the rudiments, and the suggestions; but exactness and completeness are every bit as much a result of careful and patient culture as accuracy is in performance on the piano or the harp. Rightly regarded, it demands as much culture even as the power of working out arithmetical calculations, problems in mathematics, or right conclusions in applied logic. Turning over the elaborate pages that tell of Oxford and Cambridge examinations for our sons and daughters, I find, I acknowledge gladly, some little recognition of the need above referred

to, in the shape of questions in book-botany and book-geology. But the genuine art of seeing has yet to be made a practical one, and to receive its fitting place. Like the line upon line, precept upon precept, counselled of old, it needs thoughtful look upon look, and years of culture. By-and-by, it is to be hoped it will rank with all sensible teachers, as a *bonâ fide* branch of the true "higher education;" meanwhile the practical gardener should remember that he enjoys an immense advantage in being provided with the opportunity of daily practice; and he is inexcusable if from thoughtful experience he does not count it as one of his privileges. No tutors or lesson-books are so efficient in regard to seeing as trees and flowers, while we think we are observing only leaves and petals, we are in truth learning to see quicker and further as regards the world in general. The enjoyment of a second visit to a good garden, yea, of a third visit, and a fourth, carries with it accordingly a twofold value and interest; it is not only a new harvesting of special facts and ideas, but the eyes go out with livelier aptitude for all that is worthy of other kinds. And thus am I brought round again to my special object—the noting of one or two things recently observed in the above-named storehouses.

At Birmingham it was very interesting to find in full flower that very curious North American shrub or small tree, the Hamamelis virginica. Introduced from Florida or Canada as far back as 1736, and, perhaps, formerly more common than at present, it is, nevertheless, in our own age quite a rarity, though found in the lists of some of the leading nurserymen—Messrs. Osborn, of Fulham, for example. In its native country the Hamamelis attains the stature of 20 to 40 feet. The leaves are large, simple, and ovate. The innumerable gay yellow flowers come out, singular to say, just when the foliage is about to fall, and, if the season be tolerably mild, remain as a pretty and conspicuous decoration of the bare branches for a considerable period. Hence, in the advanced flowering stage, the tree reminds one of the Cornus mascula, of which it is an almost exact late autumn repetition, corresponding even in the dimensions and sessile character of the flower-clusters. The parts of the flowers are all in fours, as in the Cornus, but here the petals are at least an inch in length, and somewhat twisted, reminding one of the corolla of the Strophanthus. The name is one of those old classical ones which have led, with impetuous authors, to many droll misstatements. Literally it signifies "blooming in company with the Apple tree," and, probably, was correct enough in its original application. But what that was is entirely unknown, and when Linnæus bestowed the name upon the American genus it was probably with no other design than to utilise an idler. The writer responsible for it appears to be Athenæus, that delightful old author of the third century, who, in his "Deipnosophists," or "Dinner-table Philosophers," introduces us to boundless wit and wisdom, art, poetry, and everything else that constitutes the "feast of reason and the flow of soul," preserving much of the antique that would otherwise have become totally obliterated, and in the middle of it this pretty name, Hamamelis.

In one of the Fern-houses, where so many curious little gems lie nestled together, Mr. Latham pointed out a plant of Brainea insignis that had been raised from the spore. The circumstance is interesting from the fact of Mr. Smith, late of Kew, having failed to get anything more than barren prothalli, and leads one to inquire whether the prothalli of Ferns may not perhaps be like the Ash tree—some of them bisexual, others exclusively male. Most of the grand Tree Ferns at Birmingham were also raised from the spore, say about eleven years ago, the spores coming from English-ripened sporangia. Looking at these magnificent plants, the question arises in one's mind whether it would be any more than a simply right and fair matter of business, when a curator or a gardener is inducted into his office or situation, for the money-value of the collection of plants entrusted to him to be taken by some competent professional; and the same to be done again when he resigns or quits, or even periodically during his tenure of responsibility. Commercial men and merchants "take stock" at definite times, with a view to determining what they have gained or lost, and were a similar course pursued in gardens it might be useful. How enormously the money-value of the Birmingham plants has been raised, for instance, by Mr. Latham, would then become apparent to the proprietors. Nothing can be more beautiful than the Tree Ferns at Edgbaston—Alsophila excelsa, Cyathea medullaris, Cibotium regale, C. spectabile, Dicksonia antarctica, D. arborescens, &c.—their fronds displayed so perfectly against the light, while their great unrolling croziers declare them, as everywhere else, the veritable archbishops of the Cryptogamia. Lovely, again, is the spectacle alongside of the mingled scarlet-crimson of the Lapageria, and the rich violet-purple of the Pleroma. By means of an ingenious network of strings Mr. Latham fills the space overhead with their beautiful flowers, the effect being that of the descending fires of a good sky-rocket. One of the Lapageria plants is this year quite loaded with green seed-pods—a circumstance the more remarkable since its neighbour is totally without. What a heavy flower it is! Plenty of flowers are substantial, but the Lapageria would do to put in scales. Not far from it is a very interesting object in the shape of a young Cocoa-nut Palm—say, rather, the nut in a state of advanced germination. How pleasant it would be if gentlemen's gardeners would look as sharply after such things. They would be sure to invite attention, and bring credit. The nut in question was a common one, bought in the market-place.

Carnivorous plants have of late been so greatly in favour that the slightest observation in regard to them has its value. Mr. Latham's plants of Nepenthes, though not large, are in excellent health; and very interesting must it be to the Birmingham people to observe that all the young and unopened pitchers are half full of limpid fluid, showing plainly enough that the contents are neither dew nor rain, nor yet derived from a watering-pot, but a genuine secretion from the plant itself. On tasting the fluid, it appears to be uniformly acidulous, or as if a few drops of lemon-juice had been let fall in. This, perhaps, is exactly what we ought to expect, the juices of plants being far more commonly acidulous than of any other flavour. I have often wondered why Linnæus gave to this genus the name of Nepenthes. Every reader of classic story remembers that when Telemachus reached the court of Menelaus, tired and famished, the beautiful Helen gave him "nepenthe" to drink. No one has ever been able to say what this nepenthe was, though no doubt one of the "drowsy syrups of the East." For my own part, I should have valued under such circumstances a cup of good Souchong—

"Tired Nature's sweet restorer, balmy Tea."

Johnson defines Nepenthe as "a herb that drives away sadness." Linnæus, perhaps, intended to refer to the tankard-like structure, so like, also, in the original species to a hot-water jug with its lid. Sometimes I am disposed to think that old Homer may have meant by Nepenthe no physical beverage, no, not even tea, but the sweet graces of Helen's queenly and consummate hospitality and welcome, touching, as they did, her guest's inmost feelings of love and reverence. If so, Nepenthes is well applied to its present owner, for assuredly no plant of botany appeals more strongly to our sense of the admirable and the unique. A plant of Dionæa was also very interesting, from the fact of one of the leaf-traps, though half-decayed, retaining within its clasp the flattened corpse of a large fly—one, apparently, of the kind commonly called "meat-flies." The insect had palpably been put to death in identically the same manner as the wretched victims of the mediæval punishment called the "iron shroud," opposing plates of iron being worked by mechanism in such a way as to squeeze the poor wretch to death. Over this matter of carnivorous plants another thing was suggested anew at Birmingham. Every one who cultivates Ericas has noticed how flies are captured by the species with glutinous and sticky corollas. If they do not eat or digest, these Ericas, at all events, kill and destroy. I should like to see this department of the carnivorous-plant question handled as carefully as the more obvious one has been, not omitting the consideration of the behaviour of the sticky-surfaced species of Silene, which from time immemorial have borne the English name of "Catchfly." Drosera dichotoma, at the time of my visit, was beautifully decked with its fleeting diamonds. In this particular species the vernation appears to be truly circinate. Is the vernation correctly described as being so in the Droseras generally? So far as I have had opportunities of observing, the blade of the leaf seems to be simply bent or doubled down, a very different thing from being incurved. Hooker and Bentham, in the *Genera Plantarum*, p. 661, say "circinate, except in one species;" and Dr. Hooker seems to approve of Le Maout and Decaisne's "coiled up." I conclude, therefore, that the term circinate includes with these high authorities the condition I refer to, but it is certainly very different from the incurving of Fern-fronds, and of the inflorescence of the Boraginaceæ and the Phacelias. Accepting the term as correctly applied to the leaves of the Droseraceæ, is it not a little curious that one example, and scarcely more, of the circinate is found among the exogens here in the Sundews, among the endogens in the Palm trees, and among the cryptogamia in the Ferns? A very curious plant in full bloom in the Birmingham garden the other day was Calceolaria Pavonii.

I have left myself scarcely room to speak fairly and justly of the present state of the Liverpool garden. Details of the new and singular I must reserve till another time. Suffice it here to say that the splendid promise for the future which was so soon developed after the completion of the new conservatories, has in every way been perfectly fulfilled. The new growth has been everywhere rapid and brilliant, and, as to be seen at the present moment, it is difficult to conceive anything more luxuriant, graceful, or vivid. What has been said above of the increased money-value of plants under good management, has illustration every bit as marked and conspicuous in those which at Liverpool are looked after by Mr. Richardson. Malphighia glabra has just been blooming here very profusely. Aloysia citriodora, grown as a little standard, is quite a picture. *G., Nov.*, 1874.

THE IVY IN THE DICTIONARY.

WE shall never reach the beginning of things, but we shall never cease to try. The primary passion of all intellectual life is the endeavour to "find it out," and the passion is sustained by the oft-recurring fact of new truths being brought to light. In any case, however, the knowledge only carries us back a step or two

"Upon the great world's altar-stairs
That slope through darkness up to God."

If the chemist, the statist, the astronomer, lose themselves—as they delight to do—in the inquiry about the co-ordination of form and force, and the naturalists are in no certain way guided by the light of Nature alone towards the genesis of organic forms, shall we not sympathise with the poor philologists who have equally hard tasks, though all their problems come within the "human period," and are for the most part pro-historical? If we were to question the ethnologists and all of that ilk about the names of the plants in the Christmas wreath, and the association of those names with the qualities and ideas of the plants, and the intentions of the minds by whom the names were invented, how we should puzzle them, and compel them to lurk near the Mistleto to find relief. Anything about Scalds and Runes and Druids is appropriate just now, and so long as the Ivy is green in the hall, we may ask it to serve us as a Bean-stalk whereby to clamber into giant-land or fairy-land, or any other land that is a little less real than the one that daringly distinguishes December 25 as quarter-day! My amusements have lain that way many years. The Christmas garlands have transported me to all times and all climes, and I hail their hanging up as a signal for a reverie that shall leave in my memory some pleasant dream long after they are taken down. I begin now, when I see everybody busy in adorning the place with leaves and berries and everlasting flowers, to propound conundrums that nobody can answer. Why is anything what it is? That is the essence of all conundrums. Why, for example, is Ivy called Ivy? There must be a reason for it. The name in some way is as truly a natural fact as the plant—of that I feel certain.

I hold that originally the names of things were the mind's pictures of the things themselves. In due time I shall hope to prove this in a work extending to several quarto volumes. For the present I want the reader to catch hold of the idea and ponder it. We will suppose we have got a philosophical foundation, and it therefrom follows that the proper name of anything is suggestive or descriptive of its character. This, you will say, takes us back to Adam naming the creatures. All the better. Indeed, I don't mind if it takes us back to chaos, or beyond. We were taught at school that our great progenitor named the creatures by a descriptive system. Genuine philology is founded on Genesis ii. 19, 20, for therein the descriptive or characterising nomenclature is presented as the foundation of human knowledge.

The question, then, arises, "How shall we get at these names?" They must be more or less buried in living languages, as probably they are living in dead ones. I take the word "Ivy" wherewith to amuse myself in this ridiculous speculation, and I am at once pushed into a corner by the chorus of Caliope and Clio, "How do you spell it?" Thus am I drifted back again to speculate on the origin of the letters. But a happy thought occurs: letters represent things in the same way as words do, and letters are words more or less, as well as the raw material for word-manufacture. The capital "I" is a man standing erect—the simple pronouncing letter contains within itself, for the imagination at least, all the poetry, and all the history, and all the philosophy and experience of the world. We must be content with the relative when the absolute is beyond reach; and so I propose to look at the latest dictionaries and the oldest alphabets in hope of discovering if the word Ivy will illustrate my theory of the origin of names.

Of the Greek name we know nothing. I am well aware the student of Greek, fresh from the classic coach, can tell me all about it, and, in fact, I have *Schrevelius* on my desk, and fifty more such books within reach. The question is, "Can we, in the Greek references, identify the plant?" You will refer me to *Theophrastus*, who discourses of two kinds of Ivy: one that creeps ἕλιξ (3, 18, 6), which may be the veritable plant; and another, that grows

as an independent shrub, producing flowers abundantly, the *κισσος* (6, 1, 4), which cannot be an Ivy, and is probably a corrupted name. Permit me to play conjuror: suppose the copyist to have thus written when he should have written *κιστος*, and you have, instead of the Ivy, the Cistus, with which the description strikingly agrees.

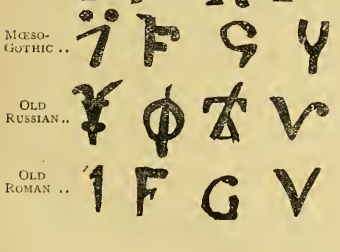
In the Latin we appear to be quite out of the fog. It is called Hedera, and that seems to me a thoroughly descriptive yet essentially poetic name. Those who are familiar with the fundamentals of philology will allow me to annihilate the H as a nuisance, and put F in its place. Presto! The Ivy, a federal plant, a vegetable brotherhood; it consists not of one stem, but many, and it is really distinguishable for this quality of throwing up stems from below to an extent that few trees are capable of. Here we seem to have obtained a glorious confirmation of the proposition that the name of a thing is the mind's picture of it; the tongue being the painter, and sounds taking the place of colours.

I wonder why Linnæus named the Ivy, Hedera Helix? I once thought he must have regarded it as "creeping like snail unwillingly to school." But the snail is not the helix in the ultimate analysis of words; it is simply helix-like in growth; it increases spirally, every new growth being a new coil, or *ἕλιξ*. Any creeping plant is *ἑλιχρῶτος* (*Theocritus*, ii., 78), and whatever twirls or rolls about is *εἑλίσσω*. The Ivy is a twining, winding, spirally-growing plant, very properly Hedera Helix, the snail-like federation, the india-rubber contortionist brotherhood!

But you will ask about the homely word Ivy, How old is it, and what does it mean? I really think the dust of ages can be swept off the word without difficulty, and it will then appear as a true mind's picture of our bonny plant. The Ivy grows like an I. It grows like a V. It grows like a Y. Does any one doubt it? Go and search for Ivies that the hand of man has never touched, and you will find them all i's and v's and y's. Other letters may be represented by the plant, but we have to do only with such as come consistently within our cognisance. The Italians and Spaniards follow classic models; the first call the Ivy *Edera*, the second call it *Hiedra*. By those nations it is regarded as the federal plant, and it might become for them a suitable symbol in their struggles after nationality. The French call it *Lierre*, the friendly plant, the emblem of family ties, the binder, embracer, *pluribus unum*. The Germans call it *Epheu*, which is undoubtedly Runic, as there can be no doubt our own word Ivy is. Thus, change the e to *i*, the ph to *v*, and the eu to *y*, and *Ivy* stands confessed. The Dutch have stuck to the descriptive nomenclature best of all, for they call it *Klimop*, and this is more graphic, though less fanciful than the classic name, for although the federal character is manifest, the tendency to *climb up* is much more manifest; and what the word loses in warmth it gains in factual characterisation.

The tendency of the Ivy to assume the V form may be illustrated by an appeal to Nature anywhere. In all my travels "from Ind to the northermost pole," in search of Ivies, I have seen none so strikingly V-shaped and Y-shaped as the hundreds of wild Ivies that adorn the boundary walls of Offington, near Worthing, in Sussex (fig. 6). These, indeed, are, in their way, as interesting as the Ivy-clothed Thorns that make a wondrous Ivy garden of a scarp of the Undercliffe, near St. Lawrence, in the Isle of Wight.

If any theory of words and letters is worth a rap, it will bear confronting with archaic types; and I propose, for the sake of the argument solely, that we assume (without regard to fact) that in four good types the word Ivy consists of four letters. As a hypothetical arrangement must suffice for a hypothetical spelling, the following arrangement will serve the purpose:—



Here every letter is like an Ivy, more or less. Thus, you see, we may not only propound a proposition that takes us back to the beginning of things; but by selecting and inventing material the proposition may be established in a way to satisfy all, except the stubbornly sceptical and the extravagantly cantankerous. *Shirley Hibberd, in "Pictorial World."*

THE ROYAL NURSERIES, ASCOT.

These extensive nurseries are situated about a mile from the Ascot Station, on the London and South-Western Railway, the road winding its way by the side of the far-famed Ascot race-course. The grounds are also in near proximity to the Royal residence of Windsor. There is considerable difference in the nature of the soil, yet most of it is of a strong peaty character, well calculated for the growth of most trees and shrubs, but particularly such as are evergreen, as also the different species of Coniferæ. The nature of the soil is such that any plants, even up to those of large size, can be moved with their roots almost intact, offering facilities for replanting with little check that do not exist in the case of soils of a heavy retentive nature. The surface being almost flat, and fully exposed, a hardy vigorous constitution is naturally imparted to the stock generally. Near the centre of the nursery is a large number of forcing and other houses, devoted to the growth of plants for sale, and to the production of quantities of the choicest descriptions of cut flowers, which are required for the London establishment.

Fig. 6.—V-shaped Ivies on walls at Offington.

The indoor departments of this nursery differ widely from those of others generally met with; for, in addition to the ordinary stock generally grown, particular attention is paid to the cultivation of enormous quantities of a limited number of specialities, in the shape of plants found to be the best adapted for producing such flowers for cutting as are held in the highest estimation for bouquets, table decorations, &c., in which Messrs. Standish & Co. do a large trade. It is more particularly to the system of culture practised in the production of these that this notice will be confined. The houses and pits, collectively, are plainly, but substantially built, with nothing to intercept or absorb the light, every ray of which, from the sun's rising to its setting, is available. This is of great importance in flower-forcing, for, with few exceptions, the duration of a forced flower when cut will depend very considerably upon the amount of light it has received in the different stages of its development.

The first house is span-roofed, 55 feet by 15 feet, with a central pit running the entire length, filled with dung and leaves. Here, as in all cases through the establishment where fermenting material is used, leaves are added in sufficient quantities to prevent excessive heating. In these pits a little of this mixture of dung and leaves is regularly added to keep up the heat. The beneficial effect of the presence of this ammonia-charged bed was fully apparent in the size (for their age) and general appearance of the plants occupying the central pit, which was filled with Gardenias, struck last Christmas and grown under the year to some 2½ feet in height, and nearly as much through—dense bushes, clean, healthy, and covered with bloom buds, fast swelling. Gardenia flowers are not gathered in the winter season until fully expanded; in the summer they are cut in the bud state, on account of their liability then to lose colour. On the stage round the house were stood hundreds of plants of Adiantum scutum [Chiesbreghtii], which is held in great estimation for the bottom fringe or base of bouquets. Over these outside stages and the path running betwixt them and the central pit the roof is wired, and on this is grown Stephanotis planted in each corner of the house; on the outside of the path fronting the surrounding stage, thus economising space, was planted a continuous row of Pteris serrulata, intermixed with the variegated Panicum, both so useful for cutting.

The next house, similar in size—55 feet by 15—has also the centre pit filled with hundreds of Gardenias similar to the last; the surrounding stage occupied by Adiantum Farleyense, Bouvardia jasminiflora, B. Vreelandii, B. Humboldtii, Poinsettias, and Azalea amœna. These flowering plants, except the Gardenias, were as near the glass as they could be placed without touching it—an absolute necessity where, as here, a night temperature was being kept up of 70°. Those who act upon the principle of false economy in having an insufficiency of heating power should see this house with its twelve rows of 4-inch piping, which some would consider more than necessary, yet those who garden for profit are not likely to make mistakes on this head. Stephanotis is here again grown over the paths. The next house is also span-roofed, 65 feet by 18. This is used as a cool stove, in which are brought into flower quantities of Azaleas, amongst which were a number of the double white variety, A. Borsig, which Mr. Standish finds to be the best for early forcing, large in size, and very early. The flowers when cut stand much longer than the single sorts. The estimation it is held in here may be judged from the fact of 2000 plants of it being grown. In the centre of the house was a row of fine Dracæna australis, in the front of which were quantities of Azalea narcissiflora, another double white variety that forces well: 2000 of this sort are also grown. The roof is almost covered with the New Zealand white-flowered Clematis indivisa and Jasminum grandiflorum, also bearing white flowers about the size of J. Sambac: the blooms are cut in the bud state for bouquets. Planted out right and left of the doorway, in the corners of the house, were very large plants of Bougainvillea glabra, laden with dense wreaths of flower. Fine as is this Bougainvillea, even grown as a pot specimen, still it is never seen, so confined, in anything approaching the condition it assumes when planted out; one peculiarity about it is that when its roots have full liberty to roam about, it will bloom freely with a much lower temperature than when confined to a pot. Where cut flowers are required in quantity and continuously, a plant of this Bougainvillea should have a place; so treated, in a house where an intermediate temperature can be kept up, it will not fail to afford a supply of its lovely mauve-coloured bracts for eight months in the year. Its colour is such that it is suitable for associating with almost any

other flower. In this house were most of the newest sorts of Azalea, and on shelves quantities of Cyclamens, all white varieties. Here also were numbers of Asparagus decumbens, a bulbous-rooted climbing plant, with finely subdivided leaves, very useful for decorative purposes. Entering the next house, which is 25 feet by 15, we find more Azaleas and quantities of Roman Hyacinths, Narcissus, Rhynchospermum jasminoides, Stags-horn Pelargoniums, and on shelves almost touching the glass the double Pelargoniums Victor Lemoine and Marie Lemoine; also numbers of plants in small pots of the narrow-leaved Myrtle, put in here to push young pale green growth, which, when strong enough to stand in a cut state, is used for bouquets. Small Oranges in pots are put in heat every fortnight through the winter to keep up the supply of this flower. In this house were a number of the best coloured varieties of Coleus, the leaves of which are used for laying flat on the cloth in dinner-table decorations.

The adjoining house, 65 feet by 18, is used as a general stove. In this were a number of large plants of Stephanotis and quantities of Eucharis amazonica undergoing the drying process by withholding water until the leaves flag a little, but not so as to injure them; they are thus treated for a month, after which water is given, when they throw up flowers in abundance. The plants are subjected to this alternate resting and flowering three times a year, and are kept well mulched with cow-dung. In this house was another favourite plant for the production of sweet-scented white flowers, Jasminum Maid of Orleans, the blooms very double, as large as a Pompon Chrysanthemum, and highly perfumed: here also were a number of the new Crotons and Ixoras, the elegant Aralia Veitchii, and the old white-flowered Pavetta Caffra, with flowers something like small bunches of Ixora. On the side shelves were quantities of Dracæna Cooperii and others; Peperomia resedæflora, the white Mignonette-shaped flowers of which are most useful for bouquets when Lily of the Valley and Hoteia japonica are over; the red-spathed Anthurium Scherzerianum, Æchmea splendens, a first-rate dwarf table plant in or out of bloom; Hoya bella, the flowers of which are well adapted for bouquet-making; the fine winter-blooming Calanthe Veitchii, and the equally useful Euphorbia jacquiniæflora, a small bunch of which is often drawn through the centre of a flower of Eucharis amazonica in floral arrangements. *T. Baines.*

(*To be continued.*)

SWEET-SCENTED FLOWERS.

THIRTY years ago I published a small volume on the sweet-scented flowers and shrubs cultivated in the gardens of Great Britain (*Flora Odorata:* Orr & Co., 1843). The volume has long been out of print, but as recent investigations into the functions of scent and colour have given a new interest to the subject, it seemed worth while to make a classified list of the species mentioned in that forgotten work, and which were there partly arranged in an alphabetical manner.

It will be observed that the catalogue is limited in several ways. It does not include stove or greenhouse plants, nor wild plants which are never cultivated, nor agricultural plants, nor pot-herbs. A few species are included whose scent resides in the leaves and not in the flowers, because it was intended for the help of amateur gardeners. Opinions may differ as to the sweetness of some of the odours, but I give the list entire, with the nomenclature of that period. It was no doubt imperfect even at the time, and probably many more species might now be added by any one familiar with the gardens of the present day. There can scarcely be less than 5000 species, hardy and half-hardy, cultivated in English gardens, and 217, which is the number in this list, seems to be but a small proportion of fragrant ones.

The following observations suggest themselves in looking through the list:—

That scent is associated with flowers of all colours.

That, nevertheless, the order Campanulaceæ and the genus Gentiana are unrepresented, and that the flowers of these groups are chiefly blue.

That scarcely any order can claim fragrance as a universal character.

That in many genera one species only will be fragrant, while all the rest are scentless.

That by cultivation and hybridisation fragrant varieties may be developed from scentless stocks.

DICOTYLEDONS.

Ranunculaceæ.
Clematis Flammula
,, florida
,, Sieboldii
Pæonia edulis
Platystemon californicus

Berberideæ.
Berberis vulgaris
,, Aquifolium
,, dulcis

Nymphæaceæ.
Nymphæa odorata

Magnoliaceæ.
Magnolia grandiflora
,, glauca
,, conspicua
,, macrophylla
,, obovata
,, tomentosa

Cruciferæ.
Cheiranthus Cheiri
Hesperis matronalis
Mathiola annua
,, incana
,, tristis
,, odoratissima

Cruciferæ.
Koniga maritima
Iberis odorata
Schizopetalon Walkerii

Resedaceæ.
Reseda odorata

Violaceæ.
Viola odorata
,, tricolor, cult. var.

Caryophylleæ.
Dianthus plumarius
,, Caryophyllus
,, barbatus
Lychnis coronata

Byttneriaceæ.
Hermannia fragrans
,, odorata

Tiliaceæ.
Tilia europæa

Vitaceæ.
Vitis riparia

Limnanthaceæ.
Limnanthus Douglasii

Pittosporaceæ.
Pittosporum Tobira

Rutaceæ.
Dictamnus Fraxinella
Diosma ericoides

Rhamneæ.
Ceanothus americanus

Leguminosæ.
Ulex europæus
,, nanus
Cytisus scoparius
,, junceus
,, ,, var. odoratissimus
,, Laburnum
,, ,, var. odoratus
Genista canariensis
Robinia hispida
Wistaria sinensis
Glycine Apios
Lupinus luteus
Amorpha microphylla
Lotus odoratus
Lathyrus odoratus
Coronilla glauca
,, argentea
Acacia armata
,, suaveolens

Rosaceæ.
Cratægus Oxyacantha
,, odoratissima
,, Pyracantha
Pyrus domestica
Eriobotrya japonica
Prunus Laurocerasus
,, lusitanica
Rubus odoratus
Rosa centifolia
,, indica
,, rubiginosa
,, spinosissima
,, damascena
,, cinnamomea
,, moschata
,, canina
,, arvensis
Potentilla fruticosa
Spiræa Ulmaria
,, filipendula
,, hypericifolia
Agrimonia odorata
,, Eupatoria

Calycantheæ.
Calycanthus floridus
Chimonanthus fragrans

Philadelpheæ.
Deutzia scabra
Philadelphus coronarius

Grossulaceæ.
Ribes aureum præcox

Onagrariæ.
Œnothera odorata
,, tetraptera
,, triloba
,, nocturna

Myrtaceæ.
Myrtus communis

Passifloreæ.
Passiflora incarnata

Caprifolieæ.
Sambucus nigra
Viburnum odoratissimum
Caprifolium Periclymenum
,, gratum
,, flexuosum

Rubiaceæ.
Asperula odorata

Dipsaceæ.
Scabiosa atropurpurea

Compositæ.
Artemisia Abrotanum
Tussilago fragrans
Liatris odoratissima
Centaurea moschata
Cineraria, several cult. vars.
Eriocoma fragrans
Helichrysum fragrans
Stæhelina dubia

Ericaceæ.
Andromeda floribunda
Rhododendron odoratum
Azalea viscosa
,, ,, var. odorata
Bejaria racemosa
Erica suaveolens
,, odorata
,, fragrans
,, regerminans
,, Bowieana

Epacrideæ.
Epacris pulchella

Jasmineæ.
Jasminum odoratissimum
,, revolutum
,, humile
,, officinale
,, Sambac
Nyctanthes arbor-tristis

Oleineæ.
Olea fragrans
Syringa vulgaris
,, persica
,, sinensis

Asclepiadeæ.
Asclepias syriaca
Periploca græca
Hoya carnosa

Apocyneæ.
Gelsemium sempervirens

Polemoniaceæ.
Leptosiphon androsaceus
,, densiflorus

Convolvulaceæ.
Ipomœa Bona-nox
Cuscuta verrucosa

Boragineæ.
Heliotropium peruvianum
,, europæum

Solaneæ.
Petunia nyctaginiflora
Datura ceratocaulon
Nicotiana noctiflora
,, persica
,, undulata

Scrophularineæ.
Mimulus moschatus
Erinus fragrans
Buddlea globosa

Labiatæ.
Lavendula Spica
Thymus vulgaris
Monarda fistulosa
,, didyma
,, purpurea

Verbenaceæ.
Verbena teucrioides
Aloysia citriodora

Primulaceæ.
Primula Auricula, cult. var.
,, veris
,, vulgaris
,, elatior
Cyclamen persicum

Nyctagineæ.
Mirabilis longiflora

Lauraceæ.
Laurus nobilis

Proteaceæ.
Leucospermum candicans

Thymeleæ.
Daphne odora
,, Cneorum
,, Mezereum

Aristolochieæ.
Asarum virginicum

Amentiferæ.
Salix pentandra
,, triandra
,, amygdalina

MONOCOTYLEDONS.

Orchidaceæ.
Platanthera bifolia
Gymnadenia conopsea

Irideæ.
Crocus suaveolens
,, versicolor
Iris persica
Babiana plicata
,, disticha
,, sambucina
,, angustifolia
Gladiolus suavolens
,, versicolor
,, recurvus
,, concolor
,, viperatus
,, alatus
,, trichonemifolius
Hesperantha cinnamomea
,, falcata
,, radiata
,, angusta
,, graminifolia
,, pilosa
Ixia columellaris
,, odorata
,, retusa
,, flexuosa
Tritonia odorata
Tritonia squalida
Watsonia marginata

Amaryllideæ.
Narcissus papyraceus
,, Jonquilla
,, Tazetta
,, Poeticus
Galanthus nivalis
Leucojum vernum
,, æstivum
Sternbergia colchicifolia
Chlidanthus fragrans

Liliaceæ.
Hemerocallis flava
Lilium candidum
Muscari moschatum
Hyacinthus non-scriptus
,, orientalis
Convallaria majalis
Anthericum fragrans
Bulbine aloides
,, pugioniformis
,, frutescens
Lachenalia fragrans

Aroideæ.
Calla æthiopica

F. T. Mott, F.R.G.S.

EMIGRATION.

THE loss of the *Cospatrick*, with her hundreds of men, women, and children, by fire in the open sea is a terrible lesson when calmly contemplated from cause to effect. It becomes fearfully so when we look at the loss of life as in some measure the outcome of the recent struggle between the farm labourers and their employers, so that when we ask the question, Where are the belligerents? we are answered that the farmers are still to be found alive and happy in their homes, grumbling, as is their wont, to keep the landlords from raising their rent, and to keep the labourers content with as little wages as can be agreed upon. But what of the turn-out labourers who were sacrificed to the Moloch of the Union? Whatever good they may have achieved, or in what they may have benefited others, they themselves, after beating the bushes, have certainly not bagged the game. Without blaming any one, we can honestly say that had there been no turn-out of labourers, the living freight of the *Cospatrick* would have now been filling up "the short and simple annals of the poor," instead of swelling the roll of names of those that the sea shall have to give up of the dead that are in her.

But it is not to the subject of the agricultural labourers that I now wish to call attention, but to the horticultural side of the question. I read in the *Banffshire Journal* that some young gardeners, who had been well instructed by their master, the gardener at Fyvie Castle, Aberdeenshire, and who had gone to America, and "done well" there, wished to show their gratitude to their late master, and accordingly had sent him, by the hands of a farm labourer who was homeward bound, a valuable silver stand some 3 or 4 feet high, and other gear of the same metal—a gift equally honourable to the givers as to the receiver. Being single men of good moral character, trained to outdoor labour, and well able to see what land was capable of yielding, and with habits of economy, order, and cleanliness, they could hardly fail to do well wherever the raw materials of their craft could be subjected to cultivation; and their history illustrates the North countryman's sagacity, for the thrifty Scot will thrive, like the limpet on the rock, by sticking to business.

Emigration has often been made a scapegoat to hide the indolence and irregularities of individuals, by carrying them to the wilderness where no one cares to chronicle events. Some twenty years ago a gardener applied to me to beg for him, that he might take himself and his wife and family to Australia. He had lost his situation, and his begging from friends and acquaintances had become a nuisance. I reasoned with the man that he was too old, and too much encumbered with young children to go such a voyage, but the secret of this affair of sending nine souls to Melbourne, Australia, lay in few words. I was in earnest, but my emigrant was not so, but wanted to get a good haul of goods and money, and had no intention whatever of leaving England. As, however, a large sum, to pay the passage and provide necessaries for the voyage, and something to begin life with at the Antipodes, had been put into my hands, I was in duty bound to see him off; and it was his tact to let the vessel go, but not the goods; but I had the satisfaction to see honesty prevail, for he paid the heavy penalty of transportation for his deceit. Little did I know at the time that he had done a mock emigration in London at least once before. Some years after I learnt from a successful navvy, who had realised several large nuggets of the "root of all evil," that my emigrant had buckled on to hard work, and become gardener to the navvy, at the fair recompense of £1 per day. More than one fresh impetus unknown here is given to industry in Australia, for in the first place there is a high premium (20*s.* a day) for skilled labour by way of reward for well doing; and there is moreover a certain punishment, by Lynch law, for evil doers who might wish to live upon the community without contributing aught to the common wealth. When such parties are found sheep stealing, it has been the habit to shoot them without any formality, beyond the fact of their being taken red-handed; and as the modern institution yclept the workhouse had not been introduced, the idler could only either fall back upon his mother earth, and work, or die.

Another gardener of my acquaintance after railing loudly against British institutions, rates, taxes, and want of liberty, set about bettering his condition, and

sold his "fixings;" and in an evil hour left England for New York, accompanied by a young, industrious wife and one child. On arriving there he found some 30,000 (be the same more or less) in the same predicament as himself—wanting work; and when he had worn the shoes off his feet on tramp, trying to get work and bread for the bare life, he wrote home to his friends to send him, for the love of God, as much money as would pay his passage home again, for he had seen nothing so good as an English workhouse since he left. He returned a wiser man, and, taught by adversity, took service thankfully in the "Old Country," and reckoned the relieving officer, the guardians, and all who work the machinery of the poor-law, to be employed, if not on "Heaven born charity," at least on a near relation thereto, where property is taxed, and where it is made compulsory on the well-to-do to keep those who are unable to support themselves.

Such an example may well point a moral, if it does not adorn the tale, for the pigheadedness of some persons is so strong that nothing but adversity, suffering, and ruin will convince them of their errors, and those who take to Atlantic travel may well say "broad is the way." Good resolutions and solid lessons of instruction have, however, been made and hammered into dull heads when the landsman has made "his home upon the deep."

Magistrates have often remarked that if culprits had only done half as much for virtue as they have been compelled to suffer for vice, they might have been ornaments to society. Most people suffer a good deal for want of money, and well he may who cannot pass a gin-palace or a tobacconist's shop without contributing to each, as well as to his own misery. One of the greatest ornaments to a certain northern city consists of a splendid hospital, built and endowed by a man whose perseverance in the practice of saving money enabled him after a long life to leave a monument to his memory, for which thousands have blessed him; and although he had his eccentricities (which are more to be admired than imitated), it is well to let a single young man know what unwearied perseverance, when well directed, can do to make money. The gentleman in question, in order to save fire, carried a hamper on his back up and down "his room in the uppermost storey," and thus warmed himself when the weather was not severe enough to neccessitate a fire being made; and as a weaver occupied the room under his "garret," he left an opening in the floor by way of ventilator, but really to get the benefit of the weaver's light, and thereby save the cost of candles or lamp. It is easy enough to save money when a man makes the best use of his time, and does not bury his talent in the earth. The way my American emigrant missed it, was in not trying the experiment of going to America when he was single, as in that case only half the expenses would have been incurred, and—mark it well—it is hard to make headway against an early or an improvident marriage, for, says the old adage, "Not only choose a proper mate, but proper time to marry," not to mention Moore's remonstrance anent trifling youthful time away—

> "The time that's lost in wooing,
> In watching and pursuing,
> The light that lies in woman's eyes
> Has been my heart's undoing."

The success of some of my gardening friends has been in their specialities: one has got a name for fruit culture, another for his knowledge of succulents, while Orchids, Roses, Camellias, &c., have their professors and their students. One important post was held for many years by a gardener whose speciality was a knowledge of mosses and lichens. Cobbett mastered grammar in French and English under the most unfavourable circumstances, but afterwards floundered in the mazes of botany and in attempting to master horticulture and arboriculture. Cobbett's Locust tree still bears his name, and his famous ice-house, designed in Yankee style, and built of sticks and straw all above ground, is still unique, and of which he said that, if it failed as an ice-house, it would be a pattern for a pig bed to all future time. Cobbett's example adds another proof that there is no royal road to horticulture, and seven years of hard study under good masters may be counted a near cut to make a well-educated youth into a good gardener. The biography of some of my acquaintances, who, like Cobbett, wanted to get credit for horticulture without taking the trouble to school themselves in its discipline for a few years, might save gardeners and their employers from grievous disappointments. He is the best friend of the young gardener who does not flatter him by saying that his task will be an easy one and free from care, or that by a voyage to America or to Australia he will find gold growing upon trees in those distant lands. If I can only convince one man in time of the folly of such hopes, and of the snares and traps that he may be likely to fall into, I shall not have related the tale in vain. My two emigrants have indeed paid dearly for their experience, and their cases should be a wholesome warning to others. *Alex. Forsyth, Islington Square, Salford.*

BRITISH GARDENERS.—IX.

GEORGE SMITH.

THE accompanying portrait is that of Mr. George Smith, the talented head gardener at the Vice-Regal Lodge, Phœnix Park, Dublin. Mr. Smith was born in Perth in 1825, and while a boy was employed in the nursery there for about four years. At the age of seventeen he was apprenticed to Mr. Dodds, the gardener at Scone Palace. This was an excellent school for a young man, Mr. Dodds being a thorough-going horticulturist, doing well whatever he took in hand. "The following incident," writes Mr. Smith, "is characteristic of him:—The Potato disease was at the time making such havoc as to threaten the entire extinction of that esculent. In order to secure a fresh start, upon untainted ground, a considerable belt of plantation was cut down, the roots grubbed out and the ground well trenched over. Seed Potatos were procured from a high-lying neighbourhood and started into growth, the shoots being broken off and potted separately into 4-inch pots, grown on into sturdy plants, and then transferred to the prepared ground. But alas for 'the best laid schemes'! The disease appeared on these quite as soon as upon any other in the neighbourhood. After an interval of thirty years we are stranded high and dry on the same

mysterious difficulty. The only hope of success appears to be in the direction of new varieties with strong constitution. At Scone, gardening as a mechanical art was carried out with great precision. To be able to nail a large Morello Cherry tree quickly, with the branches radiating with the regularity of rays of light, and to be a thorough proficient with the scythe, were with Mr. Dodds indispensable qualifications for the diploma of a regularly qualified "blue apron."

"In 1846 I removed to Whittingame, in East Lothian, then under the management of Mr. Rintoul, an anxious hard-working man, with a large extent of ground to keep with a very limited number of hands. This he did, however, with very great credit to himself. I do not know if ribbon borders have made as great innovations in that quarter as elsewhere, but at that time a good old-fashioned herbaceous border ran the whole length of the kitchen garden, with standard Roses at intervals, and there were yearly sowings of the best hardy annuals. When well filled and trimly tied up as it was, it formed a very pretty and interesting feature. The endless profusion of bedding stuff has led us somewhat into the position of a young spendthrift parting recklessly with good old substantial friends, and taking up with new and often indifferent acquaintances. Our modern style of bedding will no doubt hold its ground for some time to come, but it must be toned down, and instead of flaunting red and yellow everywhere, accommodation must again be found for many of our old friends, together with new forms in the shape of succulents, subtropical plants, &c. In 1848 I removed to Gosford House, East Lothian, the seat of the Earl of Wemyss, and acted as foreman under Mr. Addison, who was then in charge of the garden.

"In 1850 I went to Eglinton Castle, and served as foreman under Mr. Sharpe until 1852. In the spring of that year the late Earl of Eglinton became Viceroy of Ireland, and the position of gardener at the Vice-Regal Lodge falling vacant the same year, I was called on to fill it. In a large establishment like this a plentiful supply of fruit being of primary importance, I set to work at once to endeavour to make two blades of grass grow instead of one. There are nine vineries, extending 500 feet in length by 18 feet in width. The original width was 12 feet, the additions being made to portions of the range from year to year until the whole was completed about seven years ago. I have recently seen strong heavy loam recommended for giving sustained fruitfulness to the Vine. This must be taken with a 'grain of salt.' My acquaintance with this material has been, perforce, rather too extensive. The surface of the Phœnix Park is composed of a hazel loam—answering admirably to the words 'strong and heavy,' and inasmuch as it was the only available material, it formed the chief ingredient in the making up of our borders. Having a good supply of old building materials in the way of hard lime rubbish, it was incorporated with the loam to the extent of nearly one-third, in order to make up for the absence of sand, and to get rid of some of the loam's superabundant strength. On taking up a lump of this compost, after a few years' use, instead of disintegrating readily it clung together, and on pressing the foot upon the border there was no perceptible yielding or elasticity. For the last few years I have thrown our heavy friend overboard, and adopted a relative of his from the Wicklow mountains.

"In the making up of the borders, instead of excavating the entire area in the old orthodox fashion, and filling in the whole border at once, we begin by planting upon a flat ridge just as much as will keep the roots going for one year, and then make annual additions to this, just as much as the roots can take possession of—say about 2 feet. The advantage of this is twofold. In the first place the roots can be examined annually, and the strong growers that are inclined downwards can be raised towards the surface, and laid on fresh fibrous material, in which they ramify with great rapidity; and in the next place where material of the right sort is expensive or difficult to be got, as it is here, it is like paying into a friendly society: a small yearly instalment is all that is necessary to secure the best results. In order to save time, I have sometimes been induced to plant Vines two or three years old, but this is a practice we had always reason to regret. Our best results have been obtained from eyes started in January, grown on smartly, and planted out in May, guarding carefully against any check until they have fairly taken with the border.

"I have had an opportunity here of testing the utility of bottom-heat for Vines. No. 1 house is constructed on the principle recommended by Mr. Fleming, of Trentham, about eighteen years ago, namely, that of supporting the border upon a series of brick arches, and thus forming chambers underneath for fermenting materials. The only difference in our case lies in the size and length of the arch, which is 7 feet 6 inches in breadth by 4 feet 6 inches in height, and extends into the house to within 2 feet of the back wall. The Trentham arches were 3 feet 6 inches wide by 2 feet 9 inches in height, and if I mistake not were carried only to the front wall. The large size of the arch makes the changing of the fermenting material an easy process, while the heating power is much more effective. Our outside border is covered with shutters of corrugated iron, galvanised. The Vines (Black Hamburgh) are planted inside, the roots running both ways. We cut from this house on April 1 a good crop of medium-sized bunches—black as a Sloe. It is interesting to notice the colouring process going on. Under circumstances of favourable root-action, as in this case, it goes on quickly and regularly all over the house, no green berries being left behind, and the colour is laid on thickly, after the style of the Kempsey Alicante. No. 2 house is also furnished with bottom-heat, but in this case it is supplied by hot water. This is less troublesome to work than the other; but there is always a certain amount of apprehension regarding a fracture in the pipes or other break-down after the border is filled with roots. As utility is the object aimed at, bunches averaging from 2 lb. to 3 lb. are found the most convenient for combining quantity and quality, and we take as many of these as is consistent with the production of good-sized berries and a decent colour. Our bunches seldom exceed the weight mentioned, but from what has recently transpired in this direction, I confess to certain misgivings as to my standard of ambition; and sundry resolutions have been formed to run up fresh canvas, and go before the gale.

"My connection with the Royal Horticultural Society of Ireland commenced about 1854, the Earl of

St. Germains being then Viceroy. Lady St. Germains, wishing to support the Society, requested me to become an exhibitor, but, unfortunately, there were absolutely no plants to show. However, a beginning was made with Gloxinias, Cinerarias, and herbaceous Calceolarias, and then Pelargoniums and stove and greenhouse plants were added. In growing Pelargoniums I started with the principle of abolishing stakes, which had become very unsightly, and tied the plants down instead of tying them up, taking as the model of the plant a well-developed Dahlia flower, or three-fourths of a ball. Some of my plants measured 5½ feet in diameter, resembling a tolerable-sized haycock. The rapid improvement in Pelargonium growing induced the Society, in 1859, to offer a cup for them (a rarity in those days), which has been continued ever since. Of late years the exhibition of stove and greenhouse plants, and of fruits, has been our principal bond of connection with the Society.

"It is somewhat interesting to compare notes on the progress of horticulture during a campaign of twenty years. The prize list and the tent accommodation of twenty years ago, as compared with the present resources of the Society, may be taken as a tolerably fair criterion of the change. Not that exhibitors were scarce in 1854, but their various groups had as yet assumed but infantile proportions, and staking was obtruded everywhere. By-and-by, however, one class of plants after another came to the front, remodelled as to form, and so altered in dimensions that tent accommodation was not to be found for them. There are one or two classes, however, that have not improved of late years, which is much to be regretted. Orchids, for instance, were better grown a few years ago when really fine groups were staged, but the breaking up of various good collections in the vicinity of Dublin has led to a kind of Orchid famine on show days. Heaths, again, seem to have died out in a gradual way, being too slow growers for the fast times in which we live. Fruit growing has undergone a vast change for the better, not only as regards quality, but also in reference to the number of its patrons. Though we cannot boast of such Brobdingnagian bunches of Grapes as are produced on the other side of the water, yet we can point to good samples for both size and quality. We can also rejoice in the widespread love for the cultivation of fruit and flowers, with its ameliorating and humanising influences, and which is mainly due to the stimulus and encouragement given by the Society. There obtrude, however, feelings of regret, as memory brings back the recollection of clever enthusiastic men, who have contributed largely by their zeal and abilities to the general advancement, but who have passed away."

Forestry.

JANUARY 3.—When the ground becomes covered with any considerable depth of snow, and the stems, branches, and leaves are loaded, the ordinary operations of forestry are suspended, and it becomes a matter of no small concern to the forester how to employ the workmen to the best advantage, not only in their own, but also in their employer's interest.

Extent, locality, the order in which the estate is kept, and the means at command, have each their specific influence in determining how the workmen are to be employed during a protracted snowstorm. Those who have a great number of men to keep employed all the year round, require always to exercise very considerable forethought, so that any sudden change of weather may not at any time seriously interfere with the regular routine of work. A memorandum of the various sorts of work most suitable to be done in wet, windy, frosty, hot, cold, or snowy weather should always be kept, and ready at hand for reference.

Deer, rabbits, and hares are now very hurtful to trees and shrubs, and should therefore be vigilantly looked after by a sufficient staff of careful men. Messrs. Davidson & Co.'s (Leith) "composition for tree protection" is what we use, and it is the best and cheapest known to us. Holly, Laurel, Laburnum, and Common Ash, require more attention than most other plants, while Box, Rhododendron, Privet, and Spurge Laurel, are seldom if ever injured in severe snowstorms. As regards employment, this, however, only constitutes a small item; hence, others must be sought.

The roots of wind-fallen trees can with due advantage be grubbed, blasted, and removed during severe snowstorms—beginning with those in the policies, and most under view, and extending the operation as means and circumstances subsequently suggest. Not only are the upheaved roots of wind-fallen trees unsightly in appearance, but they almost invariably constitute a permanent harbour for rabbits, rats, and other vermin; hence the manifold reasons for removing them.

The work is frequently let by contract, either at so much per stool, grubbing, blasting, and loading, or by measurement at 8s. to 10s. per cord. The cord of roots is usually set up 14 feet long, by 3 feet 3 inches high, and 3 feet 3 inches wide, solidly packed. For fuel, the roots are worth at least the grubbing price, and are used in heating greenhouses, churches, burning lime, tiles, &c., as also for common domestic purposes of heating and cooking.

The roots of old Pine trees, grown on hard gravelly soils, are unsurpassed for combustibility and efficiency in fire lighting, being full of resin; nor are the hardwood roots less valuable as common household fuel, as they burn strong, clear, and bright, especially if stacked up to dry twelve months or so before being used.

The largest and best timber upon an estate is generally thrown by means of the felling saw, both because it is cheapest done, and because it saves a portion of the timber that would otherwise be wasted if the trees were cut with the axe instead of the saw. Timber merchants have also a decided objection to axe-felled timber, even when cut by first-class axemen, and refuse giving such high prices for the timber so cut.

Saw-felling is, therefore, the rule, axe-felling the exception. The stools of saw-felled trees remain fresh and sound many years longer than axe-felled ones. At three years the latter is often farther decayed than the former at ten years. When the site of an old plantation has to be replanted, the undecayed roots form a great barrier to its success, as those too well know who have them to deal with. The only practicable way of meeting the requirements of the case is to go over the old stools from whence the trees had been previously cut with the saw, and with the common long felling axe hollow or scoop out the top of the stools. To those who have never seen timber felled with the long axe, and the stool left in a basin-like shape, the scooping of stools may be altogether misunderstood and its advantages unappreciated. The process is very simple, and the expense comparatively small: a good axeman will scoop from twenty to thirty stools in a day, leaving each capable of holding from a quart to a gallon of water. The first shower of rain, or melted snow fills the basin of the stool, which usually remains till summer drought evaporates it, but it is difficult to say whether the process of decay is not rather promoted than retarded by the basin being alternately filled and emptied of water. Our more immediate object in introducing the stool scooping practice here is in order that idle hands may be, not only filled, but employed to great advantage—for there is no labour or process known to us whereby the roots and stools of an old Fir or Pine plantation can be so quickly, cheaply, and efficiently got clear of as by scooping or hollowing out the stools so as to induce the water to stagnate in them in the way recommended; and the work is such as can be equally well done in a snowstorm as in fine weather. *C. Y. Michie, Cullen.*

Notices of Books.

Insects Abroad: *being a Popular Account of Foreign Insects, &c.* By the Rev. J. G. Wood, M.A., F.L.S. Longmans, 8vo, pp. 780.

We do not know any book in which the amateur entomologist can obtain so thorough a general knowledge of all sorts and conditions of insects as in this thick and richly-illustrated volume. Tribe after tribe in systematic order is enumerated, and illustrative specimens of each described. In this manner no less than 860 insects have been described, and 600 figured. The descriptions and figures leave nothing to be desired on the score of accuracy and artistic finish.

By merely turning over the pages and inspecting the woodcuts, the reader may obtain an insight into the morphology of insects, the variations in shape and size of the same organ in different insects, and its adaptation to various purposes which he could hardly glean so readily, and certainly not so rapidly, from more pretentious treatises.

By an extract or two we can indicate, better than by any other means, the general style of the work.

"Among the Homoptera variety of form seems to run riot, and we have in the present instance (fig. 9) one of the most singular forms that could be imagined. Any one unacquainted with entomology could hardly believe that it really was an insect, and not the creation of some fantastic manufacturer of sham insects. It is a native of Mexico. The general colour of the insect (Phenax auricoma) is pale green, but it has upon its head a crest of long, soft, silken, gold-coloured hair. The whole under surface of the body is covered with a white downy secretion, which looks as if the insect had been hastily made from cotton-wool. The long fibres that trail behind the insect are of similar material, and look very much as if they had been made of cotton-wool loosely twisted between the hands" (p. 737).

Another Homopterous insect, rejoicing in the name of Bocydium tintinnabuliferum (fig. 8), is remarkable for the thorax,

"in which part eccentricity of form seems to have reached its utmost limits. Bocydium tintinnabuliferum is a native of Brazil. Although the largest of the extensive group to which it belongs, it is but a little creature, being about as long as a common housefly, but not so stoutly made. [By the way, it is a pity some scale of magnitude does not accompany the illustrations.] The colour of the body is pale brown, while that of the thorax with its extending appendages is black. The form of these appendages can be better seen by reference to the illustration than by description. The four round little knobs look very much like hawk-bells, and have given rise to the long specific name, which signifies 'bell-bearer;' they are covered with long black hairs."

Our last illustration (fig. 10) refers to a butterfly which, when at rest, so completely resembles a leaf as frequently to escape observation. There are many species of Kallima, most of which are remarkable for the manner in which the colouring, as well as the shape of the closed wings, resembles that of a leaf. The upper surface of the Kallima Inachis is mostly brown, the tips of the upper wings being black, and orange-dun bands running diagonally across them.

The following extract is taken from Mr. Wallace's work:—

"This species was not uncommon in dry woods and thickets, and I often endeavoured to capture it without success, for, after flying a short distance, it would enter a bush among dry or dead leaves, and however carefully I crept up to the spot, I could never discover it till it would suddenly start out again, and then disappear in a similar place. At length I was fortunate enough to see the exact spot where the butterfly settled, and though I lost sight of it for some time, I at length discovered that it was close before my eyes, but that in its position of repose it so closely resembled a dead leaf attached to a twig, as almost certain to deceive the eye, even when gazing full upon it. I captured several specimens on the wing, and was able fully to understand the way in which this wonderful resemblance is produced.

"The ends of the upper wings terminate in a fine point, just as the leaves of many tropical shrubs and trees are pointed, while the lower wings are somewhat more obtuse, and are lengthened out into a short thick tail. Between these two points there runs a dark curved line, exactly representing the midrib of a leaf, and from this radiate on each side a few oblique marks, which well imitate the lateral veins. These marks are more clearly seen on the outer portion of the base of the wings, and on the inner side towards the middle and apex, and they are produced by striæ and markings which are very common in allied species, but which are here modified and strengthened, so as to imitate more exactly the venation of a leaf.

"The tint of the under surface varies much, but it is always some brown or ashy colour, which matches with those of dead leaves. The habit of the species is always to rest on a dead twig, and among dead or dried leaves, and in this position, with the wings closely pressed together, their outline is exactly that of a moderate sized leaf, slightly curved or shrivelled. The tail of the hind wing forms a perfect stalk, and touches the stick while the insect is supported by the middle pair of legs, which are not noticed among the twigs and fibres that surround it. The head and antennæ are drawn back between the wings, so as to be quite concealed, and there is a little notch hollowed out at the very base of the wings, which allows the head to be retracted sufficiently. All these varied details combine to produce a disguise that is so complete and marvellous as to astonish every one who observes it; and the habits of the insects are such as to utilise all these peculiarities, and render them available in such a manner as to remove all doubt of the purpose of this singular case of mimicry, which is undoubtedly a protection to the insect. Its strong swift flight is sufficient to save it from its enemies when on the wing, but if it were equally conspicuous when at rest it could not long escape extinction, owing to the attacks of the insectivorous birds and reptiles that abound in the tropical forests. A very closely allied species, Kallima Inachis, inhabits India, where it is very common, and specimens are sent in every collection from the Himalayas. On examining a number of these, it will be seen that no two are alike, but are the variations corresponding to those of dead leaves. Every tint of yellow, ash, brown, and red is found here, and in many specimens there occur patches and spots formed of small black dots, so closely resembling the way in which minute fungi grow on leaves that it is almost impossible at first not to believe that fungi have grown on the butterflies themselves!

"If such an extraordinary adaptation as this stood alone it would be very difficult to offer any explanation of it; but, although it is perhaps the most perfect case of protective imitation known, there are hundreds of similar resemblances in Nature, and from these it is possible to deduce a general theory of the manner in which they have been slowly brought about."

—— Mr. S. Kurz has recently published in the *Journal of the Asiatic Society of Bengal* some "Contributions towards a Knowledge of the Burmese Flora," in the shape of a classified list of Burmese plants, with occasional comments. The present instalment extends from Ranunculaceæ to Geraniaceæ, and is principally of a descriptive character. The following extracts, relating to tropical forests, and to those of Burma in particular, are of general interest:—

"The distinction between evergreen and deciduous forests must always be the leading one in tropical countries, and such forests differ always most conspicuously in their vegetative components.

"The former are divided into the littoral forests (tidal

and Mangrove), the result of saline influence; further into swamp forests, the product of superabundance of fresh water and heavy inundations during rains. Then come the tropical forests, which are more regulated by moisture and amount of shade than by substratum, although great differences (not so much habitually as specifically) are observable in those that grow on permeable or on half-permeable strata, on silicious sandstones or on metamorphic or permeable laterites, the latter rich in purely Malayan types, the former poorest of all (with those growing on limestone in Tenasserim I am not acquainted). The last sort of evergreen forests are the hill-forests, rather confusedly huddled together by me, but sufficiently distinguished for present requirements. The lower damper ones of these are a modification of the tropical forests below them, while the drier ones consist chiefly of Pines, Oaks, Ericineæ, &c., and pass soon into the temperate forests, which contain a great number of winter-deciduous trees, but are not represented in Burma, except on a few peaks above 6500—7000 feet elevation. Here the slope and resultant amount of light and moisture, and not so much the quality of rock, are the principal regulators, at least so it is on the metamorphic and older formation, while limestone, &c., will form exceptions. Higher up the influence of elevation modifies and changes vegetation according to well-known laws. The leaf-shedding or deciduous forests form the other large class of Indian forests, and cover in these regions a greater area than the former. These grow either on impermeable strata, such as compact calcareous sandstones, and form then the "dry forests," where Catechu trees and several Hindustani trees and arboreous Euphorbias find their home, while higher up on the crests of the Yomah they become formed almost exclusively of an arboreous Hiptage, often accompanied by several rather temperate forms, like Heracleum, Vaccinium, Hymenopogon, &c. On laterite and gravelly strata, and also on very stiff plastic clay, grows another variety of forest, called by me the open forests. Those growing on the first named strata are especially interesting, and are generally known to the Burmans as the 'eng' or 'ein' forests, so named after the prevailing tree, Dipterocarpus tuberculatus; here the botanical rarities of Burma are scattered, and catch the eye the more readily that the surrounding forest is open and the soil-clothing rather scanty. Higher up in the hill eng forests (which grow on laterite formed by decomposition of older rocks, or on *débris* of them), the eng-tree is often replaced by other kinds of wood-oil trees (chiefly Dipterocarpus costatus and obtusifolius); while those open forests that occupy the stiff clay at the base of the hills are characterised by the absence of eng.

"The last variety of deciduous forests are the mixed forests (as they are called by the forester) in which Teak

FIG. 9.—PHENAX AURICOMA.

FIG. 10.—KALLIMA PARALEKTA.

is chiefly found, almost always accompanied by pyenkadu (Xylia). The upper ones grow either on permeable siliceous argillaceous sandstone, as in the case on the Pegu Yomah, and the trees are then usually very lofty, or on metamorphic and other older strata in Martaban, and in this case they are richer in species, but lower in growth, often accompanied by trees which are very rare in the Yomah, such as Pterocarpus, Ternströmiaceæ, &c. The lower mixed forests occupy the alluvial lands of the greater rivers, and gradually pass into the savannah forests and the true savannahs. Along the larger choungs in the hills, where alluvial deposits spread out to a larger extent, similar savannah forests recur on a small scale, but much better grown, and, especially by favourable exposure, much mixed up with trees that are missed in the plains, such as Erythrina lithosperma, Bischoffia javanica, &c."

—— The *Fern Paradise* is to be the title of a forthcoming work from the pen of Mr. Francis George Heath, author of *The English Peasantry*. Mr. Heath's new book, which will be published by Messrs. Hodder & Stoughton, purports to be "a plea for the culture of Ferns." It will include descriptions of ferny rambles through the green lanes, the woods, and the glens of Devonshire—"the home of our native Ferns."

—— The *Album Van Eeden*, published by Van Eeden, florists, of Haarlem, is a half-yearly publica-

FIG. 8.—BOCVDIUM TINTINNABULIFERUM.

tion, forming an annual album of a dozen handsome chromolith plates, intended apparently for displaying in the seed shops, for the purpose of augmenting the sale of bulbs. They consist entirely of Dutch bulbs and bulbous plants, and form exceedingly effective pictures. The plants figured in the Album for 1874 are Crocosmia aurea and Anemone japonica Honorine Jobert, a group of bizarre Tulips, Lilium tigrinum florepleno, double Tulip Yellow Rose, a fine-looking flower; Lilium candidum, Iris reticulata, Hyacinths La Tour d'Auvergne and Grand Lilas; Cyclamen Atkinsii, in three colours; early Tulips, White Pottebakker and Proserpine; Fritillaria imperialis maximus, group of Anemone coronaria, very handsome; and Narcissus maximus, moschatus, and nanus minimus. The plates are large and exceedingly well executed examples of chromolithography, but they ought to be so, being charged at the rate of one shilling each plate. This art of chromolithography has now reached a very high degree of perfection, and the Belgian artists are particularly successful in their delineation of flowers, &c.

—— In the notice of Goeze's *Beitrag zur Kenntniss der Orangengewächse*, in the last number, for the word "Bombay" read "Mombaz," otherwise the sense is destroyed. *H.*

—— The current number of the *New Quarterly Magazine* (Ward, Lock & Tyler) contains amongst other good reading an interesting account of the farming and social experiences of an emigrant in Canada; a capital paper on the agriculture of Portugal, by Mr. John Latouche; and a vigorously written protest against the modern system of bedding-out by Mr. Archibald Banks. In the latter, however, we find plenty of evidence that the author is not quite master of his subject, and while thoroughly sympathising with his intentions, we think it is a pity he did not make himself better acquainted with gardens and gardening, and with gardeners too, before he put pen to paper. Who that knows anything of English gardens and their owners—as distinguished from the Jack-Towel garden of the suburban amateur, with its solitary greenhouse, would write such nonsense as the following:—"Where is your pride gone, gentlemen, who are owners of gardens, that you permit this clean sweep of every green thing from your flower beds at the end of autumn? Have you no proper spirit left, that you submit to be dictated to by a servant, who 'makes a desert and calls it a garden'—who, when you want the sight or the smell of a flower at Christmas, shows you into a damp and stuffy greenhouse, reeking with stale tobacco smoke, the abode of greenfly and red spider, and crowded with five thousand miserable little flowerless cuttings!" Were Mr. Banks a gardener in a good establishment he would learn soon enough that, as regards fashions, he would have to take the cue from his employer, who has a position to maintain, and usually is not in the habit of being dictated to. Again, Mr. Banks tells us that "the English gardener has a high repute all over Europe; the Scotch gardener is confessedly the best in the world"—a statement which contains as much truth as the following, from the same page:—"A modern English gardener requires an education which is nothing less than scientific, and, as every one knows, his salary in large establishments is higher than that of many professional men."! The latter statement would be highly gratifying to us, if only it were true. Unfortunately, however, in many large establishments the salary and emoluments of the gardener are not so good (in proportion to the intelligence of the two men) as those of the family butler; and in very many cases are not equal to the wage of a town artizan's labourer. But reading further on that the Winter Aconite and Christmas Rose are "tuberous plants," and that "the Pomegranate" seldom flowers with us except it be treated "as a creeper," we are constrained to say that, by his imperfect knowledge of the subject on which he treats, Mr. Banks has, we fear, done more to injure the cause he advocates, than to promote a much needed reform.

—— M. Bernardin, the Curator of the Commercial Museum at Melle, near Ghent, has just published a second edition of his *Classified List of Vegetable Oils and Fats*, which serves to give an idea of the immensity of the resources (to a large extent imperfectly developed) which Providence has placed at the disposal of mankind.

HORTICULTURAL EXHIBITIONS, 1875.

JANUARY.

20.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.

FEBRUARY.

17.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.

MARCH.

3.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.

10 and 11.—Leeds Horticultural Gardens Company. Spring Flower Show. Sec. and Manager, James Birbeck, 103, Hyde Park Road, Leeds.

16.—Manchester Botanical and Horticultural Society's Floral Meeting in the Town Hall. Manager, Bruce Findlay.

17.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees. Hyacinth Show.

24.—Glasgow and West of Scotland Horticultural Society. Spring Exhibition. Sec., F. G. Dougall, 167, Canning Street, Glasgow.

31.—Royal Botanic Society, Regent's Park. Spring Show. Sec., W. Sowerby.

APRIL.

7.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.

21.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees. Early Rhododendron Show.

22.—Royal Horticultural Society of Ireland. Spring Exhibition. Sec., A. Balfe, 28, Westland Row, Dublin.

27.—Manchester Botanical and Horticultural Society. Exhibition of Auriculas, &c., in the Town Hall. Manager, Bruce Findlay.

28.—Royal Botanic Society, Regent's Park. Spring Show. Sec., W. Sowerby.

THE

Gardeners' Chronicle.

SATURDAY, JANUARY 9, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Jan. 11	Sale of Imported Orchids and Lilium auratum, at Stevens' Rooms.
TUESDAY,	Jan. 12	Sale of 250 Pens of Choice Poultry and Pigeons, at Stevens' Rooms.
WEDNESDAY,	Jan. 13	Sale of Hardy Trees and Shrubs and Dutch Bulbs, at Stevens' Rooms.
SATURDAY,	Jan. 16	Sale of Roses, Fruit Trees, Conifers, Shrubs, Bulbs, &c., at Stevens' Rooms.

IN a recent article we alluded to Professor CASPARY'S paper on the ORIGIN OF SOME OF THE VARIETIES of the common SPRUCE FIR, and the fastigiate variety of the OAK. The chief point of interest in these inquiries is, whether certain known seminal varieties of different plants are capable of reproducing themselves from seed, giving rise to new races having the value of species, and in their turn giving birth to other new races, and so on *ad infinitum*. It is argued by some that, although plants may vary to a great extent, there is a certain fixed limit beyond which they will not go, and that the progeny of seminal varieties is not constant, frequently showing a reversion to the original parent. There is no doubt that this actually does take place, and that there is a limit, though perhaps not fixed, to variation within the period over which the observations of man extend. But everything remains to be done in this branch of inquiry, that is to say, so far as absolute and irrefragable proof is concerned.

Almost all botanists who have much experience of living plants, and more particularly of the same species in a wild state and under cultivation, admit that it is impossible to draw up descriptions of species or forms that will exactly define, or rather include, all that must eventually come under each of them, unless we go so far as to distinguish individuals. The best description written can only be looked upon as a guide to the characteristics of a certain form or aggregation of forms. In the case of plants from unexplored countries, descriptions are frequently based upon specimens taken from a single individual, and some, or all, of these descriptions may have to be modified to include the next batch of specimens. On the other hand, the descriptions of the plants composing the flora of a country so thoroughly explored as our own, apply to forms that in many instances are rarely exactly matched, or they are more comprehensive, and include a certain range of variation of types more or less unequal in value. All who have formed a collection of dried British plants have a certain number of specimens which cannot be referred to any described critical species, they do not satisfactorily agree with the descriptions or the authentic specimens upon which the descriptions were based; and they can only be said to belong to such or such a set of things. Nevertheless, the study of minute differences is profitable, indeed, properly directed, of the utmost value from a scientific point of view.

A gradual evolution of species is not an attractive theory to those who look for mathematical precision in descriptive botany, but it is a fact beyond question that no two plants can be found exactly alike in every detail. How far variation may go is still, probably, an open point, and can only be guessed at, hence the importance of directing our investigations into this channel, and carefully and impartially recording all facts, whatever their bearing. Preconceived notions should not in any way influence the inquirer after truth, otherwise he may fail to discover it. The history of many of the forms of plants in cultivation is only imperfectly known, and consequently of no importance in support of this or that view. Let us, then, pay more attention to this interesting subject.

One of the trees most fertile in giving birth to new forms is the false Acacia, Robinia Pseud-Acacia. It was introduced into France upwards of 200 years ago by ROBIN, after whom it was named. The original plant stands, or did stand a few years ago, in the Jardin des Plantes at Paris. For many years there was no further importation, and this one tree, if we may rely upon our authority, gave birth to the multitudinous forms now in cultivation, many of which, it is averred, come true from seed to a greater extent even than seed from the parent tree; but grafting is so universally practised to propagate forms obtained in this way, that our information is too meagre to be considered of absolute value.

Professor CASPARY'S article on the origin of the upright Oak has given rise to the foregoing remarks, for he, as we have already stated, does not believe in the origin of forms equal in value to what we term species, though he recognises the importance of tracing out the parentage of varieties, and determining their stability from seed, &c. To this end he has collected all the evidence he could respecting the origin and propagation of Quercus fastigiata. Like the varieties of the Spruce Fir alluded to in a former article, the upright Oak appears to have sprung up independently in several different and distant localities.

The earliest information CASPARY has found respecting this tree is in the fourth volume of the *Hanau'ischen Magazin* for the year 1781, where there are two figures of it, one in and one out of leaf. A description is given of a specimen 100 feet high growing in the forest not far from Aschaffenburg. Nothing is known of course of its actual origin, but it is stated that it showed a tendency to develope an irregular form of branching on the north side, and a large branch was shot off. At that period (1781) it was believed to be upwards of 200 years old, and it was regarded as a freak of Nature, because many fruitless attempts had been made to raise it from seed. All the plants raised from its acorns resembled the common Oak. To the writer of the article in question this was the only specimen of the upright form known.

The next account of this tree is in the *Flora der Wetterau* of GÄRTNER, MEYER, and SHERBIUS, in which work "the beautiful Oak of Harreshausen" is mentioned, and described as a remarkable variety of Q. pedunculata, all attempts to propagate which, whether from seed or by grafting or budding, had been futile. Further information respecting the same tree was given by BECHSTEIN in the fourth edition of his *Forstbotanik*, 1821, and in the *Gardeners' Chronicle* in 1842.

The result of Professor CASPARY'S investigations is that the upright Oak can only be propagated with certainty by grafting, though it may sometimes come true from seed. The specimen above mentioned still exists, and is regarded as the mother of all of the same variety cultivated in Germany.

LAMARCK, in his *Encyclopædia* (1789), gives the first account of the upright Oak in the Pyrenees and Navarre, and names it Q. fastigiata. LOISELEUR-DESLONGCHAMPS (*Nouveau Duhamel* (1819), vii. 178, t. 57) figures it, and says that it occurs in the Eastern Pyrenees and the Landes; but DE CANDOLLE did not consider it indigenous. Professor CASPARY thinks it probable that these also descended from the tree above mentioned, as it is stated in the first named article referring to it, that during the Seven Years' War a French General placed a guard over the original tree to protect it from injury, and sent acorns of it to France. According to TENORE the upright Oak is also found in Calabria.

Evidence from various sources confirm what has been said before, that some, at least, of the seed comes true; but further information respecting the age of the tree in different localities, its constancy from seed and other particulars, especially whether the females of the fruit-bearing specimens are fertilised by pollen from the same tree, are points deserving the attention of those in a position to contribute to our knowledge.

One fact more we may set down. The Denmark Oak of carpenters, Q. sessiliflora, is considered by many botanists as a variety of Q. Robur—Q. pedunculata being another variety of the same species—but the timber of the two is so different that it can always (?) be distinguished, and their distribution favours the idea of their being races rather than varieties.

—— THE SERAGLIO, or the *Seraï Boornoo*, at Constantinople is the ancient palace of the Osmanli Sultans, and was their state residence until Sultan MAHMOOD ceased to live there. The enclosures of this far-famed palace occupy the area of the ancient city of Byzantium, on the extreme point of the eastern promontory between the Bosphorus and the Golden Horn. The situation is lovely, but the buildings which remain are the remnants which escaped the great fire of August 12, 1863. The ancient palace was originally built by MOHAMMED II., and continually added to by his successors. The GARDENS AND PARKS are now in a rather wild but picturesque state. Close outside one of the entrances, that to the north-east of the winter harem, is a magnificent column, surmounted by a Corinthian capital, forming an admirable contrast to a fine Cypress tree adjacent to it. What column this is seems doubtful, and it is not mentioned in the guide books (*Murray*, &c.). It is possible that it may be the one known as Marcian's Column: if so, this would give the date of its erection in 454 A.D., over 1400 years ago. *Murray* says that the column of Theodosius is of the Corinthian order. Within the Seraglio is the magnificent treasury of the Sultans, the accumulated stores of jewellery of past ages, also the armoury, once the ancient church of St. Irene. In the grounds of the Seraglio are deer and other animals from foreign countries. The mosque in the distance, whose dome and minarets appear, is that of VALIDEH TERKHAN, Sultan, and is close by the great bridge of boats on the Golden Horn. For the sketch from which the illustration (fig. 11) on the opposite page was prepared we are indebted to Captain S. P. OLIVER, R.A., who made it on the spot, whilst awaiting the examination of his firman to enter the treasury and armoury on October 23, 1872.

—— The current number of the *Florist and Pomologist* contains a beautifully coloured plate of the WELBECK SEEDLING NECTARINE, which was raised by Mr. TILLERY a few years ago, and is the result of a cross between the Balgowan and Elruge varieties. The fruit is described as being as large as those of Balgowan, and the skin almost wholly covered with dark red, the shaded parts showing a little watery or pale green ground colour, while the most exposed parts are of a very deep purple-red, sometimes slightly speckled. The flesh is greenish-white, red and free at the stone, full-flavoured, very juicy, rich and sugary.

FIG. 11.—COLUMN AND CYPRESS IN GROUNDS OF THE SERAGLIO, CONSTANTINOPLE.

The flavour is brisk yet luscious, and altogether it is regarded as one of the very best of Nectarines.

—— The *Gardeners' Magazine*, which has like ourselves (see p. 749, vol. ii. 1874) recently called attention to the mischievous results likely to follow the absurd method of fastening the PLANE TREES on the THAMES EMBANKMENT, learns that they were not strapped up by the beadle, as our contemporary had imagined, but by the engineers in the employ of the Metropolitan Board. "This is satisfactory, because, as a matter of engineering, the work is perfectly satisfactory, the trees being absolutely immovable, no matter how strongly the stormy winds may blow. But from another point of view the case is worse than we thought it; for, if the aid of science is to be invoked in the cause of tree murder, the Board of Works may acquire dreadful notoriety in the ignoble art of dendricide."

—— One of the prettiest features of the great conservatory at Chatsworth during the autumn and winter months is the grand display of EPIPHYLLUMS of the truncatum type. When it is explained that there are numerous monstrous hanging baskets filled with them, and that one side bench, for the entire length of the building, is almost wholly occupied by them, some faint idea of the pictural effect of these plants may be realised. The baskets are large, probably a yard in diameter, and are covered at top and bottom with the Epiphyllum, so that in the blooming season they are a mass of bloom. On the stage they are grown in pots, some as dwarfs, some as standards, and some worked on stocks trained up the rafters. Amongst the most striking varieties were violaceum grandiflorum, Ruckerianum, spectabile superbum, and Bridgesianum. There were also when we saw them some promising seedlings, and Mr. SPEED has taken up the crossing of these plants, in the hope of gaining improvements on existing kinds.

—— Nowhere, we suppose, is RENANTHERA COCCINEA to be seen in such perfection as at Chatsworth. In our journeyman days it was considered a wondrous feat to get the Renanthera to blossom at all, so obstinate was it supposed to be under artificial cultivation. At Chatsworth the plants had not, we were told, been out of blossom for four years, and that they had blossomed abundantly the panicles (past and present) attached to the stems bore evidence. The Chatsworth plant has several stems, which grow up to a considerable height, in the great conservatory. This Renanthera appears to have a decided preference for growing on Birch poles, and in the case referred to the roots have acquired great vigour, and cling with remarkable tenacity to the surface of the Birch wood.

—— Amongst the specimens of WELLINGTONIA GIGANTEA growing near the great conservatory at Chatsworth, is one which might well bear the name of var. PENDULA. We have noticed it on different occasions as being very distinct. It is paler in colour than the other Wellingtonias of the ordinary form which grow near to it, and has all the smaller spray most gracefully drooping. The variety appears to us to be well worth perpetuating if, as would probably be the case, plants from cuttings would assume the same habit. *T. M.*

—— Mr. WILLIAM PAUL's new hybrid perpetual ROSE ST. GEORGE is the subject of the first coloured plate in the *Florist and Pomologist* this month. It is a rich dark globular Rose, of robust habit and hardy constitution, has spendid foliage, and flowers freely. It is stated to be the offspring of Black Prince, a Rose not yet so widely known as it deserves to be.

—— During the past autumn we saw at Blythefield, the seat of Lord BAGOT, a very remarkable illustration of the EFFECT OF CLOSE PRUNING on the constitution of a plant, as compared with a free extension of its growth. In one part of the pleasure grounds was a Hornbeam hedge of considerable age, and about 8 feet high, presenting the usual appearance of a hedge of this kind, that is to say, the individual trees bore a thicket of slender twigs, and their stems were perhaps barely as stout as one's wrist. From some cause or other the end tree of this line of Hornbeams had been allowed to grow unmolested, and while the constantly pruned plants were no larger than above indicated, the freely grown tree was a fine umbrageous specimen with a thick trunk, and a head at least 40 feet high. It formed a capital illustration of the truth, that constant repression is exhausting. There is, of course, nothing very remarkable in the fact recorded, nor does it teach any new lesson, but the accidental juxtaposition of the hedge and the tree brought out in strong contrast the different effects of the two systems of pruning.

—— M. BUVIGNIER, writing to the *Courrier de Verdun*, in reply to a certain correspondent, who states that the Small Birds' Protection Act would have no influence on the INCREASE OF INJURIOUS INSECTS, says that he believes he can adduce positive facts to prove that the prohibition to kill small birds will result in serious and even dangerous consequences, and have just the opposite effect to that expected by the promoters of the measure. There are useful insects as well as useful birds, and we ought to protect the one as well as the other, up to a certain point. An important thing to ascertain, as M. BUVIGNIER observes, is, what insects the insectivorous birds devour. He maintains that, with the exception of the cuckoo, none of our birds eat the hairy caterpillars, and nearly all those which devastate our gardens belong to the hairy class, and therefore have nothing to fear from the birds. The birds, instead of clearing off the caterpillars, attack the natural enemy of the latter, the ichneumon fly, and thus the caterpillars increase in the same ratio that the ichneumons decrease. A case in point is cited. In 1858 there was quite an invasion of caterpillars, and trees were as bare of foliage in June as in winter. M. BUVIGNIER succeeded in partially saving his orchards by keeping up a constant warfare against them. When they went into the chrysalis state he carefully collected all he could find. These were kept with the intention of destroying the butterflies as they issued from them, and setting the ichneumons at liberty. The result was that, out of upwards of 600 chrysalides, only three had escaped being punctured by the fly, and in 1839 there were very few caterpillars. Since the interdiction to kill small birds has been in force, caterpillars have increased enormously from year to year and the ichneumon has become rarer, and the consequence is that scarcely a leaf is left on the trees at the end of May. This state of things, he predicts, will continue until such time as the equilibrium between the two insects is restored, and this cannot happen so long as the birds are protected. This revives a subject that we have often advocated before in these columns, and that is the study of the mutual relations of plants and animals, particularly insects, birds, moles, &c. Ill-paid gardeners will exclaim, "What? another subject!" Well, it is quite time; a good gardener must have a very varied stock of knowledge.

—— We glean the following facts respecting the manufacture of WOODEN SPOONS OR LADLES, from Mr. WESCHNIAKOFF's *Notice sur l'état actuel de l'Industrie domestique en Russia*. It is computed that 30,000,000 of wooden spoons are annually turned out of hand. The three governments, Nijni-Novgorod, Kostroma, and Viatka, alone produce half of this number, amounting in value to a sum of about 125,000 roubles. The district of Semenow, in Nijni-Novgorod, is the centre of this industry, sixty villages producing 3,000,000 pieces per year, valued at 20,000 roubles. Poplar, Aspen, Maple and Box, are the woods used for this purpose. Wooden spoons fetch from 6 roubles 50 kopecks to 25 roubles per 1000. The first operation consists in cutting the wood into the proper lengths, and making up into bundles. These bundles are sold in the markets, and are often procured from long distances. The second stage is forming the bowl of the spoon, the third, shapening the handle, and the fourth and last, dyeing them of a yellow colour.

—— In the pleasure-grounds at Ingestrie Hall, near Stafford, are growing some splendid specimens of IRISH YEWS, which are at least 20 feet high, and as much through. They are quite a feature amongst the other fine specimens of arboreal vegetation with which this antique residence is embellished. At the same place is a well-grown Araucaria imbricata of from 25 to 30 feet in height.

—— The EPIPHYLLUM TRUNCATUM may be employed in a variety of ways as a decorative plant. At Knowsley we saw tufts of it ornamenting the roof of a plant stove. It was worked on the Pereskia, which was first trained as a creeper and then grafted at intervals with the Epiphyllum. The masses of flower were very effective, and all the more so, perhaps, from their appearing to grow out of nothing, the Pereskia stem not being at all prominent.

—— Among EARLY PEAS that can be recommended for the earliest sowing, one of the most useful is Multum in Parvo. This belongs to the late Dr. MACLEAN's valuable strain, though it was distributed by Messrs. NUTTING & SONS, and not by Mr. C. TURNER, who sent out most of MACLEAN's seedlings. It is a very early dwarf wrinkled marrow, growing from 12 to 15 inches in height, of hardy constitution, bearing freely a good supply of well-filled pods. It is almost superfluous to state that the Peas are deliciously flavoured when cooked. It is sufficiently distinct from Little Gem to be classed as a variety; is a taller and more robust grower, has larger pods, and produces more of them: when supported by a few small sticks the crop is increasedly valuable. The London market gardeners, naturally enough a conservative class, but cautious also in what they select to grow, are beginning to appreciate the value of this early variety for market purposes; and those who have tried it assert that the crop taken from a given piece is as large as that gathered from the Early Emperor, Sangster's No. 1, or any other early variety of that type, while it fetches a larger price. By some of them Carter's First Crop Blue Pea is also favourably mentioned for market purposes, being fairly early, a good cropper, and of commendable flavour. It also is a dwarf-growing variety.

—— EUPHORBIA JACQUINIÆFLORA almost stands alone for the incomparable beauty of its cerise-scarlet flowers, arranged in such elegant wreaths, at this season of the year. At an evening party not long since, where the beauty of flowers, among other pleasant agencies, ministered to the delight of the company, this beautiful stove Euphorbia was singled out for especial praise. Such a warm glow of colour as the flowers present appears to be especially acceptable when snow and ice and frost of unusual severity hold Nature in a state of repose. The flowers, though small, are individually very exquisite in form and colour, and being produced with much profusion on the elongated branches the plant throws up at this time of the year, and the leaves being also of elegant form and of a transparent green, it has come to be much used by ladies as wreaths for the hair. The flowers are set on at the base of the leaves in short spikes of three or four to a dozen buds, and as all regularly face in an upward direction, they form a wreath of great natural beauty. It is a grand plant for stove decoration at mid-winter, and it can be met with as specimens 6 to 7 feet in height, with from twelve to twenty leading branches, each starting from the base, and at the blooming season crowded with flowers. For winter decoration the Euphorbia, when appropriately managed, is scarcely second to any other plant known to gardeners.

—— We are informed that Mr. QUILTER intends holding a large horticultural exhibition at the Lower Grounds, Aston, Birmingham, on Thursday, July 1, and the Friday, Saturday, and Monday following, for the benefit of the Midland Institute Building Fund.

—— We are informed that the presentation of a Testimonial to the Secretary of the Gardeners' Royal Benevolent Institution, Mr. E. R. CUTLER, consisting of a silver tea and coffee service, &c., subscribed for by the members of the Institution, will take place at a supper, to be held at Simpson's Tavern, Strand, on Thursday next, January 14, after the annual general meeting. The chair will be taken at half-past 8 o'clock by Dr. HOGG.

—— Sir THOMAS D. ACLAND, Bart., M.P., was summoned before the magistrates at Exeter, on January 1, for neglecting to have the hedges trimmed and the trees lopped in various parts of his estate at Killerton. In defence, the honorable Baronet said his father was fond of preserving the picturesque features of the Devonshire lanes, and, out of respect to his memory, the trees and brushwood had been left in their natural growth. An order was made by the magistrates for he removal of the cause of complaint.

—— At the meeting of the Council of the ROYAL AGRICULTURAL BENEVOLENT INSTITUTION, held at the Society's offices, 26, Charles Street, St. James', on the 5th instant—present, Messrs. Cantrell (chair), Battcock, Johnson, Marten, Shaw, Scott, and Wagstaff—after the transaction of the ordinary business of the monthly meeting, cheques to the amount of £1917 for the payment in advance of the quarterly pensions were drawn, and the Secretary stated that since the last election fifty-four fresh applications had been received at the office, bringing up the total number to about 200.

—— We have received from Mr. S. A. WOODS, gr. to E. W. WALKER, Esq., Berry Hill, Mansfield, some particularly fine spikes of CALANTHE VEITCHII, C. VESTITA RUBRO OCULATA, and C. VESTITA LUTEO OCULATA, together with the following note, which speaks for itself:—

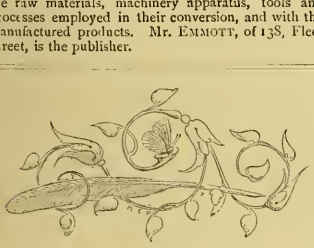
"I have to-day cut off between fifty and sixty spikes of Calanthes, which have been in bloom from about the third week in October. Although considerably past their best, I send you two spikes of each variety [named above], most of them having had from twenty to thirty expanded flowers on a spike at a time. They have been growing, from the time they were potted last February, at the back of one of our Pine-stoves, where the temperature during the summer months was from 70° to 80°, and at times, with sun-heat, up to 85° and 90°. They were well supplied with water, and about twice a week with guano-water, until they began to show their flower-spikes, when it was gradually withheld. The temperature during the winter months has been from 65° to 70°, and occasionally below 65° during the very cold weather. In the autumn of 1873 we removed a lot of Calanthes which had been grown in the same house to a span-roofed house, where the temperature was kept at 60° by day and 55° at night; but though the bulbs were as strong as the present ones a great many of the flowers came deformed, and did not last so long as these have done."

—— The LEEDS HORTICULTURAL GARDENS COMPANY have just issued a Schedule of Prizes for the first spring exhibition, to be held on Wednesday and Thursday, March 10 and 11. The Secretary and Manager is Mr. JAMES BIRBECK.

—— The showy and interesting plant, GREYIA SUTHERLANDI, which Dr. HARVEY at first placed in Saxifragaceæ, but which has since found a resting place in Sapindaceæ, is a native of the rocky mountainous country about Port Natal. It would seem, from a letter recently received by Dr. HOOKER from Mr. H. BOLUS, F.L.S., late of Graff Reinet, that the tree is deciduous, and that the flowers appear before the leaves. Mr. J. H. MCLEA, saw it at Macamac, on the east slopes of the Drakensbergen, in June of last year, when its bright red or crimson flowers were crowded at the ends of the branches, and only one leaf of the previous year remained hanging under the racemes. Some of the specimens seen were from 10 to 18 feet high.

—— The appearance of ERGOT ON THE RYE-GRASS in New Zealand has been causing great consternation among the stock owners, the fungus having spread very rapidly, and over a great extent of the colony, during the past season. It has seriously affected the cattle and horses pastured on Rye-grass, and the increase of lambs has been impaired to a considerable extent. The effect on the animals is to produce giddiness, convulsions, and paralysis of the hind quarters, sometimes terminating fatally. After being attacked, the sheep, if removed to pasture on natural grasses, mostly recover. Steps are being taken in the colony to consider the best means of arresting the progress of the pest.

—— A new periodical is announced to appear on the 15th of every month, entitled the *Textile Manufacturer*, a monthly review of the cotton, woollen, silk, and linen trades. It will deal separately with the raw materials, machinery apparatus, tools and processes employed in their conversion, and with the manufactured products. Mr. EMMOTT, of 138, Fleet Street, is the publisher.



Home Correspondence.

Prize Gardens versus Prize Vineries.—I agree with Mr. Melville's remarks in your issue of December 26, that it would be much better in the interest of horticulture generally that the whole of a garden establishment should be taken into consideration in judging, and not the vineries alone. Grape growing, of course, is one of the most important duties a gardener has to perform; but to judge of a gardener's abilities, or to represent the merit of a place by the quality of one of its vineries, I consider altogether too narrow a basis to start upon. It is well known that in successful Grape growing as much or more depends on soil and situation as on skill and superior knowledge. Therefore, it would be very difficult indeed to arrive at a correct conclusion as to the relative merits of different cultivators. I take it that the principal aim and object of the promoters of the scheme is to advance the science of gardening by rewarding superior merit wherever it may be found. There are many difficulties in the way, which I hope may be found not to be insuperable. The chief one that presents itself to me is this: the best kept place may not reflect the most credit on the gardener, insomuch that one gardener may be obliged to manage a place with half the expense and strength that another does, so that the same standard of perfection cannot be expected. If this comparative difficulty can be got over, I see no others more difficult for the Royal Horticultural Society to surmount, than those which meet the Royal Agricultural Society in adjudging the prize to tenant-farmers' farms. If such a scheme can be established, I shall be glad to become a subscriber. *Owen Thomas, Drayton Manor Gardens.*

What is an Oxlip?—In the early spring of 1864 I brought from the meadows a tuft of Primroses, just showing the bloom-buds, which I divided into four and planted in my garden. At the same time a Cowslip, similarly divided, was planted. I may add that my garden runs east and west, and on the south side there is a Whitethorn hedge, having a 2 feet border; on this border the Primroses were planted. The garden quarter opposite was planted with Currant and Gooseberry bushes in alternate rows; and here the Cowslips were planted, the garden pathway running between them and the Primroses. As the spring advanced the latter opened into bloom, but showed poor, pale, pin-eyed flowers. The Cowslip was rose-eyed, but not remarkable for size or depth of colour. The whole grew vigorously and bloomed profusely, and ripened much seed, which I permitted the plants to shed, as in a natural state, the ground being kept clear of weeds. The following spring there were many seedlings, showing both Primroses and Cowslips. I noticed many of the latter were at some considerable distance from the parent plants. The next spring (1866) these seedlings bloomed in abundance; the Primroses as Primroses in every instance, but with much diversity of form, size, and shade of colouring in the flowers. Among the Cowslips there was equally as much diversity in form of the flowers and in the colouring, and there were also several with very large pips, but Cowslips notwithstanding. There was also two Oxlips (Lady Fingers in the vernacular of our place), as fine as I ever saw growing in meadow hedgerows. In the succeeding spring (1867) there were hundreds of seedlings blooming, both Primroses and Cowslips; amongst the former there were two or three Oxlips, but these were very unlike the Oxlips on the Cowslip side, the flowers being very round and flat, more so than in the Primrose; the colours were also paler, having but little vigour, the stems being short and but few pips on the crown. With the Cowslip seedlings this season there were numbers of Oxlips, vigorous, and in colours from the brightest gold to the palest lemon. The Cowslips, too, I observed, were travelling fast northward across the garden, and did not cross the path towards the Primroses; and at no time have I seen a Cowslip blooming with the Primroses, but I have seen the latter with the former blooming profusely; but I am pretty nearly certain that these are the progeny of the Oxlips, as it is in close proximity to them that the Primroses are found. The Cowslips have now about died out. I saw but one sickly seedling in the spring of 1874; the year preceding I did not observe one. With the Primroses it is otherwise, these having extended themselves on their border east and west, blooming every spring with the utmost profusion, being then like a bank of Primroses in a wood. The Oxlips, too, appear to be an enduring race of plants, as there are still remaining several fine clumps of them. I believe the two first (those that appeared in 1866) are still in existence, never having been disturbed. One of these last spring threw up more than twenty trusses of bloom, and was quite a picture among the Currant trees for a considerable time. The Oxlip, I find, is not like the Cowslip, soon getting out of bloom. In the autumn of 1869 I planted a high-coloured Polyanthus with the Cowslips, also a similar plant with the Primroses. From this time a race of seedlings (coloured) sprang up, the Cowslips showing the deepest colouring, many of the seedlings being of a dark, ruddy crimson, others inclining to scarlet—the Primroses, showing a blue tint where coloured, never getting beyond a deep violet, with every intermediate shade below, many of them having in the centre of the outer edge of the petals a light spot. I fancy, too, that planting the Polyanthus among the Cowslips has had something to do in respect to their dying out, as there are still several healthy clumps of coloured Cowslips, which bloomed profusely last season. *W. H. T.*

Do Varieties Wear Out?—I have often thought about this subject, and from my observations have been inclined to doubt it. The Golden Pippin Apple is generally brought into such discussions. I knew it thirty years ago: the tree was old, and bore freely, and is alive now. In the garden here there is a tree about ten years old, which grows vigorously, in fact is the healthiest in the place, and crops abundantly with elegant fruit; it has grown so last that within three years I have had to cut half the growth away. The subsoil is brick earth, with a substratum of sharp sand, which keeps the ground well-drained. I should like to know if propagators of Camellias have found them to be more difficult to grow than fifty years ago. Many Heaths have been kept by cuttings for some years, have they become more liable to disease? We find the old varieties of Pelargoniums grow as freely as ever, viz., P. scutatum, elatum, dentatum, citriodorum, &c. As to cross fertilisation I may mention that in 1867 some pollen was obtained from Chatsworth to impregnate the Victoria regia at Kew: some were impregnated with their own pollen, and some with the foreign. The result was that those in which their own pollen was made use of were more prolific of seed, and the plants from them grew the strongest the next spring. Though they were raised in the same tank, sown the same day, and potted off at the same time, the plant for 1868 was selected from those raised by means of their own pollen. *J. Croucher, Sudbury House, Jan. 4.*

The Charlotte Rothschild Pine-apple.—This is certainly a most desirable variety to cultivate, by reason of its robust constitution and its free-fruiting character. We are now cutting fine fruits of this variety from plants which were rootless suckers at the end of last February. In these respects I quite concur in the opinion of your correspondent in last week's issue, but, with regard to the time stated for the fruit to attain perfection—namely, starters at the present season to be ripe in May—I differ very much, because the fruit requires at least a month longer to ripen perfectly than the Queen or Providence, and these sorts usually occupy about eighteen weeks after the fruit is visible. A considerable number of plants of this kind have fruited here, at different periods in the year, which varied in weight from 4 lb. to 9¼ lb. each. So far my experience does not warrant such sanguine expectations about it as being a suitable sort to ripen in May and June; as some of the fruits of it, which ripened at that period, indicated plainly cracks in the fruit, which very much disfigured them: neither do I for one moment entertain the opinion that, with all its excellencies, it will supersede that old and sterling variety, the Queen, even for general supply. As an autumn and winter fruiting variety it should be in every collection. *Geo. Thos. Miles, Wycombe Abbey, Jan. 4.*

The Currajong in North Wales.—I have sent you a twig of the Currajong now in bloom at Colwyn, North Wales. It was cut, with the other flowers sent, on Saturday last, though here we had on the previous Thursday night over 15° of frost. I could have cut many more flowers, such as Virginian Stock, Mignonette, Roses, and lots of common things, but had barely time to cut even what I did. The Currajong is about 10 feet high, and as straight in the stem as a Larch, which in form (though of course not in foliage) it somewhat resembles. It is scarcely conceivable that it should ever become a shrub. The plant in question is only four years old, and was raised from seed sent from Tasmania. I should be obliged by your opinion as to whether it is the Currajong (Plagianthus) [Yes. EDS.]. You will observe that Ozothamnus rosmarinifolius has produced seed here. *Alfred O. Walker, Chester.* [The flowers received from our correspondent were Aralia Sieboldi, Chrysanthemums, Stocks, Aster grandiflorus, Leptospermum scoparium, Ozothamnus rosmarinifolius, &c. EDS.]

Size of Old Holly Trees.—A correspondent, writing in the *Gardeners' Chronicle* some few weeks ago, wished for information regarding the size of Holly trees in other parts of the kingdom in comparison with one of which he gave the dimensions. Being busy at the time, I could not then give attention to it. For his satisfaction I would now beg to inform him that this place (Gordon Castle) has long been noted for its fine old Hollies, and that many of them must be several hundred years old. Numbers of them are divided into stems nearly close to the ground of three, four, or five each, and could not be properly measured as one tree unless quite close to the surface, which I do not consider fair measurement for the trunk of a tree. There are, however, numerous examples of clean straight stems, one of which I measured a short time ago and found its girth at 3 feet above ground was 7 feet 9 inches, and again at 10 feet it was 7 feet 6 inches; another at 2 feet above ground girthed 8 feet 6 inches—this being the smallest part, as immediately above it began to divide into different stems, and could have been measured to show a much higher figure. I measured at the same time an old Alder, at 3 feet above ground, which girthed 15 feet 2 inches. This is perhaps nearly as rare in regard to size as the Holly. *J. Webster, Gordon Castle.*

Abutilon Thompsoni.—This plant was, for a time, much sought after, but from personal observation it is now generally seen standing neglected among a lot of plants which are shortly to be thrown on the rubbish heap to make room for something newer. When thus seen it is certainly a wretched-looking object, not worthi ts room. In my opinion, however, it ought not to be discarded yet, as with very little trouble it can be made to brighten conservatories, greenhouses, drawing-room stands, &c., through the dull winter months. It is easily propagated in a gentle bottom-heat in the spring, and may be treated similar to other bedding-plants, and used with them for "dotting" among Iresine, Coleus, &c. If the best of these are carefully lifted as soon as convenient, they will be found very useful, however leggy they may appear. Good plants may be had with special treatment; the following I would recommend, being a sure method to obtain better foliage than is generally obtained by pot-culture. At the end of May or early in June a bed with a south aspect should be prepared for them by merely mixing a quantity of leaf soil or decomposed dung with the common garden soil. The plants required should have been previously pinched back hard often enough to obtain five or six shoots. Plant about 18 inches apart each way. They should be watered occasionally, and a trowel frequently run at about 3 inches distance around them; this will check a too luxuriant growth, and also enable the operator to lift the plants with a good ball, which should be done before the frosts set in

(this is not really necessary, but is advisable, the Abutilon being semi-hardy). When potting use pots as as small as convenient; the soil in which they were growing will be good enough. They should then be watered, kept close, syringed, and shaded a few days, and the operation won't affect them. Old plants should be cut down in the spring and treated much the same as above. They will all prove very useful either for their beautiful foliage or their curious flowers, which are produced freely through the winter, providing the plants are in a moderately warm and airy position. *W. I.*

A New Potato.—What! another variety added to the thousand and one already in commerce? Yes; and that a very desirable one, if we are to believe the following witty story, which I heard related when travelling in a railway carriage the other day, and where Potatos formed the subject of a long conversation:—"Have you not heard of the new 'Rocca mirabilis' Potato from California?" said Mr. D. "No," was the reply; "what is it like?" "Oh! it is an immense cropper, and grows as large as a long Vegetable Marrow, but it won't boil!" "Won't boil?" interrogated a fellow passenger, "then, I fear, it will never come into general use." "But it will bake beautifully," said Mr. D.; "and the most remarkable thing connected with it is that, when it is cut open, there is found in the middle a nice piece of butter, pepper, and salt." I need hardly say this announcement was received with a general burst of laughter. *T. S.*

Conifers on Chalk Land.—Your correspondent "J. V. Holwell," p. 19, may take heart that the list is not so restricted as may at first appear. I take it that the whole is not pure chalk, but more or less strongly mixed with it after trenching. From some experience in the matter, I can recommend the following as certain. In the first batch, *i.e.*, when the chalk is in greatest quantity, plant Pinus austriaca and its cogeners P. pyrenaica, Laricio, and romana. Add Cupressus Lawsoniana and nutkatensis, Juniperus virginiana and chinensis, Thuja Lobbii, and common Yew. All these will thrive and grow with fine dark colour on fresh trenched and pulverised chalk. Next in order (with reference to the chalk apparent in earth) plant Cedar of Lebanon and C. atlantica, Wellingtonia gigantea, Picea cephalonica and P. Pinsapo, and if there is one comparatively sheltered corner plant a Pinus excelsa: it will enjoy the chalk though it cannot stand the west wind—Pinus Pinaster can do so: act accordingly. Any of the above, singular to say, I have found to thrive better than the common Scotch Fir under the circumstances. The list may be very much extended, and not—mark—with plants "dragging out" an existence, but "happy" and comfortable. Let planters of Conifers on chalk trench early, and allow the whole to mellow, and in every case if possible give a little assistance, if only a barrowload of good earth, till the plant has taken to its new quarters, and, as a rule, do not plant large plants from a different soil. *A. McI.*

Heating a Conservatory.—I should be obliged to "H. K., Sussex," who wrote in the number of Dec. 26, 1874, about heating a conservatory, if he would state the cause of the "vapour entering the room"—if from the pipes bursting or what, and the kind of stove that he alludes to. I am about to have one put in a room to heat a conservatory, so wish to know more particulars before I do so. I do not see how a cylinder boiler could emit a "foul vapour" unless it burst. *C. Oakeley, Monmouth.*

Rhododendron Flowering Early.—Yesterday, in making my way through several inches of snow to a Rhododendron bed, I found, to my surprise, that the intense frost has not delayed the coming out of one of the buds, which is rather more sheltered than the rest. It is a rose-coloured variety, and, I believe, Chinese. It always flowers early, but this year before Christmas it had one bloom out, which kept many weeks in the house and fully expanded. *E. O. M., Jan. 5.*

Planting Young Fruit Trees.—The season for planting young fruit trees having arrived, it has occurred to me that a word or two as to their management may be useful to some of your numerous readers. The usual practice with many on receiving their trees from the nurseries is to cut them hard back, leaving only a bud or two on each shoot, thus sacrificing at once a year's growth, as the tree at the end of the following season will be much in the same state as when received from the grower. This practice of beheading young trees cannot be too strongly condemned, as it serves no useful purpose whatever. The object in planting a tree is to fill the allotted space on the wall or trellis, and to get it thoroughly established in a fruit-bearing state as quickly as possible. Instead of cutting back, every inch of wood, if ripe and firm, and properly situated, should be laid in, so as to form the main branches or frame of the future tree. If it is intended to train in the fan-shape, an equal portion of the branches should be trained to the right and left, so as to keep the middle of the tree quite open, as that part is sure to fill. In spring, all buds except those properly situate should be removed, and those left to form the tree should always be on the upper side of the branches, as it is impossible to have a handsome-shaped tree if this is not observed. Many are of opinion that it is necessary to cut a young fresh-planted tree hard back to get it to break properly; but if planted in suitable soil, and duly cared for, the lower buds will be found to start almost as freely as those at the extremity of the shoot. On receiving the trees from the nursery the roots should be carefully examined, and any broken or mutilated part cut away with a sharp knife. In planting, it is not necessary or desirable to renew the whole of the border, as it is much better to do this piecemeal as the trees require it. A semicircle of 5 feet or so, and 2 feet 6 inches deep, will be found quite sufficient for the first year. This hole should be partly filled with good sound, yellow loam, without a particle of manure or other admixture. Leaf-mould, or any other decomposing vegetable matter, should never be allowed near the roots, as it is sure to lead to the formation of fungus, and ultimately the entire destruction of the tree. This has more to do with failure in fruit growing than many imagine, and want of success is too frequently attributed to other causes when it should be sought for at the roots, for if these are not active and healthy, no treatment the top can receive will lead to satisfactory results. The roots should be carefully spread out and covered with fine soil, afterwards filling up with the rougher portions, gently treading the same as the operation proceeds. The surface should then be mulched over to protect the roots from the action of frost in winter, and in a uniform state as to moisture during the summer. If the roots are shaded in this way, one or two good waterings will carry them them through the driest of seasons, and it is surprising how soon plants thus treated become established. It is the greatest mistake possible to allow a fresh-planted tree to flag or suffer in any way for want of moisture, either at the root or in the atmosphere, and the former is almost certain to be the case if not well mulched over. If allowed to flag, the bark is sure to become contracted, and the growth of the tree much impeded in consequence. To counteract the exhausting effect a dry state of the atmosphere has on all fresh-planted trees, they should be well syringed at least once a day till they become fully established. Treated as above, I have been able to fill with one small young Peach over 100 square feet of trellis in three years with good fruit-bearing wood. *J. Sheppard, Woolverstone.*

The Noble Tuber or Pomme de Terre.—As I have practised autumn planting most successfully for three years it is right that I should give necessary cautions. Do not plant cut sets but whole tubers, or worms and centipedes may cause great havoc. Do not plant till the earth is thoroughly cold, or the sets may sprout and come up, if the pre-Christmas weather is mild. I began planting October 28 and finished on November 9. In warm gardens Potatos should not be planted till all fear of premature growth is over. I do not recommend autumn planting in strong ground, that seals like asphalte. If the Potatos have sprouted the scions must be taken off. Plant the tubers 4 inches deep and cover them in the trench with grassy furze (I use this) or clean straw. I plant the Potatos 22 inches from rank to rank, and 9 inches or a foot from tuber to tuber according to their size. My lands this seasons were quite covered with tubers. The tubers used are too good for a pig but not good enough for table. Those of the size of a bantam's egg I plant 9 inches apart, and those of the size of a hen's egg a foot apart. The sorts I use are, for earliness, Royal Ashleaf, Veitch's Ashleaf, and Gryffe Castle, an admirable white, round Regent. It is a short haulmed, early ripening York Regent; and I believe it and Turner's Union to be two of the best in the white line that are not kidneys. My late dependence are Lapstone and its two congeners—all ripe by August 7—Yorkshire Hero and Taylor's Yorkshire Hybrid. The two former have white flowers and the last blue flowers. It will be a "hard nut to crack" to beat the above. As soon as the skin adheres firmly to the tuber dig. Never mind whether the haulm is decayed or not; the tubers ripen a little in store. The late Potatos last till new ones come in; and they were so good that my servants preferred them to the new Potatos. There appears to be a great *furore* for large Potatos; but, even if the sort is good, a mid-sized tuber is always better in quality than a large one. For poor people, who depend on quantity, I specially recommend Suttons' Red-skinned Flourball. The crops hereabouts of this sort have been wonderful, and, as far as disease is concerned, this sort this year has signally escaped disease. It might not be so another year, for disease depends much upon circumstances. It is a great mistake to suppose that Potatos freshly raised from seed have immunity from disease. A Potato, whether freshly raised from seed or otherwise, may escape one year, and the next year be the most diseased of all. My object in autumn planting is, not to escape disease, but to utilise tubers, which, if grown out in store, would be useless. I believe that the growing out in store before planting has done more than anything to weaken the constitution of the noble tuber. I have much pleasure in highly recommending Mr. Fenn's Bountiful. It is as rich as, but an earlier ripener than the Salmon Kidney. It is the best quality new Potato that I have eaten for many years. His hybrid from Hero and Onwards is also a Potato of great excellence; I advise a trial of it. I believe it is called Alice Fenn. It is distinct in flavour, being midway between that of a round and kidney. His Rector of Woodstock is a beautiful round level white Potato. Next year I shall be able to speak of it more definitively; it is perfect in shape, and well worth a trial. One object of my autumn planting is this: the Potatos do not appear above ground till frosts are nearly over. When mine are just peeping the March-planted Potatos are a foot high, and the May hoar frosts commit sad havoc. When mine peep I snub them by just covering them with earth, and so escape. I thus get more results from my kidneys than poor people do from their round deep-eyed "whoppers." *W. F. Radclyffe, Okeford Fitzpaine.*

Flower Shows.—Allow me to deny the truth of Mr. Croucher's assertion, that I put more than one plant in a pot at Bath. He is "not aware" of my great triumph over him, he is "not aware" that he attacked the judges, "he does not see" that he needed fortifying at Bath. I pass over this, and ask him to deny point-blank that he did fortify himself. I happen to know rather more about it than he imagines. He may possibly not have written the offensive remarks I referred to, but if he prompted them to your reporter [which we deny. EDS.], directly or indirectly in any way, he is equally the author. Why did he claim the "merit" of having written them? [Mr. Croucher denies having done so. EDS.] To satisfy your editorial request—which ought never to have been made—and to prevent my silence being misconstrued, the following is, I believe, an exact list of the twelve cup plants I showed in June last at South Kensington:—Curculigo recurvata striata, Macrozamia corallipes, ditto spiralis eburnea, Pandanus Veitchii, Vriesia reticulata, Dracænas Sherpherdii and metallica, Guilielma utilis, Cyathea Burkei, Encephalartos villosus ampliatus, Maranta Makoyana and Dæmonorops palembanicus. I showed the first eight (the same plants I mean—let us have no misunderstanding) in 1873, a year previously. I bought the Cyathea in August of the same year, received it at Golden Hill, Leyland, on September 12, and exhibited it in June, 1874—nine months afterwards. The Encephalartos and Maranta I bought early in 1874 (together, if I remember right), and I showed them both at Manchester in May. The Dæmonorops I bought shortly before the June show in London (had it been the day before no matter); I picked it up in a nursery, and showed it because it was a little larger than mine of the year previous. Let me add that I have never written a word against the practice of buying plants for exhibition. Constituted as schedules are at present, it is perfectly fair; everybody who requires to do so does it, and it is thoroughly understood. I wrote against incompetent judging, dishonesty, and tricks, having seen plenty of all, and possessing the moral courage to speak out like a man at any cost to myself. *T. M. Shuttleworth, F.R.H.S., Howick House, Preston, Jan. 5.* [We have sent Mr. Shuttleworth's challenge to Mr. Croucher, as it has no general interest for our readers. Our request, which we claim the right to have made, was, by some misadventure, not quite so definite as we intended. It was meant to refer to the exhibition of June, 1873, when it is alleged that Mr. Shuttleworth bought certain plants on the eve of the show day, and showed them in competition. According to Mr. Shuttleworth's views, above expressed, this is "no matter," but at any rate it is not plant-growing, and gives a manifest advantage to the longest purse; and this is what Mr. Croucher and other correspondents, whose letters we have not published, complain of as being unfair. EDS.]

The Villa Garden.

THE GREENHOUSE.—As an invariable rule at this season of the year, when the shortest days prevail, the weather is cloudy and foggy, and there is a marked absence of solar light. In ordinary greenhouses but little fire-heat is employed, and only when the weather is very frosty, to keep out the effects of this wintry visitant. It is not well to employ any more artificial heat than is absolutely necessary for this purpose, as it has the effect of exciting plants that should be kept at rest. The ordinary occupants of a greenhouse at this season of the year are in the main bedding plants, and all that is required is that they exist, and to do

this they will require but little water, and artificial warmth only when absolutely necessary.

Even at a season of the year when there is but little in the greenhouse that may be termed attractive, cleanliness is of as much importance as if the house was filled with costly flowering plants. The glass at the sides and on the roof should be kept clean, so as to admit all the light possible, and shelves and pits should be similarly cleansed; the damp always hangs about deposits of dirt, and it should be remembered that a dirty house is not merely an evidence of an untidy gardener, but most commonly also of a bad plant grower. A frequent turning round and moving of the plants not only benefits them, but betrays and gives opportunity for the destruction of any hidden insects—a desirable end, which cleanliness and attention in every shape have much to do in effecting.

It is difficult to give definite directions as to the temperature to be maintained in a mixed greenhouse, the mixture of plants being frequently of a very incongruous character. There will be plants that are nearly hardy, such as the Zonal Pelargoniums, and which, if well-established in pots, and pretty dry at the roots, will withstand several degrees of frost without harm. As safe advice on the subject of temperature in houses that can have the assistance of fire-heat, we say let it range from 40° to 50°, but at the same time avoid fire-heat as much as possible. In the event of a continuance of damp, foggy weather, a little fire, however, is often highly beneficial, doing much good in keeping the house free from damp. When applied for this purpose, air should be given on that side of the house farthest from the quarter where the wind, if any, blows, as has already been enforced in a recent paper. Wherever it is practicable, as is often the case in small structures, apply outer coverings as a protection against frost, rather than light fires on every doubtful occasion; but the substitution of the one for the other requires a steady and watchful attention, which will be amply repaid in the way in which some descriptions of plants will thrive in the one case, as compared with their progress when subjected to the drying influences of the flues or pipes. As a matter of course in such a spell of severe frost as that we have just had to bear, no cold house without the means of artificial heating by fire or hot-water pipes could have stood any chance against the invader. Many persons have, during the past three or four years, when the winters have been comparatively mild, managed to winter their plants without much loss or harm, by the use of a portable stove of some kind, a lamp burning mineral oil, &c. Alas! many a house, with its occupants blasted and ruined to a great extent, testifies to the incompetency of such appliances to stand against the attacks of old Winter when he comes in force, accompanied with unusually severe frost like that which we have recently experienced, and which penetrated into warm and cold corners alike, positions supposed to be impenetrable being surrendered from sheer inability to hold them. Owners of cold houses saw the enemy invading every nook and cranny; temporary protections were extemporised without avail, for the march of destruction could not be arrested. Fortunate were those who, having kept their plants dry, to a great extent mitigated the effects of the visitant frost. If not already done, the plants should be gone through at once; all decaying leaves, and they are unfortunately many, removed; and the house thrown open altogether as soon as a few bright hours present themselves, watering every plant that is dry, and then trusting to time. We have seen a house—one of the unfortunately unheated structures built now-a-days—not to grow plants in, but to ornament (?) a modern villa—in which the recent frost was so intense that Veronica Andersoni variegata, Acacia lophantha, and a few other plants were killed outright; but the Zonal Pelargoniums, Primulas, and a few other such plants, though touched about the leaves, are yet living and apparently secure. But no one must hallo till he is clear of the wood; plants that have had to stand such a frost as that of the closing days of 1874 may appear sound for weeks to come, and then, by-and-by, when the awakening forces of Nature begin to rouse themselves to action, may give up the struggle and their existence together.

KITCHEN GARDEN.—All villa gardeners esteem an early crop of Radishes. If there is any part of the garden that affords a warm bed, on a sunny sloping aspect, let a few Radishes be sown there at once if the ground be unoccupied. Fork it over, crumble the soil to pieces, and, as soon as workable, make a thin sowing of Wood's Early Frame Radish, and cover the seed with fine soil to the depth of about a third of an inch. Then cover with a thin layer of short straw, to protect the surface and prevent the seed being taken by the birds. Turn it over occasionally, to keep it from rotting next the soil; and as soon as the seed leaves appear-remove the covering by day when fine and sunny, but replacing it at night. At this stage the birds must be kept from the seed plants, as the grain-loving propensities of some will induce them to work havoc among the growing crop, unless prevented by some timely interposition.

THE FARM.

THE DRAINAGE OF LAND is properly done in winter time, when the surface is not occupied by growing crops, when the land is softer and more easily cut, and when labourers are more likely to be obtained. At from 3 feet 6 inches or 4 feet deep in homogeneous soils, to any greater depth which may be required to tap any gravel bed or other subterranean reservoirs of water causing the springs or surface wetness which it is desired to remove—2-inch pipes are laid, with a sufficient slope to ensure their efficacy, in rows not nearer than is necessary to ensure the drainage of the interval. Where springs exist, owing to which a large surface is kept wet, a large pipe or other conduit may be required. When the wetness is just an occasional water-logged condition owing to the rainfall, then 2-inch pipes are laid both in old furrows and in parallel lines down the slope, about 4 feet deep, and from 6 to 10 or more yards apart, according as the ground is more or less stiff, and the climate more or less wet. These parallel minor drains taken down the slope deliver their water into a main drain connecting them all at foot, which, by a 3 or 4 or 5 inch pipe, carries the whole water drainage of the field to a bricked outfall. Drains cost from 8*d*. to 10*d*. per perch ($5\frac{1}{2}$ yards) for digging 4 feet deep and filling in again over the tiles, which should in every case be placed by hand. Tiles cost from 18*s*. to 25*s*. per 1000 for 2-inch pipes, and with carriage they may amount to any sum from 28*s*. to 30*s*. per 1000 in the field. Add cost of direction, cost of outfalls, &c., and even when the interval is as much as 40 feet, involving only about 60 perches per acre, it will now cost at least, if not more than, £5 an acre to effect thorough drainage. The return, however, will amply repay the cost. If money is borrowed for the purpose from any land company, to be paid off in twenty-five years by an annuity of 7 per cent., the annual charge will be 7*s*. an acre for an outlay of £5, and the improvement effected is often materially greater, few soils being worth less than 10*s*. per acre increased rental after draining, and some soils are worth 20*s*. per acre more rental. But the labour question has destroyed all the old landmarks of charges, and it is now very difficult to define cost per acre in consequence.

The tillage operations possible in January sometimes include the breaking-up of old turf land, and the ploughing-up of clover and corn stubbles, if that has been delayed till now. In the North the ploughing up of lea intended for Oats proceeds, and when dry, the ploughing up of land cleared of Turnips, whether intended for spring Wheat or for Barley. There, too, when free from frost, every exertion will be made now to secure the remainder of the Swedish Turnips, storing them in ridge-shaped pits, or, which answers equally well, and saves labour and straw for covering, in broad flat pits, any width and length, but not exceeding 18 or 20 inches deep, putting a little clay on the sides of the pits to keep the straw from blowing. In case land to be fallowed has not been ploughed, the sooner it is done the better. Our best farmers dislike to plough in the spring, as the land always works best when sown on the fine and weather-beaten surface. Putting farmyard manure on the young Clovers is proper for this month. This need not be spread till after the frost. The subsoil plough will be of great service, and ought to be kept going in every instance where it is needed. Upon heavy soils it is well to plough down manure at this season.

SEED OPERATIONS.—When land is in good condition, and the season dry and open, the latest sowings of winter Wheats may be still conducted. Peas are sown in market gardens for early summer crops of green Peas in January—the land being dry and rich. It is a good plan to sow in drills 12 or 15 inches apart, and cover with the hoe, letting the raised drill stand as a shelter for the young row. Beans, too, may be planted this month in dry and early situations. The threshing of grain, pulse, clover, and grass seeds, should be done during this and the succeeding month. This is a labour question, both in preparing and delivery, and is best done when labour is plentiful, as it prevents the displacement of labour in other busy periods of spring and summer. Thresh and prepare Clover seeds for market. *The Agricultural Gazette.*

Obituary.

ON the 31st ult., at St. Peter's Street, Canterbury, CATHERINE ANN, widow of WILLIAM MASTERS, Esq., in her 82d year.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, JANUARY 6, 1875.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 Years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Week.	Temperature of the Air. Departure of Mean from Average of 60 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
Dec. 31	In. 30.09	In. +0.26	24.5°	18.5°	6.0	21.1°	−16.1°	20.9	99	S.S.E.	In. 0.00
Jan. 1	29.99	+0.11	35.0	19.8	15.2	27.4	− 9.8	21.5	78	S.S.E. : E.	0.24
2	29.80	+0.03	44.2	31.0	13.2	37.6	+ 0.6	35.1	90	WSW : S.W.	0.28
3	29.82	+0.05	50.1	42.0	8.1	46.4	+ 9.7	43.5	92	S.W.	0.17
4	29.69	−0.07	51.2	41.0	7.2	47.6	+11.2	46.1	94	S.S.W.	0.06
5	29.84	+0.09	48.5	42.7	5.8	45.6	+ 9.4	43.0	93	W. : WSW	0.02
6	29.88	+0.13	49.5	40.0	9.5	44.7	+ 8.7	42.2	92	SSW : S.W.	0.01

Dec. 31.—Overcast, dense fog in morning. Hoar-frost. Fine and dull afternoon.
Jan. 1.—Fine; much hoar-frost; dull; and overcast in afternoon and evening. Lowest temperature of vegetation, 17°.9.
— 2.—Fine; nearly cloudless in morning; heavy rain before midnight.
— 3.—Rain in early morning. Fine during the afternoon. Overcast at night.
— 4.—Overcast; a little rain fell in the morning; the sky became cloudless at noon. Overcast at night.
— 5.—Fine; mild; nearly cloudless all day, but overcast at night.
— 6.—Overcast in early morning. Fine; light clouds in afternoon; overcast again at night.

—— In the neighbourhood of London the reading of the barometer at the level of the sea increased from 30.04 inches at the beginning of the week to 30.30 inches by the evening of the 28th, decreased to 30.22 inches by the afternoon of the 29th, then turned to increase again to 30.32 inches by the morning of the 30th, decreased to 30.25 inches by the evening of the same day, then increased to 30.29 inches by the night of the last day of December; a sudden and rapid fall was then observed, and by the early morning hours of January 2, 29.69 inches was recorded; it then increased to 30.03 inches by the afternoon of the same day, and was 30 inches at the end of the week. The mean daily readings were all above their averages, but not to a very great amount.

The highest temperatures of the air at 4 feet above the ground ranged from 44½° on January 2 to 24½° on December 31, the mean for the week being 32¾°. The mean of the seven low night temperatures was 24°, the extreme readings being 35° on January 2, and 18½° on January 1. The mean daily range of temperature was 8¾°. The mean daily temperatures of the air were all below their averages, except on January 2, the values being as follows:—27th, 32°, — 5°.3; 28th, 30°.8, — 6°.4; 29th, 24°.8, — 12°.5; 30th, 24°.7, — 12°.7; 31st, 21°.1, — 16°.4; Jan. 1, 27°.5, — 9°.7; 2d, 40°.6, + 3°.7.

The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in the sun's rays, were 43¾° and 40½° on December 27 and 29, but on January 2 it rose to 78°. The lowest reading of a thermometer at night placed on grass, with its bulb fully exposed to the sky, were 13° and 14¾° on December 30 and 31, and the mean for the seven low readings was about 21°. The weather was generally cloudy and dull.

A little snow fell on the morning of Monday, December 28.

Rain fell to the amount of half an inch during the week.

In England the extreme high day temperatures ranged from 49° at Sunderland to 36¾ at Nottingham, with a general average over the country of 42¾°. Till Friday, January 1, the weather was very cold; on the last day of the week it changed to warm. The low night temperatures were remarkable, especially on December 30 and 31; the following table shows the lowest temperatures observed on both those nights at the several places named:—

December 30.

Hull	5.0°	Bradford	15.2
North Shields	6.8	Eccles	17.0
Bywell	9.0	Liverpool	17.5
Somerleyton and Norwich	10.0	Streatley Vicarage	18.3
Sunderland	11.0	Marlborough College	19.5
Carlisle	11.2	Birmingham	19.7
Silloth	11.4	Blackheath	19.8
Leeds	12.0	Wolverhampton	20.5
Nottingham	12.1	Portsmouth	22.8
Weybridge Heath	12.8	Bristol	23.4
Calcethorpe	13.1	Osborne	27.4
Leicester	14.5	Barnstaple	30.0
Sheffield	14.7	Helston	36.0
		Truro	37.0

December 31.

	°		°
Eccles	7.3	Sheffield	15.5
Calcethorpe	8.1	Wolverhampton ..	15.7
Marlborough College..	8.8	Liverpool and Leeds ..	18.0
Hull	9.0	Birmingham	20.0
Silloth	11.0	Blackheath	20.1
Carlisle	12.0	Portsmouth	20.7
Nottingham	12.5	Sunderland and Bywell	21.0
Leicester	13.0	North Shields	22.8
Bristol	13.8	Osborne and Barnstaple	26.0
Weybridge Heath ..	14.0	Truro	32.0
Somerleyton	14.8	Helston	39.0
Streatley, Norwich, Bradford	15.0		

Thus the temperatures varied on December 30 from 5° at Hull to 37° at Truro, and on the 31st from 7½° at Eccles to 39° at Helston. The average for the week from the usual stations was 13¼°. The mean range of temperature in the week was 29½°, the greatest range being at Sunderland, 38°, and the least at Liverpool, 20¾°. The mean high day temperatures ranged between 38½° at Sheffield and 29° at Nottingham, with a general average of 32¾°. The mean low night temperatures varied from 26½° at Bristol to 14° at Hull, with an average value of 20¼°. The mean daily range of temperature in the week was 12½°, varying from 17½° at Sheffield to 7¾° at Bristol. The mean temperature of the air for the week from all stations was 26¾°, being 14¾° below the value for the corresponding week in 1872, 17¼° below that of 1873, and 12½° below that of 1874; the highest in the week occurred at Bristol, 30¼°, and the lowest at Norwich and Hull, 22° respectively. The cold weather was felt severely everywhere, excepting in Cornwall and Devonshire.

Rain fell on two days, and snow on one or two days in the week at most stations, varying in amount from 1¾ inch at Portsmouth—three-quarters of which fell on January 2—to five-hundredths of an inch at Norwich; the average fall over the country being three-quarters of an inch.

The weather during the week was dull and the frost severe, but on Friday night a thaw set in, and since it has been fine and mild.

In Scotland, the highest temperatures ranged between 45½° at Glasgow and 39° at Dundee; the lowest temperatures varied from 18¾° at Greenock to 5° at Perth; therefore, the severe cold weather has been felt in Scotland, but not with greater severity than in the midland, northern, and eastern counties of England—their averages being 42¾° and 13½° respectively. The mean range of temperature in the week was 29½°. The mean temperature for the week was 26½°, being 22½° below the value for the corresponding week in 1874; the highest in the week happened at Aberdeen, 30¾°; and the lowest at Perth, 21½. Rain or melted snow was measured to the amount of 1 inch at Dundee and Aberdeen, but only to the amount of a quarter of an inch at Perth; the general average over the country was three-quarters of an inch.

At Dublin, the highest temperature was 52½°, the lowest, 24¼°, the mean, 36°, and the rainfall, 0.37 inch.

Garden Operations.

(FOR THE ENSUING FORTNIGHT.)

PLANT HOUSES.

PLANT STOVE.—A plant or two of *Allamanda*, the freest flowering of which is that called *A. Chelsoni*, as also of *Bougainvillea glabra*, from among those put to rest earliest in the autumn, should now be started; this does not refer alone to such plants as are required for the exhibition stage, but also for home use. The system of deferring the growth of these continuous-blooming subjects until later on is a mistake, inasmuch as it tends to shorten their season of flowering. If the plants have been treated as advised through the autumn, their wood will now be hard and ripe, and they should be cut back as the size of the specimens permits, in all cases cutting out all weak half-ripened shoots; this latter especially refers to the *Bougainvillea*, as the object should be rather to get a fair number of vigorous young shoots than a quantity of small ones, which will be the case if this weak wood is not in great measure removed. The soil will probably be very dry, and previous to the removal of any the whole ball should be soaked for some hours in tepid water, so that all the earth that has to be removed can be got away without mutilating the roots. Upon this in a great measure will depend their early flowering, as if the roots are very much broken, it naturally requires more time to get the plants up in strength. About one-half the whole ball should be removed.

For *Allamandas*, strong yellow loam, with one-sixth of rotten stable manure, such as that from an old hotbed, carefully sifted so as to detect all worms—if dried, so as to destroy these, all the better; add sand, more or less, according to the nature of the loam, so as to admit the large quantities of water which these plants in the summer season require passing freely through it. In potting ram the soil quite hard; for *Allamandas*, it can scarcely be made too solid. The *Bougainvillea* will grow in either peat or loam; if the latter is good it is preferable, and add one-fifth of manure and a little more sand than is required for the *Allamandas*, neither do they need potting so hard. In the case of *Allamandas* and *Bougainvilleas* it is better to cut back and repot at the same time than to wait for them to break growth after cutting in before potting, as is usual with most plants. This *Bougainvillea*, started thus early, will flower three times during the season, if well managed.

If the earliest lot of *Roses*, prepared as previously advised, were now placed in a little moist heat without pruning, they will shortly furnish a quantity of useful flowers. These should be followed by a second lot pruned in the ordinary manner before they are taken inside; for this purpose nothing is so well adapted as the Tea varieties. The following are a few of the most esteemed amongst the best growers for the London flower market, in following which, any one growing for a private establishment will not be far wrong. At the head of the list stands the white variety, *Niphetos; Madame Falcot*, pale yellow; *Monsieur Furtado*, sulphur-yellow; *Souvenir d'Elise*, white; and the old but beautiful *Devoniensis*. These, with a few of the freest-blooming hybrid perpetuals, will be found most useful in furnishing a succession of flowers, and, combined with the regular indoor winter-blooming subjects, will go far to meet the increased demand for winter flowers that exists in most places, large or small. Regularly introduce to the forcing-pit, if such exist, if not, to the stove, or any other structure wherein there is heat, more *Hyacinths*, *Narcissus*, *Early Tulips*, and *Crocuses*. These should not be allowed to remain in the bed of ashes or other material in which they are plunged, too long, so as to become drawn. When the pots have got well filled with roots, and the tops have pushed an inch or a little more, they should be removed to a cool house, and the light partially excluded from them for a few days, when they may gradually be inured to it, and placed near the glass, so as to prevent the leaves getting drawn, for if this takes place it much impairs their use for any purpose. The unsightly, drawn condition of the leaves and weak flower-stems often met with completely spoils the appearance of this class of plants. When put in heat, if possible, bulbs should occupy a shelf near the roof, within a short distance of the glass. It is not alone the maximum of available light they receive in such a position, but here there is always a motion in the air to an extent that does not exist elsewhere in the house, and which exercises the best influence in producing stout, sturdy growth. A few pots of *Lily of the Valley*, according to the demand, should be regularly brought into heat. This most prized of winter-forced flowers can scarcely be had in too large quantity either for conservatory or room decoration, on the plant or for cutting; but English-grown roots bear no comparison, especially for early forcing, with such as are imported from Germany and Holland. The crowns being all selected scarcely any fail to flower, which is anything but the case with ordinary home-grown roots, as many a gardener has experienced to his great disappointment, especially in early forcing, even when carried out with care. In flower forcing it should always be borne in mind that, with very few exceptions, the less heat a plant is subjected to the longer its flowers will last, and that the more light it receives the greater substance they will have, which also has a very considerable influence upon their endurance, consequently there should not be any undue hurry with the plants now, especially the earliest forced, when their energies are most dormant, accompanied by a minimum of light. *T. Baines, Southgate, N.*

FRUIT HOUSES.

VINES.—So much has been written on the culture of the Vine, that it really seems difficult to say anything, or give any instructions, Calendarial or otherwise, that have not previously been given. I shall, however, in these notes, confine myself strictly to my own practice in its culture, and as that practice has been fairly successful, I will indulge the hope that some Vine growers, and amateur cultivators especially, may perhaps get a wrinkle from my treatment. I recommend the adoption of the following rules:—First, to plant none but proved good kinds; next, to avoid over-cropping; next, avoid extremes in temperature, more especially during the earlier stages of growth; and lastly, avoid starvation. Vines are, if I may so express it, ravenous plants, and will take any amount of food, if of the right kind; for instance, they never tire of good loam, containing a judicious admixture of half-inch bones, only they must have plenty of water also; of this latter element, if the drainage is good, it is almost impossible to give them too much. I am convinced that most of the failures in Grape growing arises from a too scanty supply of water; but should the drainage be defective, then the mischief done by over-watering is incalculable—so look to the drains. If ripe Grapes are desired by the beginning of June, the Vines should be started forthwith, premising that the house has been thoroughly cleaned, whitewashed, &c., and if the Vines had any insects on them last season, they, too, should be washed, or rather painted with Gishurst Compound, 8 oz. to the gallon of water, and reduced to the consistency of paint by the addition of soot, sulphur, and clay. A bed of fermenting material (leaves and litter) inside the house will help the Vines to break more kindly than would otherwise be the case. If the roots are outside recourse must be had to the old hotbed style of heating, *i.e.*, unless there are heated or chambered borders, of which I have a very low estimate. The maximum temperature at this stage, even with sun-heat, should not exceed 64°, with a minimum of 45°. Syringing will be requisite on sunny days only. Houses from which the Grapes have been cut should be immediately pruned, and the mode of pruning I recommend is a modification of the "cut to the best bud system." That is, I elect to cut to a plump bud, but at the same time to keep as near as possible to the main stem. In course of time the Vines get very long spurs by this plan, and to some may appear unsightly, but it is a very easy matter to run up a new rod and begin again. All loose bark should be picked off (not scraped), and the Vines painted with the before-named composition; the border also should receive a top-dressing of good loam, having previously taken off 2 or 3 inches of the old soil. Where Grapes are still hanging look frequently over them, and remove any bad or decaying berries, as a preventive against decay. The Grapes should be thoroughly ripened, and an equable temperature maintained, say as nearly as possible to 45°. If the houses are wanted for plants, the Grapes may be cut with a piece of the wood attached, and placed in bottles of water in any dry room. Lady Downe's cut in January kept quite plump till June, served in this manner, last year. *W. Wildsmith, Heckfield.*

FIGS.—Where Figs are required very early they are best grown in pots, and if they can get the advantage of a slight bottom-heat in a bed of fermenting leaves or tan, with the temperature never exceeding 65° or 70°, they will ripen fruit early in May. I find the Early Violet, Early Prolific, Negro Largo, and Col de Signora Bianca Figs the best for early forcing in pots. In starting Figs in pots at this early period the temperature by fire-heat should not exceed 50°, and in the day-time by sun-heat from 60° to 65°. Syringe the trees twice a day in favourable weather to keep down red-spider—a great pest to the foliage of Figs. I generally paint my Fig trees with the same mixture as the Peaches and Nectarines in the autumn after the leaves have all dropped, and this helps to keep the red-spider in check, if persevered with year after year. Figs grown in pots require plenty of light and all the sunshine they can get, so should not be placed in houses too much shaded with other fruit trees. In the early Fig-house, where the trees are permanently planted out, forcing may be commenced in the middle of the month. See that the house is now, therefore, shut up and properly ventilated, as in the late severe frost fire-heat must have been applied to keep the trees safe from its effects. *William Tillery.*

HARDY FRUIT GARDEN.

The favourable change after the late severe weather will now admit of pruning being followed up, and, where not already completed, *Apples* and *Pears*, where grown as pyramids, bushes or cordons, should be first attended to, so as to admit of the borders being cleaned up. In pruning it should be especially borne in mind that many of our best *Apples* and *Pears* produce their finest blooms on the terminal points of the last year's growth, and therefore pruning in too closely should be avoided, except in the case of over-gross shoots. But if root pruning and summer-stopping of the stronger shoots has been attended to, there should be little use for the knife at this season, except to thin out wood or spurs where too thick, and especially in the interior of the tree, so as to admit a due amount of light and air. When the flower-buds are very thickly set it is well to thin them considerably, so as to give additional strength to those left. An overcrop of bloom is not desirable, as the energies of the tree are frequently too severely taxed in its production to admit of the fruit setting or swelling properly afterwards. Should American blight or scale in any form have attacked the trees they should be dressed over the affected portions with Gishurst Compound, or common linseed oil, is equally effective. The severity of the weather has been productive of much damage by birds to the buds of *Plums*, *Gooseberries*, &c. The pruning of these should, therefore, be deferred for a time, until the buds can be more plainly seen. Pruning and nailing, or tying-in when the walls are wired, should also be proceeded with. *Apricots* especially are better pruned early, as the wounds have more time to heal, and are consequently less liable to gum than when pruned after the sap gets into action. The same remarks also apply to the *Peach* and *Nectarine*, save that these should have been pruned some time since, the nails and shreds removed, and the shoots tied from the walls, so as to retard the trees from coming so early into bloom. Where neces-

sary to make fresh plantations of bush fruits, *Raspberries*, &c., the ground should be prepared by well manuring and trenching, so as to be in good condition for planting next month. *W. Cox.*

KITCHEN GARDEN.

The refuse which accumulates from various sources in different departments in a large garden is considerable. This, when concentrated and well incorporated with decayed vegetable matter and a slight admixture of quicklime, forms one of the best fertilising agents that can be employed for many purposes in this important department. The incorporation of the materials in question does not everywhere command sufficient attention, considering its value as a fertiliser, which contributes so much towards maintaining the Kitchen Garden (especially) in the highest condition of cultivation at so little cost or additional labour. At such times therefore as when, from the effects of frost or other causes, the progress of ordinary operations is interrupted, attention may with profit be directed to those materials which constitute the refuse-heap—by turning them, and taking out such as is fit for use (a heap of which should always be kept in readiness), and by adding a little quicklime to what remains, well mixing it together, in order to accelerate decomposition and to furnish further supplies of valuable stuff as speedily as possible. While outside operations are restricted by the force of existing circumstances, all indoor matters should be pushed on vigorously, and where there are pits and frames with fermenting beds, which are extensively used at most places for producing early vegetables, these should be seen to now. In order to cope with the demand for certain kinds of vegetables, such as *Peas, Potatos*, &c., when they first come in for use, it is advisable to sow plentifully in order to meet the requirements. As soon as practicable sow a good breadth of early *Peas;* for hardiness and earliness combined Laxton's *William the First* is to be recommended for borders and the open quarters, and *Little Gem* for sowing or planting out at the base of south walls. *Longpod Beans* may also be planted as far as practicable. Forward operations now as much as possible, as with the advancement of the season pressing matters in all directions will increase that could not admit of being postponed. Give regular attention to *Cauliflowers* and *Lettuces* which are in frame or handlights; strive to keep them sturdy by removing the sashes or top entirely at 35°, excepting during wet weather when they should be tilted.

Forcing Department.—It is a matter of primary importance here to have at all times during the season a supply of warm fermenting materials at hand to meet current requirements as they become necessary. Introduce fresh supplies of roots of *Asparagus, Seakale*, and *Rhubarb*, also *Chicory* for salading where it is appreciated as such; and continue to maintain the supply of *Mustard* and common and Australian *Cress* by making sowings of these occasionally, and also *French Beans*. On prepared beds, where the soil has become warmed, sow in drills *Early Horn Carrots* and *Radishes* in alternate rows about 3 inches apart. One of the earliest and best Radishes for this purpose is Suttons' *White Forcing*. *Potatos* which are growing freely should be earthed up when requisite; here the earliest crop of these are obtained from large unused Pine pots, the result being highly satisfactory. Three sets are inserted in each, and they are advanced in the Peach-houses. This is also a suitable place to start sets for succeeding crops; place them, not too thickly together, on a layer of leaf-mould, and slightly cover them with it also. Where good salads are constantly required the *Lettuce* and *Endive* for this purpose should be afforded a pit with the means at command to fully exclude frost, and where air can be abundantly supplied when favourable for so doing. *G. T. Miles, Wycombe Abbey.*

Enquiries.

He that questioneth much shall learn much.—BACON.

34. JUNIPERUS DRUPACEA.—Can any of your readers favour me with a few ripe fruits of Juniperus drupacea? Though cultivated here and there, I cannot learn that any one has a fruiting specimen. *D. Hanbury, Clapham Common, S. W.*

Answers to Correspondents.

FUNGUS: *E. Sankey, Guildford.* Your fungus was a Boletus in a state of decay, and thoroughly permeated by another fungus as a parasite, viz., Sepedonium chrysospermum. You will see it described in your *British Flora*, vol. v., part ii., p. 350.

MOULDY VINES: *George Harnett.* We see nothing particularly the matter with your Vines, beyond the ordinary black mould produced from aphides, &c., and encouraged by damp. Your Vines are, in short, dirty. Wash them well with soft soap, sulphur, &c., after being pruned, and keep a drier atmosphere about them whilst ripening.

NAMES OF PLANTS: *H. Hughes.* 7, The leaf of some pinnate flowering plant, quite indeterminable; 8, Platycerium alcicorne; 9, Pteris cretica albo-lineata; 10, Asplenium fontanum (Halleri);*11, Pteris tremula; 12, Sparmannia africana.—*G. G. A.* Dendrobium moniliforme.—*H.* Dædalacanthus nervosus.—*J.* Dalechampia Roezliana, var.—*M.* Polygonum, specimen too bad to name.—*Surgical.* 1, Euonymus radicans, var.; 2, Aristotelia Macqui; 3, Euonymus japonicus variegatus; 4, indeterminable; 5, Griselinia lucida; one without a number, Escallonia floribunda; *J. G.* 1, Athcrosperma moschata?—send flowers; 2, Leucopogon lanceolatus, both greenhouse plants.—*H. T.* 1, Gymnogramma Lauchcana; 2, Asplenium bulbiferum; 3, Cheilanthes hirta; 4, Adiantum cuneatum? (send better specimen); 5, Adiantum Capillus-Veneris.

POMONA PALACE SHOW: *J. Potts.* The mistake has already been corrected by another correspondent.—*J. S.* We cannot afford space for any further discussion of the matter.

VEGETABLES: *T. P.* If young gardeners will undertake the responsible duties of a chief while "they know little or nothing of kitchen gardening," surely no one is to blame but themselves if they have to leave in disgrace through the bad management of their department.

VENTILATING HOTHOUSES: *L. J.* No; there is no better or other way of opening the sashes than by sliding them down. But this can be done very easily by a connecting rod and machinery; the sashes should also be fitted with six small castors, or rollers, three on each side, to make them slip more easily down. Simple machinery for this purpose could be supplied by any respectable hothouse builder.

VINES: INSIDE BORDERS *versus* OUTSIDE: *A. H. Clough.* In cold, damp localities, Vines should all be planted in inside borders; and also for very early forcing, and for late keeping Grapes. The advantages of inside borders are these:—The roots are more at command; they can be kept warmer in the one case, and also drier, for the better keeping of the ripe fruit. But it must be borne in mind that inside borders require a far greater amount of attention, and more skill in management, especially in respect to watering. For general purposes, and for all ordinary Vine growing, the Vines succeed best, last longest, and require the least amount of skill and attention, when grown in outside borders. We therefore prefer the latter.

☞ FOREIGN SUBSCRIBERS.—We are requested by the Publisher to desire Foreign Subscribers who send Post Office Orders, to be good enough to write to the Publisher at the same time, stating that they have done so.

*** Correspondents are specially requested to address, post-paid, all communications intended for publication to the "Editors," and not to any member of the staff personally. The Editors would also be obliged by such communications being posted as early in the week as possible. *Letters relating to Advertisements should be addressed to the Publisher.*

CATALOGUES RECEIVED.—James Veitch & Sons (Royal Exotic Nursery, King's Road, Chelsea, S.W.), Catalogue of Garden and Flower Seeds, Horticultural Implements, &c.—Carter (High Holborn, London), *Vade Mecum* for 1875.—Dickson, Brown & Tait (43 and 45, Corporation Street, Manchester), Catalogue of Vegetable and Flower Seeds, &c.—C. Sharp & Co. (Sleaford), General Catalogue of Seeds, &c.—John & Charles Lee (Royal Vineyard Nursery, Hammersmith, London, W.), Catalogue of Kitchen Garden, Flower Garden, Farm Seeds, &c.—Chase Brothers & Woodward (Rochester, New York), Illustrated Catalogue of Flower and Vegetable Seeds.—Barr & Sugden (12, King Street, Covent Garden, W.C.), Descriptive Spring Catalogue of Choice Seeds for the Flower and Kitchen Gardens.—W. H. Rogers (132, High Street, Southampton), Descriptive Priced Catalogue of Seeds and Miscellaneous Garden Requisites.—F. Sander & Co. (St. Albans), Coniferæ, Tree and Shrub Seed Catalogue.—The New Plant and Bulb Co. (Colchester), Retail List of Lilies, Orchids, Plants, Seeds, &c., received from Japan.—Dickson & Robinson (23, Market Place, Manchester), Catalogue of Vegetable and Flower Seeds.—Francis & Arthur Dickson & Sons (Upton Nurseries, Chester), Catalogue of Fruit Trees.—Dick Radclyffe & Co. (129, High Holborn, W.C.), Seed List for 1875.

COMMUNICATIONS RECEIVED.—H. H.—J. M. D.—W. S.—A. P.—J. W.—Antony.—J. S.—E. P., Gand (many thanks).—F. G. (accidentally delayed).—M. L.—H. T.—W. W.—J. H.—J. D.—W. I.—W. L.—Amateur.—E. Sankey.—C. P.—S. B. D.—L. H. G.—A. F.

Markets.

COVENT GARDEN, January 7.

We have but slight alterations in the prices to notice this week. Trade is very steady. *Thos. Taylor, Wholesale Apple Market.*

VEGETABLES.

	s. d. s. d.		s. d. s. d.
Artichokes, Fr., each	0 8– ..	Horse Radish, p. bun.	3 0– 5 0
Asparagus, English, per bundle	..10 0–15 0	Leeks, per bunch	0 2– 0 4
— French, p. bund.	2 0– ..	Lettuces, per doz.	1 6– ..
Beans, French, p. 100	2 0– ..	Mushrooms, per pott.	1 0– 2 6
Beet, per doz.	1 0– 2 0	Onions, young, bun.	0 4– 0 6
Broccoli, p. bundle	0 9– 1 6	Parsley, per bunch	0 4– 0 6
Brus. Sprts., p. bush.	6 0– ..	Parsnips, p. doz.	0 9– 1 0
Cabbages, per doz.	1 0– 2 0	Radishes, per bunch	0 2– 0 4
Carrots, p. bundle	0 6– 0 9	— black, Turnip, do.	– 0 6
Cauliflowers, per doz.	2 0– 6 0	Seakale, per bundle	1 6– 2 0
Celery, per bundle	1 6– 2 0	Shallots, per lb.	0 3– ..
Cucumbers, each	2 0– 4 0	Salsify, per bundle	1 6– ..
Endive, per doz.	1 0– 2 0	Tomatos, per doz.	1 0– 3 0
Herbs, per bunch	0 2– 0 4	Turnips, per bundle.	0 6– 0 9

FRUIT.

	s. d. s. d.		s. d. s. d.
Apples, per ½-sieve	1 0– 1 6	Melons, each	.. 1 0– 3 0
Chestnuts, per bush.	10 0–20 0	Nuts, Cob, p. lb.	.. 1 6– 2 0
Grapes, English, p. lb.	....	Oranges, p. 100	.. 8 0–12 0
— Muscats, do.	4 0– 8 0	Pears, p. doz.	.. 3 0– 6 0
Lemons, per 100	.. 8 0–12 0	Pineapples, p. lb.	.. 3 0– 6 0
Medlars, per doz.	.. ..	Walnuts, p. bush.	..16 0– ..

Potatos:—Early Shaws, 110z.; Early Myatt's, 140z.; Early Regents, 120z.; and Early Dons, 120z. per ton.

CUT FLOWERS.

	s. d. s. d.		s. d. s. d.
Azaleas, p. 12 sprays	1 6– 3 0	Mignonette, 12 bun.	4 0– 6 0
Camellias, 12 blooms	3 0– 9 0	Pelargoniums, 12 spr.	1 6– 3 0
Carnations, 12 blooms	2 0– 4 0	— Zonal, 12 spr.	0 9– 1 6
Chrysanthem., 12 bl.	3 0– 6 0	Roman Hyacinths, per 12 spikes	.. 2 0– 4 0
— 12 bunches	.. 9 0–18 0	Roses, indoor, p. doz.	2 0– 6 0
Cyclamen, 12 blooms	0 3– 0 6	— French, do.	.. 2 0– 3 6
Epiphyllums, 12 bl.	1 0– 2 0	Stephanotis, 12 sprays	9 0–15 0
Eucharis, per doz.	.. 9 0–15 0	Tuberoses, p. doz.	.. 2 0– 4 0
French Lilac, p. bun.	10 0–15 0	Violets, per 12 bun.	.. 3 0– 6 0
Heliotropes, 12 sprays	0 6– 1 0		

PLANTS IN POTS.

	s. d. s. d.		s. d. s. d.
Begonias, per doz.	.. 6 0–12 0	Heaths, in var., doz.	12 0–30 0
Bouvardias, do.	.. 9 0–18 0	Mignonette, do.	.. 4 0– 6 0
Chrysanthemums, do.	4 0– 9 0	Myrtles .. do.	3 0– 9 0
Cyperus, do.	.. 6 0–12 0	Pelargoniums, dble., per doz.	.. 6 0–12 0
Dracæna terminalis	12 0–30 0	— Scarlet, do.	.. 6 0– 9 0
— viridis, per doz.	12 0–24 0	Primula sinensis, do.	4 0– 8 0
Epiphyllums, each	.. 1 6– 3 6	Solanums, do.	.. 6 0–18 0
Ficus elastica	.. 1 6– 7 6		
Fuchsia, per doz.	.. 6 0–12 0		

SEEDS.

LONDON: *Jan. 6.*—Our agricultural seed trade continues quiet but firm. Fine purple samples of new English red Clover seed are scarce, and command high rates. In foreign descriptions the tendency of values is upwards. For Trefoil seed there is an improved inquiry, and quotations are quite £1 per ton higher. In Alsike and white Clover seeds the business doing has been too limited to cause any alteration in price. Imported Italian keeps steady. Owing to continued scarcity, Canary seed is again some 10z. to 15z. per quarter dearer. To-day's quotations for ordinary foreign seed is 18oz. per quarter. For Hemp seed 1z. per qr. more money is now asked. Good black Rape seed is in short supply. For both white and brown Mustard seed the demand at present is very small. Of home-grown Linseed the supply offering is scanty. The high rates demanded for new spring Tares hinder business. Blue boiling Peas are firm at the recent advance. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C.*

CORN.

At Mark Lane on Monday, in consequence of the mild temperature, some degree of weakness prevailed. In Wheat, dry descriptions realised recent currencies, but damp and inferior produce was neglected. Barley was about as dear as on Monday last, with little inquiry. Malt was without change in price. Oats were somewhat dearer on the week, but not readily purchased. Maize supported late prices, and no change occurred in either Beans or Peas. For flour there was a slow demand, and prices were, if anything, inclined in buyers' favour.—On Wednesday the market was dull, and quotations rather easier on the whole. The supply of Wheat was short, and its condition being somewhat damp, there were very few sales effected. Barley was also difficult to move, and scarcely any inquiry prevailed for malt. Sound Oats were steady, as also was Maize; but in the value of Beans, Peas, and flour, a slight downward movement was apparent—Average prices of corn for week ending Jan. 2:—Wheat, 44z. 2d.; Barley, 44z. 6d.; Oats, 29z. 7d. For corresponding week in 1874:—Wheat, 61z. 8d.; Barley, 44z. 4d.; Oats, 25z. 5d.

CATTLE.

At the metropolitan market on Monday there was a shorter supply of beasts than expected, but the demand was very limited. Prices were lower, and it was difficult to effect a clearance. The number of sheep was not excessive for the day, yet it was difficult to clear out at reduced quotations. Very few calves were on offer, consequently prices were not lower. Quotations:—Beasts, 3z. 8d. to 5z., and 5z. 8d. to 6z. 4d.; calves, 4z. 4d. to 6z. 8d.; pigs, 4z. 4d. to 5z. 4d.; sheep, 4z. 8d. to 5z., and 5z. 8d. to 6z. 4d.—On Thursday trade for beasts was excessively dull, except for the few choice qualities on offer. Of sheep there were very few, and scarcely any trade. Choice calves were scarce and dear, and trade for milch cows was dull.

HAY.

The supplies of fodder offered at Whitechapel were large, and trade was rather flat, at the following prices;—Prime Clover, 100z. to 124z.; inferior, 85z. to 95z.; prime meadow hay, 90z. to 115z.; inferior, 55z. to 75z.; and straw, 33z. to 40z. per load. Cumberland Market quotations:—Superior meadow hay, 114z. to 120z.; inferior, 90z. to 98z.; superior Clover, 120z. to 130z.; inferior, 100z. to 108z.; and straw, 42z. to 46z. per load.

POTATOS.

Borough and Spitalfields reports are to the effect that only moderate supplies of Potatos are on sale, and the trade is slow, at the following prices:—Regents, 100z. to 125z.; Victorias, 110z. to 120z.; Flukes, 130z. to 140z.; and Rocks, 70z. per ton.—Last week's imports consisted of 405 tons from Dunkirk, and 150 tons from Antwerp.

THE AGRICULTURAL GAZETTE,

A WEEKLY ILLUSTRATED JOURNAL FOR

LANDOWNERS AND TENANT FARMERS.

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THE

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Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

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SALES BY AUCTION.

Periodical Sale of Poultry and Pigeons.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, January 19, at half-past 12 o'Clock precisely, first-class SPANISH, from Mr. G. H. Chilcott; COCHINS and DORKINGS, from Mr. Gilbert; Dark and Light BRAHMAS, from Mr. Dowsett; and a variety of other choice POULTRY and PIGEONS from the yards and lofts of well known breeders and exhibitors.
On view the morning of Sale, and Catalogues had.

Hardy Trees, Shrubs, Bulbs, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, January 20, at half-past 12 o'Clock precisely, a fine assortment of Dwarf-trained PEACHES, NECTARINES, PLUMS, PEARS, and APPLES; a great variety of Hardy Trees and Shrubs, Roses, Herbaceous Plants, Gladioli, Liliums, &c.
On view the morning of Sale, and Catalogues had.

Lilies, Seeds, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, January 21, at half-past 12 o'Clock precisely, 4500 magnificent Bulbs of LILIUM AURATUM, just arrived from Japan in the finest possible condition, being quite as plump and firm as English-grown Bulbs; also a quantity of other scarce Lilies, Brodiæa volubilis, Hesperoscordium lacteum, &c; and a quantity of CEDRUS DEODARA, and other CONIFEROUS SEEDS.
On view the morning of Sale, and Catalogues had.

PROTHEROE AND MORRIS, HORTICULTURAL and MARKET GARDEN AUCTIONEERS and VALUERS, 98, Gracechurch Street, City, and at Leytonstone, E. Monthly Horticultural Register had on application.

SIMPSON'S RED SPIDER and THRIPS, &c., ANTIDOTE.—*Bonâ fide*. See former advertisements. Prepared by JOHN KILNER, Wortley, Sheffield.

RODERICK NICHOLSON, ADVERTISING AGENT and GENERAL COMMISSION AGENT, 112, Fleet Street, E.C.

Window Glass, Sheet Lead, Paints, &c.

THOMAS MILLINGTON AND CO., IMPORTERS and MANUFACTURERS. NEW LIST of PRICES, very much reduced, on application.
87, Bishopsgate Street Without, E.C.

Government Emigration.

SYDNEY, NEW SOUTH WALES.—Assisted Passages are provided for Married Couples not exceeding forty years of age, with or without children, and Single Men and Women not exceeding thirty-five years of age, being FARMERS, POLICEMEN, MECHANICS, MINERS, LABOURERS, and FEMALE DOMESTIC SERVANTS, on payment of the following rates:—Twelve years and not exceeding forty, £5 10s.; one year and under twelve, £2 15s.
For further information apply to the Office of the Agent-General, 31, Westminster Chambers, Victoria Street, S.W.

TO LET, a good and well-stocked FRUIT and VEGETABLE GARDEN, near Canterbury; excellent soil and well supplied with water; two forcing-houses and commodious modern cottage, containing five rooms and offices. Garden measures about 1 acre. Apply to
Miss HALES, Hales Place, Canterbury.

TO BE LET on Lease, or the Freehold Sold, a NURSERY, containing several Houses of modern construction, now supplying the Market with Cut Flowers, and with good connection.
Apply for address, by letter, to W. DICKSON, Centre Avenue, Covent Garden, W.C.

TO BE LET, about 30 Acres of FREEHOLD LAND, in the Parish of Streatham, annually or upon Lease, if preferred, situated about six miles from London, and particularly adapted for a Market Garden, having many breaks and a small stream running through the centre.
A. B., 5, Regency Square, Brighton.

TO BE BET or SOLD, a small Florist, Seed, and Market Garden BUSINESS in Huntingdonshire. Stock can be taken at a valuation. House attached. Apply to D. ROSE, The Nursery, Ramsey, Huntingdonshire.

TO BE LET, or SOLD (on the South Coast), a piece of LAND, 100 by 175 feet, covered with Glass, fitted with Hot-Water Apparatus throughout; at the present time well stocked with Grapes, Pines, &c. Capitally adapted for a Nurseryman,
T. P., *Gardeners' Chronicle* Office, W.C.

Victoria Colony, Kansas, U.S.—To Farmers and OTHERS.

TO BE SOLD, fine STOCK FARMS of 640 Acres and upwards, Freehold, from 10s. to 25s. per acre. Grass in its natural condition unsurpassed for feeding Sheep and Cattle. For PAMPHLET containing full particulars respecting this Property, apply to
ROBERT W. EDIS, Esq., F.S.A., 14, Fitzroy Square, London, W., Architect to the Estate.

SEAKALE, extra strong, for forcing, 80s. per 1000.
SEAKALE, strong, for forcing, 60s. per 1000.
SEAKALE, for planting, 30s. per 1000.
For cash with order, only
R. LOCKE, Alexandra Nurseries, Red Hill, Surrey.

JOSEPH TREMBLE AND SONS, Penrith, Cumberland, have to offer:—50,000 fine selected Bay LAURELS, Dwarf and Standard Portugal LAURELS, prices furnished. Extensive NURSERY STOCK of all kinds, FOREST TREES, unusually fine, and HEDGE PLANTS, at special low prices.

New Roses for 1875.

HENRY BENNETT has 10,000 PLANTS of the above to offer, of his usual matchless quality, at the reduced price made by several large Establishments in 1874. Ready early in March.
Manor Farm Nursery, Stapleford, Salisbury.

Genuine Garden Seeds.

JOHN LAING'S Descriptive CATALOGUE of VEGETABLE, FLOWER, and AGRICULTURAL SEEDS, IMPLEMENTS, and GARDEN REQUISITES for this season, is now ready, and will be sent post-free on application.
Stanstead Park and Rutland Park Nurseries, Forest Hill, London, S.E.

Orchids.

FOR SALE, a Collection of ORCHIDS, numbering about seventy species or varieties, and about 200 plants. The plants are of medium size, and would constitute a good nucleus for any one commencing the cultivation of these plants. For price apply to
Mr. KINMONT, Exotic Nursery, Canterbury.

Orchids.

FOR SALE, a CHOICE COLLECTION, the Property of a private Gentleman in Yorkshire. Cost a few years ago £160, will be sold for £50, as the Orchid-house is wanted for another purpose. For particulars apply to
KERR AND FOTHERINGHAM, Nurserymen and Seedsmen, Dumfries.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS; also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.
Mr. WEBB, Calcot, Reading.

LILIUM SZOVITZIANUM.—An importation of this extra fine Lily (rich citron colour, spotted with black), has just arrived, in splendid condition. Price according to size, 18s., 24s., 30s., 40s., per dozen; 150s., 200s., 250s. per 100. Discount to the Trade. Please order immediately.
E. H. KRELAGE AND SON, Horticultural Establishment, Haarlem, Holland.

Notice to the Trade.

CULLINGFORD'S MAGNUM BONUM PEA (Cutbush & Son's).
WM. CUTBUSH AND SON are sending out this well proved thoroughly first-class Pea, in sealed packets only.
Quarts, 2s. 6d.; pints, 1s. 6d. Trade price on application.
Firms ordering a supply will be advertised in the *Gardeners' Chronicle* of the 30th inst.
Highgate Nurseries, London, N.

NUTTING AND SONS having now posted their Annual Wholesale GARDEN, AGRICULTURAL, and FLOWER SEED CATALOGUE, and complaints being made of non-delivery, any of their friends not having duly received it, on application one shall be immediately forwarded.
Seed Warehouses, 60, Barbican, London, E.C.

VINES, extra strong leading sorts, close-jointed and well ripened; SEAKALE, ASPARAGUS, and RHUBARB, extra strong, for forcing; ROSES, FRUIT, FOREST, and ORNAMENTAL TREES, STOVE and GREENHOUSE PLANTS, &c.
Priced Descriptive CATALOGUE, post free.
DICKSON AND ROBINSON, 23, Market Place, Manchester.

SMITHERS AND CRICHTON beg to inform their Customers that their Wholesale Trade CATALOGUES have all been sent out. Should any not have received a copy it will at once be forwarded, post free, on application.
Wholesale Seed Warehouse, 20, Commercial Street, Whitechapel, London, E.

Home Grown Agricultural and Garden Seeds.

H. AND F. SHARPE are now prepared to make special offers to the Trade of their home-grown choice selected stocks of AGRICULTURAL and GARDEN SEEDS of this season's growth. They have been harvested in very fine condition, and are quoted low in price.
Seed Growing Establishment, Wisbech.

PEACHES and NECTARINES, in pots, for Forcing; strong pyramids and bushes, in fine fruiting condition.
ROSES (a choice selection) for Forcing or Greenhouse, strong plants, in 6 and 8-inch pots.
STANDARD ROSES, very fine.
Descriptive CATALOGUES sent post free on application.
THOMAS RIVERS AND SON, Sawbridgeworth, Herts.—(Great Eastern Railway.)

ROSES.—Fine Standard and Half-standard Roses of the following Proved New Varieties now ready:—Etieone Levet, François Michelon, Madame Maria Courtet, Monsieur Claude Levet, Madame Hippolite Jamain (H.P.), Souvenir John Gould Veitch, President Grévy, Niphetos, Madame Hippolite Jamain (Tea), Souvenir Paul Néron, Catherine Mermet; and all the Old Varieties.
VERBENAS.—Fine Stock Plants of the leading varieties can be supplied by
JOHN KEYNES, Salisbury.

Hyacinths, Tulips, Crocus, &c.

The best material in which to grow the above is COCOA-NUT FIBRE REFUSE.—Price 1s. per bushel, or 6d. per bushel for quantities of 20 bushels and over.
DAGNALL AND TILBURY, Steam Cocoa-nut Fibre Works, Farm Lane, Walham Green, S.W.

COCOA-NUT FIBRE REFUSE — 3000 bushels, by far the cheapest and best in Market. Free on to rails. Price and sample on application. Tenders received.
H. WRIGHT, Fibre Merchant, 4, Peterborough Terrace, King's Road, Fulham, S.W.

COCOA-NUT FIBRE REFUSE — 3000 bushels.—Wanted twelve Country Agents to whom H. W. can consign a truck-load at a time, considerably under all other Makers' prices, carriage paid.
H. WRIGHT, 4, Peterborough Terrace, King's Road, Fulham, S.W.

Propagating

COCOA-NUT FIBRE REFUSE, at this season, is invaluable to all gardeners. Reduced price, 4d. per bushel, delivered free to any Railway. Samples free.
JAMES STEVENS, Fibre Works, High St., Battersea, S.W.

RASPBERRIES, Carter's Prolific, warranted true; 20,000 strong rooted Canes of this excellent sort for Sale.
THOMAS LEWIS, Jail Lane, Cudham, Kent.

ASPARAGUS, for Forcing, to be Sold, cheap; also many thousand FRUIT TREES, ROSES, &c., in fine condition for removing. The land is required for building.
J. WILLER, Rectory Nursery, Crystal Palace Road, East Dulwich, S.E.

ROSES, ROSES, ROSES.—18,000 surplus stock of Dwarf Roses, 6s. per dozen, 35s. per 100, £15, per 1000; good strong plants, and true to name. Packages and packing free. Discount to the Trade. Terms cash. List of sorts post free on application.
C. ALLEN, Stone Hills Nursery, Heigham, Norwich.

THE ASPATRIA AGRICULTURAL CO-OPERATIVE SOCIETY (Limited).
The Committee are prepared to RECEIVE TENDERS for the supply of Agricultural Seeds for the coming season.
Quantities sold last year:—100 quarters Perennials, 50 quarters Italian, 110 cwt. Clover Seeds, 30 cwt. Turnip Seeds.
For further particulars apply to the Secretary,
Aspatria, Carlisle, January 9. HENRY THOMPSON.

EUCALYPTUS GLOBULUS (Tasmanian Blue Gum).—SEEDS of the Blue Gum, and other Tasmanian and Australian Forest Trees and Shrubs, can be obtained of
C. F. CRESWELL, Wholesale and Retail Seed Merchant, Hobart Town, Tasmania; or at his Branch Establishments, 478, George Street, Sydney, New South Wales; and 37, Swanton Street, Melbourne, Victoria.
Price LISTS sent gratis to any part of the World on application.

Cœlogyne cristata.

R. S. YATES has pleasure in announcing that his CŒLOGYNE are, as usual, very fine; they are just bursting into bloom. R. S. Y. has ten or twelve plants with near 100 spikes, and 500 or 600 bulbs on each pot, a portion of which he offers at Twenty-five Guineas each, for cash only. He has a large stock of Plants from Three Guineas each.
Sale, December 28, 1874.

Celosia pyramidalis plumosa.

R. S. YATES is now sending out SEED of his unequalled strain of the above. Many plants may yet be seen here in gorgeous bloom, from which the Seed was gathered. He warrants it true and ripe. Sealed packets, 3s. and 5s. each, on receipt of Post Office Order. R. S. YATES possesses the entire stock (which is very limited) saved by him, having none to dispose of to the Trade. A plant may be inspected here yet in as brilliant plumage as it was four months ago. The flowers were cut off the eight plants of Celosia exhibited by him at the Pomona Palace for four days, placed in jars of water, and are yet perfectly fresh and brilliant.
Sale, December 28, 1874.

Genuine New Seeds.

WILLIAM FROMOW'S Descriptive CATALOGUE of VEGETABLE and FLOWER SEEDS, GENERAL GARDEN REQUISITES, &c., is now ready, and may be had post-free on application; also LISTS of ROSES, CLIMBERS, NURSERY STOCK, &c.
Sutton Court Nursery and Seed Establishment, Turnham Green, London, W.

Hollies.

ANTHONY WATERER respectfully invites the attention of Holly buyers to the very fine Stock to be seen growing at Knap Hill. It comprises upwards of Thirty Thousand Plaots, from 3 to 10 and 12 feet high, of the finer Gold, Silver, and Green-leaved kinds, affording a choice in size and variety such as can be met with in no other Nursery in Europe. Every Plant has been recently removed, and will be guaranteed.
The Stock of Common Green Hollies alone occupies 5 acres of land, and Purchasers will find them in large numbers of all heights up to 15 feet.
Knap Hill Nursery, Woking, Surrey.

THE GAINSBOROUGH SEED ESTABLISHMENT.
Dixon's X L Celery—1s. 6d. per packet.

JOHN ETHERINGTON DIXON, Seed Grower and Merchant, Lord Street, Gainsborough, having grown a quantity of this, one of the finest Red Celeries extant, begs to offer it to those who are particularly fond of this vegetable. It is very crisp and delicious, and a sort that when once tried will be well appreciated, as it is very early and will stand forcing better than any other variety.
The usual discount allowed to the Trade.
On account of the short crop of this Celery early orders are requested.
J. E. DIXON, Seed Merchant, &c., Lord Street, Gainsborough.

GLADIOLI—GLADIOLI.—Our AUTUMN CATALOGUE is now ready, and contains all M. Souchet's (and others) NEW VARIETIES for the present season. Also collections for Exhibition or general purposes, all at the most reasonable prices consistent with good bulbs. Delivered free in London, Edinburgh, or Glasgow. LISTS, as usual, sent to all Gardeners and Amateurs free, on application to Messrs. MERTENS AND CO., Walbrook House, Walbrook, London, E.C., or to ourselves, direct—
ANT. ROOZEN AND SON, Overveen, near Haarlem, Holland.

Planting Season, 1874-75.

MESSRS. JOHN STANDISH AND CO. invite the attention of intending Planters to their large and valuable Stock, consisting of all the newest and best varieties of the Japanese Importations, as well as a vast quantity of SPECIMEN CONIFERÆ, HOLLIES, LAUREls, DECIDUOUS and EVERGREEN PLANTS, ROSES, FRUIT TREES, &c., all of which are in excellent condition for removal.
Their NEW CATALOGUE is now ready, and will be sent, post free, on application.
Royal Nurseries, Ascot, Berks.

Vines, Vines, Vines.

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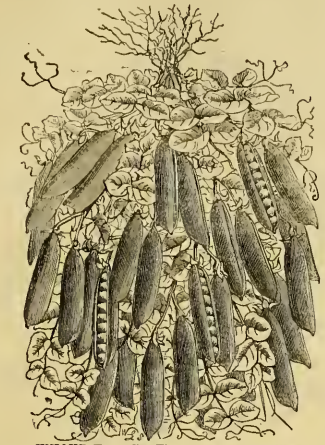

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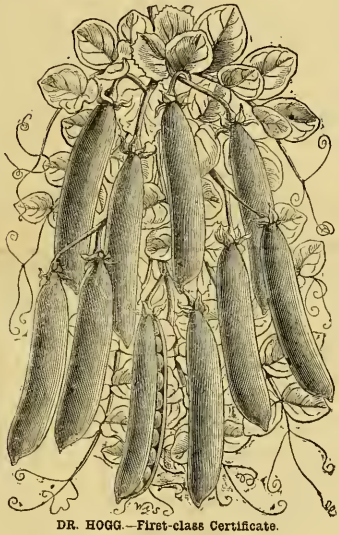

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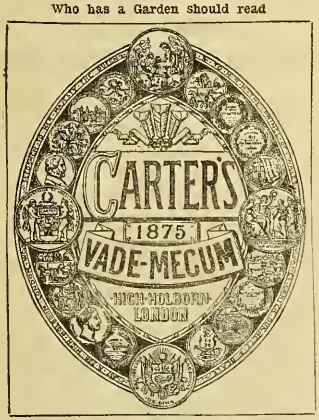

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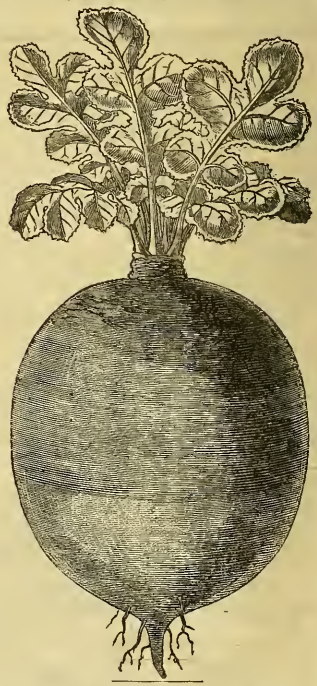

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SATURDAY, JANUARY 16, 1875.

A HOLIDAY IN NORWAY.

(*Continued from p.* 40.)

THE great sources of supply of the river system of the country are the lakes that are found in the mountain plateaus. Constantly fed during the summer by the melting of the masses of snow that wintry storms accumulate, their overflow, increased by the many subsidiary torrents that fall down the mountain slopes, form the streams that pour their waters simultaneously into the valleys. The waters that are gathered in many and wide-spreading pools on this fjeld, are the sources of two rivers that flow east and west. The eastern river, the Beina Elf, finds its way to Christiania Fjord; the Lierdals Elf flows in the opposite direction until it joins the south-east arm of the Sogne Fjord. A mountain farmstead, or seater, is passed shortly after leaving Maristuen. As all kinds of farm produce must be housed in Norway this necessitates many buildings—in this instance they are rough, rude, and dirty. The cows, horses, goats, and sheep, are driven in at night. Watch fires are lighted, and the men sit up to keep off the bears and wolves that are prone to make attacks on unprotected animals. The skulls fastened to the outside of the seater, and the skins constantly seen within the houses, are assurances that the dwellers in these mountain farms effectually resist the onslaught of these predatory animals.

From its contiguity to the fjeld, and as a point for excursions to various places of interest, Nystnen possesses advantages which may justly commend it to the notice of travellers. The accommodation at the station, though homely, is generally sufficient, and when the lake trout can be secured it is luxurious. Kanute Janson, the owner of the farm land, is a fine specimen of his class; his son, who manages the posting, speaks English, and is a careful driver and good guide and adviser. At the commencement of the ascent of the mountain that towers above the station—which I lost no time in attempting—many familiar English plants are met with, but here, at the foot of the slope, there is little chance for plants, for no space, however small, that affords herbage, escapes the notice of the provident farmer, and marks of the scythe, which is a small tool adapted for cutting short swathes, frequently occur on the mountain side, often to the discomfiture of the botanical explorer.

Interspersed amongst the alpine herbage the Harebell on its delicate stalk waves its bright blue flower bravely in the wind; the large size of its blossoms and the vigour of the plant show how much it is at home on the mountain side. Euphrasia (Eyebright) asserts its privilege to be seen on its native hills; it is not the humble and obscure, grass-overgrown plant we find in our pastures, but lifts its bright little blossoms fairly above the herbage amongst which it grows, in profusely blooming clusters. Ling (Calluna vulgaris) appears again and again, wherever vegetable decay has mixed with the rocky *débris* and given it the soil it loves; examples of Geranium, Potentilla, Rhinanthus, Alchemilla vulgaris and alpina, are frequently met with. Silene inflata and Linaria vulgaris present themselves as familiar friends; in most hollows masses of Aconite occur, and whole beds of Epilobium montanum give quite a flush of crimson to the hillside Gentiana purpurea grows in tolerable abundance, and the little bright blue Gentiana campestris peeps out from tufts of protecting grass. Stellarias show their little starry white blossoms from the foot to the summit of the mountains; on the swampy ledges, where silty soil has been washed down, and through which trickles little rills, I found charming tufts of a crimson-blossomed Sedum, and more in the water way; and amongst the shady stones another of larger growth, bearing reddish-brown and orange coloured flowers; near it a Viola like pedata. One little lingering blossom of Saxifraga oppositifolia caught my eye: it abounds in many places in Norway. Lychnis Flos-Cuculi was high up the hill-side and along ledges of shaly rock, and in the wet places beneath them dwarf mountain Willows grew thickly. Above these fringes of shrub, and where a less abrupt declivity had allowed a peaty soil to collect, I disturbed a number of fieldfares whilst feasting on the abundant berries of Vaccinium Myrtillus, which grew in masses in this and similar congenial spots adjacent. Higher up towards the summit of the mountain I discovered a charming little Lychnis, a dwarf L. Flos-Cuculi, but brighter and more compact in habit of growth. Ascending still higher I found the rocks carpeted with a dense growth of mosses and lichens, which had spread over every block, giving their own rich colouring, and triumphing in very numbers and beauty over the magnitude of the inert masses they covered and protected. Sterile and desolate as these mountain summits appear from a distance, as they are more nearly approached and examined they show multitudes of forms of life, which, though exposed to the intensity of storm and vicissitudes of climate, yet rejoice in health and vigour. I observed that the few grasses that grew on these alpine heights have stalks that are flexible, tough, and smooth, as if varnished, so that no moisture could rest upon them, and no wind break them.

Standing on one of the huge blocks of metamorphic rock that, dislocated from its bed by some great convulsion, gave me the commanding point I desired, I gazed with delight on the glorious prospect that opened before me. As far as the eye could reach mountain rose above mountain, many of them capped with snow, and bearing far down their sides glistening fields of gleaming white; great fleecy cumulus clouds sailed slowly over the fjeld, and sometimes dipped down and bathed the mountain tops with rainbow-tinted vapour. The air is raw and cold on such heights, and, heated by the exertion of the ascent, I soon felt its penetrating character, and turned reluctantly away from a scene in which the solemn grandeur of Nature was so apparent. The descent was a little perplexing, but was accomplished, and when my specimens were duly cared for I borrowed Kanute Janson's boat, and pulled across the Utzavand, a lake celebrated for its trout. The range of hills on the side opposite to the station seemed to dip down on easily accessible slopes, and much more snow rested upon them than on the range north of the station-house.

To one unaccustomed to mountain climbing nothing is more deceptive than the appearance of the surface of a mountainous district looked at from the distance of even half a mile. Green unbroken slopes appear to stretch away from ledge to ledge, smooth and free from any impediment to an easy ascent; a nearer acquaintance soon reveals a very opposite state of things; the close smooth vegetation of the distance becomes a tangled scrub of dwarf Alder, Willow, Juniper, and Birch. You turn to a spot free from the tangled vegetation that has barred your passage, and find that one of the many mountain streamlets has spread over it, and it is simply a bog. Clambering along through brake and across bog, you presently find your path arrested by a deep gully, down which

roars a torrent. It requires all the tact and judgment at your command to make your way over this obstacle, and often your upward course is stayed by a precipitous wall of rock which must be tediously skirted. I encountered all these, which I dare say are only ordinary difficulties, and often met with by alpine travellers, and at length reached the elevation where snow in masses still rested on the mountain slopes and in deep hollows, and all about it I saw, by the pressed and flattened shrubs and the decayed herbage, how much farther the snow had reached. Lichens, mosses and Ferns were just reviving, so recently had the snow left them. Making my way down I met with Betula nana, Azalea procumbens, Salix glauca, and S. herbacea; Vaccinium Myrtillus and uliginosum occurred plentifully, but otherwise the vegetation was less rich on this than on the hills to the north of the lake. Regaining the point at which my boat beached, with more difficulty than I had anticipated—no path to lead or person to guide being discoverable on this lonely hillside—I returned to Nystnen to find it invaded by a hungry band of tourists, who speedily cleared the larder of what little provision it contained. I am afraid Janson thought my pursuit of wild plants a sad waste of time. The cultivation of land for profit—farming, in fact—has a tendency to narrow the feelings of interest in the broader field of natural history; restricted to a few objects that under cultivation give profitable results, all other plants are classed in the category of weeds, and treated accordingly by the majority of farmers both at home and abroad.

That any one should care for and take the trouble to collect the plants that grow wild and neglected on the hillsides was a constant source of surprise and amusement to the boys, as well as men, who sometimes rode behind my carriole. But when I chipped fragments of rock, and carefully deposited them in my collecting bag, I am afraid that I was credited with an amount of eccentricity that approached lunacy. My proceedings were duly related to the station-keeper, and the heavy bag handed out with unmistakable grins, in which the feelings of contempt and pity were mingled. Although proud of their country, and fond of it as men can be, they (the agriculturally inclined) would willingly agree to a general levelling of hills, and, from familiarity with their mountain scenery, their fjords, waterfalls, and foaming torrents, they are often unconscious of the features of grandeur and picturesque beauty they possess. Fine hills, and hard to get up, is the qualified praise some of them are willing to agree to. *William Ingram, Belvoir.*

(*To be continued*)

New Garden Plants.

ORNITHOGALUM (HELIOCHARMOS) SOROIUM, *Schott & Kotschy, Œster. Bot. Wochen.*, 4 *Jahr*, 3, 105.*

A native of the Cilician Taurus, discovered by Kotschy, sent by Leichtlin to the Kew collection, where it flowered early in January, 1875. A species of the umbellatum group, like exscapum in its sessile corymb of flowers, but quite different in leaf and in its shorter permanently erect pedicels. All the twenty-three species of this section are so near to one another that only botanists will appreciate the difference, so that it is not a novelty of much horticultural interest.

Leaves 5—6, contemporary with the flowers, forming a rosette surrounding and much overtopping the corymb, 3—4 inches long at the flowering time, ¼—½ inch broad at the base, from which they are gradually narrowed to the point, destitute of hairs both on surfaces and edges. Corymb quite sessile, crowded, 6—8 flowered, flowering pedicels ¼—½ inch long, the pedicels remaining short and erect, reaching finally an inch long. Bracts small, lanceolate. Perianth ¾ inch deep, the divisions pure white with a broad streak of green down the back, the three outer oblong, ½ inch broad, the three inner narrower. Filaments equal, deltoid, ¼ inch long; anthers minute. Ovary oblong, nearly half as long as the perianth, deeply 6-angled; style ½ inch long, obscurely tricuspidate at the stigmatose lip. *J. G. B.*

* Foliis 5—6, erecto-patentibus lineari-lanceolatis glabris canaliculatis 3—4 poll. longis corymbo duplo eminentibus; corymbo sessile; 6—8-floro pedicellis diutine erectis 6—12 lin. longis; bracteis lanceolatis; perianthii 9 lin. longi segmentis exterioribus oblongis interioribus lanceolatis; filamentis deltoideis perianthio triplo brevioribus; stylo brevi apice stigmatoso breviter tricuspidato.—*Baker, Linn. Journ.* 13, 264.

BAST MATS.

THESE useful articles rise in price for an inferior quality from year to year, and gardeners are obliged to contrive all kinds of substitutes, none of which answer the purposes so well through all changes of weather. Judging from Mr. Werekha's report of the forest products of Russia, and Mr. Weschniakoff's account of the domestic industries of the same country, bast mats are likely to become dearer, and their production is not considered conducive to the prosperity of the provinces where they are made. The working of the bark of the Lime tree is chiefly carried on in the Governments of Viatka, Nijni-Novgorod, and Kostroma, and in some parts of those of Simbirsk, Tambow, and Penza. About 400,000 mats are annually exported from the port of Arkhangel alone. Besides the Governments above mentioned, large quantities of mats are manufactured in those of Minsk, Mohilew, and Vitebsk, from whence they are exported by way of the Baltic and Black Sea boats. The exportation from the latter Governments reaches about a million and a-half mats per year. The home consumption cannot be given in exact figures, but there is no doubt that it greatly exceeds the quantity exported. The manufacture of mats is mainly a domestic industry. The peasants employ their spare time from agricultural labour in the maceration and separation of the liber into slips, and in plaiting the latter into mats, which are purchased wholesale by commissionaires. In the Governments of Nijni-Novgorod, Viatka, Kostroma, and Minsk this industry assumes the proportions of small factories in some places.

Lime trees from twenty-five years of age are fit for decortication for the manufacture of mats; when younger, not more than from five to ten years old, their liber is used by a large number of the inhabitants of Russia to make their foot-gear (*lapti*). In localities where the Lime is not sufficiently plentiful to supply the wants of the inhabitants in this respect, it is replaced by the bark of the Willow and Birch. It is estimated that the number of pairs of shoes (*lapti*) annually made from the liber-bark of these trees is not less than one hundred millions. About one quarter are manufactured from the bark of the Birch, which is taken from about half-grown trees. For each pair of *lapti* the bark of four stems about 7 feet long is required; thus for this purpose alone 400,000,000 trees are annually cut down in Russia. This enormous destruction of young trees must act very prejudicially against the future of sylviculture in Russia. Indeed, in the Government of Kostroma, one of the principal centres of this industry (including, of course, the manufacture of mats), the Lime forests are already all destroyed, so that the materials to carry it on have to be procured from other districts, for the inhabitants are loth to give up an occupation which has been continued for centuries.

The bark is removed in the spring or early summer, about three weeks being devoted to this part of the work. The entire bark is also employed for roofing, making boxes, cordage, baskets, &c.

The value of the mats exported to Europe in 1871 amounted to 296,951 roubles.

PLATYCERIUM WALLICHII.

THIS fine species of Elk's-horn Fern was first published by Sir W. J. Hooker in our volume for 1858 (p. 764). The plant had about that time been imported from Moulmein, and was producing its fertile fronds both in the collection of Lady Dorothy Nevill and of Messrs. Veitch. It appears to have continued till now a rare species in gardens. Mr. Williams, of Holloway, in whose collection the accompanying sketch (fig. 12) has been made, has, however, again imported it, and as it is an extremely elegant plant, and perfectly distinct, we may hope that it will become more widely spread than has hitherto been the case.

It is, of course, a stove Fern, with very much the general habit and character of P. grande; that is to say, having the sterile fronds erect, with copious dichotomous segments, while the fertile ones, which are also dichotomously divided into much more elongated segments, are drooping. The contour of the entire plant, as will be seen from the woodcut of it, is most elegant. The Moulmein P. Wallichii differs from its ally above-named in the character of the sorus or broad patch of spore-cases, which in P. grande is solitary on the frond, and occupies a broad, ovoid-reniform space in the upper edge of the disc, in the axis between the two dichotomously parted branches of which it is composed; while in P. Wallichii there are two sori to each frond, the frond being first biparted, and then each division bearing a roundish sorus on a projecting lobe in the sinus between its two branches. Thus, in P. grande the fructification occupies the solitary primary sinus near the base of the frond, while in P. Wallichii the primary sinus is barren, and the sorus occupies the two secondary sinuses instead. The Rev. C. Parish, by whom specimens were sent to England, describes the fertile fronds as varying from 1 foot to 2 feet 4 inches in length, the plant producing two fronds each hot season, one falling towards the right, the other towards the left. In P. biforme, another species of the same group, the soriferous patch occupies a distinct, stalked, scutiform disc, occupying the sinus of the basal fork of the fertile fronds. *T. M.*

NEW VEGETABLES OF 1874.

OF new vegetables brought under our notice during the past year, the list is not a very extended one. This is partly owing, no doubt, to the extremely unpropitious character of the season, which, especially during the early spring and summer months, was very trying to the vegetable classes. The great cold of May, with the succeeding great drought, almost totally ruined the Pea crop, and greatly injured many others. Of new Peas, therefore, of which in some previous years we have had such an *embarras de richesses*—the difficulty being to select the most deserving—we have this season but few aspirants. True, our great and indefatigable seedsmen present us with about the usual quantity of new names, which as a rule may be taken to represent carefully selected stocks of the most approved forms, and in this way they may be quite as valuable to the grower as though quite new and distinct. As examples of these we may note Suttons' Bijou, of the Little Gem type; Duchess of Edinburgh, and Young's Nonsuch, of the Ne Plus Ultra character; also Duke of Connaught. Of a newer form, somewhat in the character of Laxton's seedlings (Dr. Hogg type), we have Carter's Commander-in-Chief, and a very good sort. The greatest novelty is that called Suttons' Giant Emerald Marrow This is said to be a marrow Pea, having the peculiar non-glaucous or glabrous green foliage of the old Dancroft Rival (Emerald Gem).

Broad Beans were introduced to our notice somewhat prominently by the trials of the Fruit Committee at Chiswick. In this class a very remarkable variety comes forward, although not exactly new, having been for some time known to our seedsmen, but, from the difficulty of obtaining seed, never introduced to the public. We allude to the Seville Long Pod of Messrs. Vilmorin. This is earlier by some two or three days in coming fit to gather, and produces very long pods, but it is not a heavy cropper. It will prove a most desirable variety to cultivate for very early work and for exhibition purposes. Of other good Broad Beans, Carter's Mammoth Long Pod, and Hardy's Pedigree Windsor (a sort of intermediate form between the Windsor and Long Pod), merit our attention. As a desirable variety to cultivate we may mention Beck's Dwarf Green Gem, and, as a highly effective decorative plant, the old Red-Blossomed.

Kidney Beans were, on account of the dry, cold season, a very unsatisfactory crop. Of Runners, Dean's Exhibition Runner is a very fine selected stock of the old white Dutch or white-seeded Scarlet Runner. Of Parsleys, we have a singularly pretty variety in Carter's Fern-leaved, the leaves being finely cut, and not curled, as in the more ordinary forms.

Celeries next invite our attention. We last season remarked upon the general excellence of Leicester Red, and this season have to confirm it. It may be said to be identical with Major Clarke's. Of the same type we have Wright's Improved Grove Red, but producing somewhat shorter and stouter heads. Carter's Incomparable Crimson may be described as a fine dwarf red sort. Of white varieties Wright's Grove White is an excellent sort, of the same type as the Grove Red or Leicester Red. Another excellent white Celery will be found in Veitch's Solid White, the leaves of which are very distinctly cut.

Amongst the Brassica tribe there is not much to notice. Messrs. Hurst offer us a new Broccoli, named King of the Broccolis, but of which we have no information. Messrs. Harrison offer us Savoy King Koffee, a selection of the Gem type, a very excellent one in Savoys, the plants occupying little space but producing a large quantity of eatable matter. In Onions there is not much to notify. Messrs. Cuthush brought forward a very promising sort, named Oscar, apparently selected from the White Globe, but having the reputation of being a better keeper. Cantello's Prize is another sort, recommended as larger and superior to the Reading or White Spanish. In Cucumbers, Daniels' Duke of Edinburgh has many believers. It is of the character of Marquis of Lorne, and to those who like big Cucumbers it may be welcome; and Messrs. Sutton offer us another, named Duke of Connaught—the Royal Dukes, &c., being seemingly in favour just now for Cucumber nomenclature. In Tomatos we have one decided gain in Carter's Green Gage, a pretty, round, golden-yellow fruited sort. Why, in the name of all Tomatos we would ask, should this be called Green? A more misleading name as to the true character of the fruit could not well be found. As to quality it is said to be amongst Tomatos what the Green Gage is amongst Plums, and no better recommendaton is required. It is a most prolific bearer. To Messrs. Vilmorin we are indebted for another new Tomato, the striped fruited; this is interesting as a curiosity, the fruits otherwise being of the ordinary type.

In Potatos the commonest, yet withal the most important of the vegetable classes that come directly under the control of the gardener, we have again to notice some very important additions. It is not many years ago since our American cousins introduced us to the first of their wonderful 'Taters, and just see what a revolution they have caused! On the exhibition tables frequently no other than American varieties are to be found. They are unmistakably great croppers, and of fine taking appearance. We cannot say that in point of quality they are always so superior, yet we can say from personal experience that some of the best Potatos we tasted during the past season were of the American sorts. In rich heavy lands they are, as a rule, of inferior quality, but on light lands, and in dry seasons like the past, these free-growing great cropping Potatos are of the utmost value, a good crop being secured where such as the Ashleaf, Lapstone, and Regents would be very poor. We dislike a crop of small Potatos nearly as much as a crop of coarse tubers—a good word, therefore, for the Americans. Of this year's introductions we would first especially note Snowflake. The tubers of this are of a long ovate form, the eyes very full, skin rough pale straw, the most handsomely formed of all, and of excellent quality. Another acquisition will be found in Bliss' Dwarf White, now named Alpha, which is a round form, and one of the very earliest. Mr. Farquhar, of Fyvie Castle, Aberdeen, gives us another, evidently of American origin, named Early Dimmick. This is a second early, and a great cropper; the tubers are large and of fine quality. Our English raisers are not behindhand either, Messrs. Cattell bringing forward no less than three new kidney varieties, Eclipse, Reliance, and Advancer—the first named being a particularly fine sort, of very fine quality. The great English Potato king, Mr. Fenn, has been working more quietly at home this past season. Bountiful, the prettiest red kidney in cultivation, is the only one that comes out from his store. We have inspected many seedlings of exceeding promise, but which, being yet unnamed, we have no means of identifying; and thus we close our record of the gains of the past year with much cause for thankfulness, showing, as they do, that the gardening of the present day is not at a standstill, but, as in the past, ever on the march forward.

Fig. 12.—Platycerium wallichii.

THE BULB SEASON OF 1874.

In taking a brief glance at the bulb season just closed we are better able to arrive at correct ideas respecting the extent of its transactions than has been the case for some years past. If the weather keeps open bulbs will be wanted as late as February, but when the frost sets in the bulb trade closes, and this year has been no exception to the general rule. As we have before remarked, the financial condition of the country influences the demand for bulbs in a much larger degree than it does the other requisites of floricultural display; and, as there have not been any startling additions to commercial prosperity during the year just closed, neither has there been any largely increased demand for these spring-flowering luxuries.

Taking the principal bulbs *seriatim*, and beginning, as the catalogues generally do, with *Hyacinths*, we have to record a very good demand for the named varieties, especially those with white flowers. The sale of single sorts has largely increased, while that of the doubles shows a considerable decrease. This latter circumstance owes its existence in some measure to the fact that scarcely any double flowers are staged at the spring exhibitions, besides which no new varieties of any note have been brought out during the past two years. [Much more to the fact that few or none of the doubles produce close symmetrical spikes. Eds.] Hyacinths for bedding, although largely in demand, have not exceeded last season's sales; the continuance of the frost is in a great measure the cause of this. As in all cases the quality of the bulbs was above the average, the prospects of blooming are very hopeful.

Tulips present scarcely any variation compared with last year's sales; the large demand for the popular bedding varieties still continues, despite the high prices, which a temporary scarcity renders necessary.

Narcissi.—A considerable increase in the demand for these showy flowers has taken the place of the steady decline visible during the past four years; the Polyanthus varieties have been especially in request.

Crocus.—Sales have not been above the average; the heavy rains in October and the early frost are doubtless the cause of this.

Snowdrops, owing to the prevalence of a disease amongst them, were very scarce; the demand has far exceeded the supply.

Miscellaneous articles generally have met with a fair share of public favour; they are too numerous to be particularised.

One of the most striking features connected with the season has been the very unusual demand for bulbs producing white flowers. Lily of the Valley, Hotcia japonica, white Roman Hyacinths, and everything else that will force easily, have been quite at a premium.

The spring exhibitions have already been fully commented upon in your columns, and some good hints were thrown out by several of your correspondents at the time, which I trust have not been lost upon those who have had the compilation of the schedules for the forthcoming displays. I should like to see some good prizes offered for new varieties of Tulips, with a view to the introduction of something new in colour, combined with adaptability for forcing.

Taken as a whole the season must be considered very satisfactory. It affords ample evidence of the growing taste for the beautiful, and at the same time a laudable desire to bridge over the gulf that has, until very lately, separated the last floral beauties of autumn and the first bright flowers of early summer. Doubtless ere long we shall have our gardens bright and beautiful "all the year round;" raisers and growers will combine and do their best to direct the forces of Nature into the requisite channels, and winter, instead of being a state and time of absolute lethargy and barrenness, will be the time for Nature to put on a new and varied robe, none the less cheering and beautiful because it differs from the gorgeous mantle which is her summer garb. *S. B. D.*

THE ROYAL NURSERIES, ASCOT.

(*Concluded from p. 44.*)

The Rose-house, 60 feet by 15, at the time of my visit—the middle of November—was filled with plants for winter flowering. Instead of using a number of varieties, but very few find a place here, and these such as are found to best answer the purpose by producing the greatest number of blooms of the most desirable colours and shape. Full-blown Roses are here useless, the long-shaped, close, half-opened buds are what is required. Teas are principally used, and amongst them Niphetos stands at the top, white or straw-coloured, free-flowering, and a vigorous grower; Madame Falcot, yellow, fine, and a good grower; Monsieur Furtado, sulphur, free, and fine; Souvenir d'Elize Vardon, white, with pale yellow centre, one of the best forcers; Devoniensis, Boule de Neige, H.P., pure white, stout petals and good habit, and not subject to mildew [this is not our experience out-of-doors]; Madame Lacharme, H.P., white, shading to rose, a fine forcing sort. The above are the kinds principally used, most of them on their own roots. Fairy Roses are also largely employed in the bud.

Adjoining is a 55 feet by 15 lean-to house, with a north aspect, filled with Camellias—many of which were planted out—mostly white sorts, a dozen of which are wanted for one coloured flower. The inside of the glass was slightly smeared with white paint, which in a house of this description and so placed is all the shade required. The next is a narrow house, 50 feet by 12, in which, amongst other things of a mixed description, were a number of moderate-sized plants in pots of Aralia Veboldii, in full bloom, bearing very large panicles of white flowers a foot or more in length; they will last for a month, in which state it is one of the best autumn conservatory sub-

jects. As a room plant it has few equals; even in a town it will bear the confinement of a hall for months with comparatively little light; altogether it is one of the most useful plants grown.

From this we enter a house, 55 feet by 20, the centre stage filled with Heaths, Dracophyllums, Hedaromas, Epacrises, Kennedya ovata alba, and hundreds of Calla (Richardia) æthiopica, for flowering at Christmas; double Pelargoniums, a small-flowered crimson coloured variety named Major Trevor Clarke, and the white-bloomed National.

The next house, 55 feet by 20, was filled with Tea Roses that had not been pruned, but brought in to open their already formed buds. Many of these were large plants, and all elevated up to the glass. Interspersed amongst the Roses on the side stages were quantities of the white-flowered miniature plant Oldenlandia Deppeana, which can be had in bloom all the year round by keeping it in a little heat through the winter.

After these are a number of low, long, narrow houses, the first of which is 75 feet by 10. In it were 2000 Carnation Miss Jolliffe, a very dwarf, free-flowering variety; colour pale pink. The plants are struck in May, moved on during the summer into 7-inch pots, and in this size kept. Through the winter they receive a little warmth and air, and are kept close to the glass. They produce on an average during the winter fifty flowers each. Some of the spikes had on them a dozen blooms in different stages. The following April they are moved into pots 3 inches larger, in which they are grown through the summer, and bloomed the following winter, after which they are destroyed, getting too hard to flower freely. The blooms of this variety are in great demand. It is a very dwarf, stout grower. La Belle is considered here the best white, Prince of Orange and Ascot Yellow the best yellows. Garibaldi and Dragon, fine red sorts, are also grown in quantity.

From this we come to another house, 75 feet by 10, filled with winter-flowering Pelargoniums. The sorts principally grown are the red variety, Brilliant; Madame C. Keteleer, Smith's White, and Alba plena. Adjoining is another long narrow house, 75 feet by 10, in which were Azaleas and a quantity of the elegant drooping white-flowered Cytisus filipes grafted on the common Laburnum, 3 feet high. So grown it makes a most charming decorative plant. Amongst the Azaleas were a number of the white variety, Reine de Portugal; it is a later sort, that succeeds A. Borsig. The roof of this house is covered with Maréchal Niel Rose. The next house, similar in size, 75 feet by 10, was filled with Adiantum cuneatum, in 6-inch pots.

Near to this, in course of erection, is a lean-to house, 120 feet by 12, for Camellias. This has a northern aspect, not, as might be supposed, erected against an existing wall, but altogether built facing this direction, simply on account of such being found the best for Camellias; this is a circumstance that should not be lost sight of by growers of these plants—all the houses here devoted to their culture being of a like description, with this aspect.

In front of and adjoining these houses are some long narrow pits, one of which was filled with the miniature Myrtle, Jenny Reitenbach; it is a small but apparently very free grower; the plants struck last May were completely covered with flower-buds from top to bottom.

In others were Neapolitan Violets and Cyclamens. Here also is the pit used for Tuberoses; this is a plant that many private growers do not succeed well with. The pit they are here grown in is sunk some 3 feet below the ground level. The wall is pigeon-holed from the bottom up to the level, and then carried up solid some 2 feet higher. In this the bulbs are plunged; round the outside is a 3 feet cavity, formed by an outer wall, this is kept filled with fermenting material: by this means the bulbs can be supplied with a gentle bottom-heat, and the surface kept comparatively cool by giving air liberally, the object being to induce root-action before top-growth commences. Water is withheld until they have formed roots freely and begun to grow, after which they will bear more heat and moisture.

We now come to some houses in which are grown Bouvardias, the flowers of which are so much in demand for bouquet-making. The first of these is 80 feet by 15. In this house was the free-flowering B. Vreelandii, B. jasminiflora, and B. Humboldtii corymbiflora; taking it altogether this last is no doubt the finest variety in cultivation. It is an excellent grower, deliciously scented, and a continuous bloomer; the flowers are as large as the old B. Humboldtii, and produced in bunches of a dozen. The individual blooms are 3 inches long in the tube; they are used singly, to stand above and relieve the even surface of bouquets, and for this purpose a thin wire is pushed up the inside of the tube, and the stalk of the flower fastened to it: this is to keep them in their wonted position, and to prevent their falling over. In this house were over 2000 plants in fine health; they are kept near the glass, and moderate stove-heat is used all through the winter, without which they do not bloom freely. The adjoining house is 80 feet by 10, also filled with Bouvardias, many of which were the American pink variety, Bride. The above four sorts are the best in cultivation, and, where fragrant flowers are continuously in demand, are indispensable. The path of this, as most of the other houses (which are all span-roofed, unless where stated to the contrary), runs down the centre; here it is composed of trellis-work, beneath which is a pit 2½ feet deep, in which are started the immense quantities of Lily of the Valley forced, than which in London there is no flower in greater demand. This pit is filled with dung and leaves. Fifteen selected crowns of the Lily are placed in a 48-pot and plunged 6 inches over-head in the fermenting material, which is kept up to 85°. Here they stop eight days, in which time the tops make 2 inches of growth; they are then removed to the next house, which is 75 feet by 10, and is one of four used in spring for propagating. A path runs down the centre. On one side is a stage running the whole length, on the other is a pit fitted up in the usual way with lights; in this the Lilies are plunged in dung and leaves. Here they are kept for seven or eight days, and air given, the first two or three days they are slightly shaded if the weather is bright; they are then moved to the stage at the opposite side of the path, where they are very soon ready for cutting—the house all the time being kept up to 70° in the night. The first are ready by the end of November, and for this earliest work the roots are procured from Germany; their earlier matured growth permits of their being forced before the Dutch-grown roots. In this house were 800 newly-grafted plants of the fine new Azalea Sigismund Rucker, and a quantity of Cyperus laxus, a good decorative plant for use in vases and similar purposes.

Another of these propagating-houses, 80 feet by 10, was filled with Poinsettias. The old stools, when they have started about the end of May, are planted out in a pit upon 3 feet of dung and leaves. By the end of August they have made very strong growth, these are half cut through with a sharp knife 3 inches below the top of the shoots; in eight days the remaining portion is cut through; each is then placed singly in a 60-sized pot, and moved into the propagating-house, and as soon as rooted it is transferred to the stove, and kept there until it flowers, some being placed in a cooler temperature for succession. If any of the plants have an appearance of getting too high they are again half cut through, allowed as before to remain for a time, then taken off and struck, after which they make beautiful dwarf plants, flowering when not more than 8 inches or a foot high.

Another propagating house is 75 feet by 12—one side of it was filled with double white Primulas. This is far more useful for cutting than the single varieties, the flowers standing so much better, yet it is a plant that gardeners frequently find a difficulty in managing, through its disposition to damp off at the collar, this generally occurring through a mistake in its cultivation of leaving a portion of the stem bare above the soil, in which state it is almost certain to rot off. The way it is here treated is, in the spring, when moving into larger pots, to sink each plant down so that the soil comes up amongst the bottom leaves: so treated it roots freely, and will quickly break up small crowns, which are divided and potted singly, keeping them well down. Here also were a quantity of Camellia stocks for working and grafted Rhododendrons. This brings us to another 75 feet by 12 house, in which was a quantity of Pelargonium album plenum, and the new white variety, Ascotiensis—a sort that is expected to do good service for cutting on account of the length of time the flowers stand. Here also were numbers of the Japanese Acers, and the free and continuous flowering Abutilon Boule de Neige. In the next house, similar in size to the last, was a quantity of grafted plants of the variegated Japanese Daphne, quite hardy, and as fragrant as D. indica, and many hundreds of newly struck Hydrangeas.

This leads to another house, 40 feet by 12, in which were winter flowering Orchids, such as Odontoglossum pulchellum, Cœlogyne cristata, Dendrobium nobile, and Cypripedium insigne, Tuberoses, Adiantum pubescens and Selaginellas: the roof covered with Stephanotis.

The next is a retarding house, and was filled with climbers in pots in quantity, such as Tacsonia Van Volxemii, Clematis indivisa, Rhynchospermum jasminoides, &c. The adjoining house, 70 feet by 12, was occupied with Adiantum cuneatum, Isolepis gracilis, Lomaria gibba, Ficus elastica, and dwarf Palms.

We now enter another (70 feet by 12) retarding house, occupied for the time being with Hymenophyllums, flexuosum, demissum, &c.; Trichomanes radicans, Lomatia elegantissima, a Fern-like hard-wooded Protead, with most elegant leaves; and the most singular pink-flowered Azalea linearis, as unlike an Azalea as anything could be imagined—the petals of its numerous flowers (produced in bunches of a dozen together) being much more like a Japanese Chrysanthemum; it is used for lightening up the surface of bouquets. Here also was the beautiful new evergreen shrub, Azara microphylla, which, should it turn out quite hardy, will be one of the finest plants in cultivation for covering walls; the new Stauntonia hexaphylla, said to be a good conservatory plant, producing very ornamental fruit; the fine blooming Nerine Fothergillii, a plant not nearly so well known or so often met with as it should be—a much finer thing than the Guernsey Lily, the flowers deep crimson, which are produced freely.

Near this are eight pits, each 50 feet in length, which are filled with Cinerarias, the white Pink Lady Blanche, Aralia Sieboldii, Tea Roses, Veronica salicifolia, Azalea amœna, the hardier varieties of Palms, Japanese Maples, and Desfontainia spinosa. Two other pits, each 45 feet long, complete the glass erections; these are warmed from the boiler that heats the Gardenia houses, and are used for forcing things that do not require so much heat as these.

From this notice, which I have endeavoured to make as clear as possible, it will be seen that Mr. Standish keeps no secrets as to the manipulation and general cultivation of the large quantities of plants here grown for general decoration, and especially for the production of cut flowers. Although for the latter the number of different things employed may appear small, yet they comprise nearly all that are in general request in the London flower trade, and convey some idea of the present fashion in these matters. As will be seen, the prevailing colour in demand is white, nine-tenths of the whole being of that colour, with a little blue, pink, and red, although it frequently happens that some particular flower is required—even such things as half-ripe Blackberries have been specially stipulated for as forming part of a bridal bouquet.

In the outside nursery Rhododendrons are largely grown, as also deciduous and evergreen trees, and shrubs, Conifers, fruit trees, Roses, and general nursery stock. *T. Baines.*

EUCHARIS AMAZONICA.

THE illustration (fig. 13) gives a view of the interior of the Eucharis-house in the gardens of the Duke of Westminster, at Eaton Hall, Chester, taken from a photograph kindly sent us by Mr. Selwood. As regards the contents of the house, the illustration speaks for itself; but we may mention that at Eaton Hall there are three houses devoted entirely to the culture of Eucharis and Pancratium. One has just done flowering, the second is now coming into perfection, and will be followed in turn by the third. The first house will be full of flowers again in April and September, and so on in rotation.

ELEMENTARY LESSONS IN BOTANICAL GEOGRAPHY.

(*Continued from p. 9.*)

II.—ON THE WAY IN WHICH THE DISTRIBUTION OF SEA AND LAND INFLUENCES THE DISTRIBUTION OF HEAT.

IT is estimated that at least a third of the heat of a vertical sunbeam is absorbed in traversing a cloudless the atmosphere before it reaches sea level. The more obliquely the beam is received at any point of the earth's surface the greater is the proportion of the heat that is lost. The remainder is absorbed in the air, and although it helps to keep up the general temperature, its effect is to a great extent lost in the upper regions. If there be any haziness or cloud in the air, the effect of the sunbeam on the earth's surface is lessened. In a cloudy sky nearly the whole effect of the sun's heat is spent in warming the air and evaporating the clouds. From this it results that the heat which any tract of country gets depends largely upon the habitual cloudiness or clearness of its atmosphere. Out of 197,000,000 square miles of the earth's surface, 145,000,000 are at the present time taken up by sea, leaving only 52,000,000, or rather more than a third, for the land. Heat acts upon land and water in very different ways. Upon the land the surface in a hot sun becomes intensely heated, but the heat does not penetrate far below the surface, and is not stored up for future use. In Britain the extremes of temperature during the year, which in the air in the shade show a difference of 70°, 80°, or even 90°, are, at 3 feet below the surface, not more than 15° or 20° apart, at 25 feet only 3° or 4°, and at a depth of 50 feet are reduced to nothing. But the heat which falls upon the sea is differently treated. It penetrates the surface to a moderate depth, and is absorbed internally. Water is eminently a non-conductor of heat, so that what is received into its substance is diffused again mainly by agitation, and as this, however violent at the surface, diminishes fast as we sink downwards, the heating-up of a great body of water is a slow process. At a cer-

tain depth, varying with latitude, the sea is at a uniform temperature of 39° all through the world. At the equator this temperature is reached at a depth of 7200 feet. Rising in level gradually it reaches the surface in latitude 56°, the parallel of the Shetland Islands, and there, superficial currents apart, the sea is of a uniform temperature at all depths. Going towards the poles this isotherm of 39° sinks again below the surface, and at the arctic circle has already reached again a depth of 7000 feet. So that taking the 56th parallel of latitude in both hemispheres as a boundary line, the sea is divided into three basins—one equatorial, in which the temperature falls from above to below, and two polar basins, in which the temperature rises as we descend. The average general temperature of the superficial sea at any parallel of latitude does not differ appreciably from that of the annual average of the air in the shade at the same place. At the equator it is scarcely ever known to rise above 85° in the day and to sink below 83° in the night. As we advance into the temperate zone, where there is a great difference between the heat of the air at different seasons, the sea exercises an important influence. It absorbs heat during the day and gives it off during the night. It absorbs heat during the summer, and gives it out during the winter, and thus lowers the temperature of the summer and raises that of the winter in its neighbourhood. It was found from a series of observations made by Dr. Cooke at Scarborough during 1853-4 that the average temperature of the sea was 5½° above that of the air in the shade in December, that it was 7° below it in July and August, and that the two were upon an equality at the end of October and the end of February. We find that, in actual practice on a broad scale, the sea exercises a very important influence in cutting off the extremes of temperature in both directions, in moderating alike the cold of winter and the heat of summer. In this way we get the climates of the temperate zone separated into two classes—insular climates, marked by a comparatively small difference between winter and summer (or, as it is called in technical meteorology, a small hiberno-æstival variation), and continental climates, in which terrestrial radiation has full sway in both directions, and the difference between summer and winter is large. The influence of nearness to a large mass of ocean is modified by the habitual cloudiness or clearness of the atmosphere of the country, and by the prevalent direction of the wind; but, as the same nearness to the sea which cuts off the extremes of temperature tends also to produce cloudiness, this does not much affect the actual result. Britain furnishes a typical illustration of an insular climate, and there is even an appreciable difference in the annual range of temperature between the west side of the island, which is nearest the great mass of the Atlantic, and the eastern counties, which are nearest the European continent and comparatively small German Ocean. In Cornwall, Devonshire, and the west of Ireland, the annual temperature is 51°—52°, the difference between January and July, 20°—21°, and between the average of the three months of summer and the three months of winter, 14°—15°. At Greenwich the annual average is 49°, the difference between January and July 25°, and between summer and winter, 20°. In the northern island of New Zealand the annual average is 52°, and the difference between January and July 14°. At Cape Town the annual average is 59°, and the difference between January and July 16°. But take a tract in the interior of one of the great continents, and mark the difference: at St. Petersburg the annual average is 38½°, and the difference between the three months of summer and the three months of winter 46°. At Moscow the annual average is 39°, and the difference between January and July 54°. At Montreal the annual average is 44°, and the difference between January and July 52°. On the north-west shores of Hudson's Bay the annual average is 11°, and the difference between January and July 70°. At Yakutsk, where in the heat of the great Asiatic continent occurs the most extreme case of a continental climate that is known, the difference between January and July is said to rise to 100°. We have examples of climates neither characteristically insular nor continental in Spain, France, and Palestine. South of the tropic of Capricorn there are only 4,000,000 of square miles of land, against 28,000,000 north of the tropic of Cancer, and, as in the southern hemisphere the land is cut up into three pieces, the difference between insular and continental climates has little scope to operate in the south temperate zone; but in the north temperate zone it amounts to this—that whilst in the insular climates the coldest month of the year falls only 8° or 10° below the annual average, and the warmest month rises only 8° or 10° above it, in the continental type of climate the difference amounts to 25°, 30°, or even 40° or 50° in each direction.

These are all average temperatures in the shade; but there is another point which it is important for us to consider in this connection, and that is the influence which the sea exerts in cutting off those extreme falls of temperature in winter which are so harmful to plant life. To take an illustration from England, it was found that during the exceptionally cold night of the Christmas of 1860 the thermometer sunk at Helston to 32°, at Ventnor to 24°, at Scarborough and Liverpool to 16°, at Whitby to 10°, at Shields to 6½°; but inland, at Wakefield, to 2° below zero, at Manchester to 3° below zero, at York to 4° below zero, and at Nottingham to 8° below zero. Here the mitigating influence of nearness to the sea is found to be considerable, but it does not seem to extend more than a few miles inland.

The following list, the figures in which represent monthly average temperatures at sea level, will give

FIG. 13.—EUCHARIS HOUSE AT EATON HALL, THE SEAT OF THE DUKE OF WESTMINSTER.

an idea of the heat of the world, as influenced by latitude and nearness to the great ocean masses :—

	Latitude.	January.	July.	Difference between the two.
Torrid or Tropical Zone.	°	°	°	°
Nubia	17—23	68	90	22
Gold Coast	5	79	77	2
Madagascar	11—25	79	72	7
Ceylon..	8—10	77	81	4
Mocha..	12	77	90	13
Jamaica	18	77	81	4
North Brazil	0	79	77	2
North Temperate Zone.				
Europe and Africa.				
Barbary States	30—36	50—59	77—90	27—31
Spain	36—45	41—50	68—77	27
France..	43—50	32—41	64—74	32
Central Europe, from Black Sea to Baltic	45—55	23—32	63—72	40
England	53—55	32—41	59—63	22—27
Moscow	56	14	65	51
Christiania, Upsala, Stockholm ..	60	23	61	38
Archangel	64	5	59	54
Iceland	64—66	32	50	18
Asia.				
Palestine	31—33	50—59	80—85	26—30
Pekin	40	26	77	51
Bogolowsk, foot of Ural	60	5	59	54
Yakutsk	62	—40	61	101
America.				
New Orleans	30	59	82	23
Baltimore	39	32	73	41
Montreal	45	18	70	52
Fort Vancouver	50	34	65	31
North-west shore of Hudson's Bay	65	—26—22	45—55	70
South Temperate Zone.				
Valparaiso	33	68	54½	13½
Buenos Ayres	35	72	54½	17½
Cape Town	35	75	59	16
Sydney	35	70	50	20
New Zealand, north island ..	35—42	59	45	14
Van Diemen's Land	40—43	59	42	17
New Zealand, south island ..	41—46	55	41	14
Cape Horn	55	42	34	8
Frigid Zone.				
Spitzbergen	..	5	40	35
Tornea, Lapland	..	5	59	54
Kotzebue's Sound	..	—4	50	54
East coast of Greenland	..	5—14	36—41	30
Arctic Siberia, 130—140° E. longitude	..	—40	54—59	97

THE PAPYRUS.

(CYPERUS PAPYRUS, LINN.)

PROBABLY few persons in this country are prepared to regard the Papyrus as a European plant, yet it has long been known to occur in many parts of Sicily, and it is more than likely that it is from this source rather than from the East that the specimens in various botanic gardens have been ultimately derived.

The illustration (fig. 14, on p. 81) is copied from a photograph, taken on the Anapo River, near Syracuse, for the use of which the *Gardeners' Chronicle* is indebted to the kindness of my friend, Mr. E. R. Lankester, Fellow of Exeter College, Oxford.

The following description, written by E. O. Fenzi a few years ago (*Gardeners' Chronicle*, 1870, p. 314), gives a vivid impression of the beauty of the river with its banks clothed with Papyrus thickets :—

"Starting from Syracuse in a small boat, I crossed the magnificent harbour which bears its name, from the mouth of the Anapo. . . . Winding up the course, which slowly carried to the sea a large volume of excellent water, I soon reached the confluence of the Cyane stream. . . . Gliding more than rowing on the deep blue water I arrived where the stream, widening into deep marshes, is covered as far as the eye can reach with dense bushes of Papyrus. Nothing can equal the elegance of these plants, their roots drowned in the tepid water which slightly agitates the feathery foliage which crowns their slender stems.

"The Papyrus grows here to the height of from 12 to 15 feet, and under such a favoured climate new suckers are continually growing up to take the place of the older stems, which may be either broken by the wind or exhausted after their seeding."

In Sicily, according to Parlatore (*Mem. presentés par divers Savants*, tom. xii.), the Papyrus is now only found on the eastern side of the island, namely, at Syracuse and Milili, a place at no great distance, along the Cantara River, on the northern side of Etna, and at Spaccaforno, the extreme southern angle. Formerly it grew at Palermo, in the small lakes formed by a little stream, which derived from it the name of Papireto. Numerous writers mention Calabria also as a locality on the mainland, but Parlatore finds no corroborative evidence to confirm this statement, which seems to have originated with Micheli. According to Strabo it grew on Lake Trasemene, near Perugia, but some other Cyperaceous plant is supposed to have been confused with it.

Parlatore has endeavoured to show that, while the Sicilian plant was identical with that which occurs in Syria, it was distinct from the true Papyrus of the Nile. This view has not gained general acceptance amongst botanists, and it is difficult to resist the conclusion arrived at by Professor Oliver, that "the alleged differences are trivial and inconstant" (*Kew Gardens' Guide*, 25th ed., p. 21). They mainly, indeed, consist in claiming for what may be called the Mediterranean plant (Cyperus syriacus, Parl.), a spreading inflorescence like a mop, with very short linear leaflets (bracteoles) subtending the spikelets; and, in contradistinction, for the Nile plant (Cyperus Papyrus, Parl.), a close besom-like inflorescence, with very long bracteoles, which are also more numerous.

As, however, in very many other cases, these characters began to break down when applied to a large series of specimens. Parlatore supposed that the Syrian plant was distinct from the Egyptian. He had only seen the plant from near the coast (Jaffa). Bruce had found it on the upper waters of the Jordan, and had identified it there with the plant he had found in Abyssinia (*Travels*, vol. vii., p. 115). This was also the conclusion adopted by Professor Babington in a communication to the Cambridge Philosophical Society (February 26, 1866). He stated that the Papyrus of the plain of Gennesaret and of the marshes of Hûleh, by the Lake Merom in the north of Palestine, is not the plant found at Syracuse and on the coast of Palestine, but is identical with that which grows in an extensive swamp or shallow lake connected with the White Nile, at about the seventh degree of north latitude. These identifications are also accepted by Tristram in his *Natural History of the Bible*, pp. 433, 434.

No doubt some differences of habit will, as in every other plant, be produced by differences in the local conditions of growth. The way in which the Papyrus grows at Hûleh is very remarkable. An account of it, from which the following particulars are extracted, was given by Macgregor in the *Illustrated London News* (April 24, 1869).

Three rivers, each born full grown—the Hasbany, the Leddan, and the Banias—converge in the plain of Hûleh and unite in a small lake, called in the Bible "the waters of Merom." The Leddan spreads almost at its birth into a hundred streams and gets lost. The Banias and Hasbany unite to form a stream which runs south about 3 miles and then spreads into a morass. "On this is a vast floating forest of Papyrus and cane, perfectly dark inside. I could never penetrate more than 3 feet . . . Many of the stalks of the Papyrus are as thick as my arm. The water percolates below and through the spongy mass, and there loses at least half its volume by absorption and evaporation. This impassable barrier is about a mile wide."

Of course the significance of the geographical distribution of the two forms of Papyrus is altogether destroyed when we find ourselves forced to admit that both occur in Syria, and to abandon Parlatore's view that the Nile Papyrus was essentially a tropical plant; and the *à priori* probability of their being really distinct is still further diminished, if we agree with Parlatore that it was introduced from Syria into Sicily not earlier than the tenth century. His reason for this belief is that, while the Syrian Papyrus is mentioned by Theophrastus and other classical writers, the Sicilian Papyrus is never found noticed in literature till the travels of Abn-Haucal, an Arab, who made a voyage to Palermo in the tenth century. Ovid, in his *Metamorphoses*, speaks of Cyane, where the Papyrus is now so abundant, but he is silent about the Papyrus itself. However this may be, an inspection of the series of specimens from Sicily in the Kew Herbarium show conclusively that the length of the bracteoles is extremely variable, and that, trusting to that character, both species might be identified from Sicily as well as from Syria. African specimens, on the other hand, show that the mop-headed inflorescence is by no means wanting in them, so that, trusting to that character, both species might be identified in Africa also. It may be doubtful what degree of authority should be attached to the drawings illustrating Sir Samuel Baker's recent book, *Ismailia*, but it is noteworthy that wherever the Papyrus is introduced it is always with a mop-headed inflorescence like that attributed by Parlatore exclusively to Cyperus syriacus (see, for example, the view of the White Nile, facing p. 189 in vol. i.). It is extremely probable that the difference in the spread of the heads is largely due to the age and maturity of the particular specimen. As, therefore, the two forms everywhere seem to co-exist, the presumption is that they are not really distinct, and that the Papyrus of the Nile, of Syria, and of Sicily, are all one and the same species. I may also say that I have found more than three bracteoles to the rays in a Sicilian specimen.

The Papyrus was first cultivated in a botanic garden by Cæsalpinus, who introduced it to Pisa from Sicily. Lobel saw it here and identified it with the plant described by Theophrastus and Pliny (*Adversaria nova*, 1576, p. 38). He gives a figure, with besom-like heads, which, however, it is tolerably certain must have been taken from the Sicilian plant, notwithstanding that he describes it as Papyrus nilotica. This figure was copied by Matthioli, Bauhin, and other botanists of the sixteenth century. Parlatore thinks that the Sicilian plant has done duty in all the botanical gardens of Europe for the Egyptian. If his views were well founded all the cultivated plants should have short bracteoles. Lamark, however, expressly states (in the *Encyclopédie methodique*) that the form in cultivation in his time at the Jardin des Plantes had the bracteoles longer than the rays of the umbel.

In Africa the Papyrus probably forms a characteristic member of the Tropical African flora. It was found on the White Nile, as already stated, by Bruce, and there are in the Kew Herbarium specimens collected in 9° 50′, N. lat. by Petherick. In Hooker's *Niger Flora*, p. 551, it is stated to be "very abundant on the banks of the Lagos, a river near Accra (Don), where it was also found by Barter." There are also specimens at Kew from the Congo, and, what is a remarkable extension of its range, from Delagoa Bay, collected by Forbes.

Pliny describes the Papyrus as a plant of the Euphrates Valley, and Guilandini corroborates him, but whether the true plant grows there or not still appears to remain in doubt. From the remarkable but well-known fact that the Lotus (Nelumbium) has disappeared from the whole Nilotic region within historic times, and that the Papyrus is not found beyond 9° N. lat., Schweinfurth arrives at the conclusion (*Bull. de l'Inst. Egypt.*, Dec. 19, 1873) that the climate of Egypt has lost the characteristic features which formerly united it with that of tropical Africa, and that the natural productions of the country have gradually become more northern.

This is not strictly accurate, even as to the range, for Bruce found the Papyrus at Lake Zana in Abyssinia, in 12° N. lat. It is hardly credible that Egypt should have ceased to be able to support a plant which flourishes in Sicily and Syria. It seems much more probable that both it and the Nelumbium never were indigenous to Egypt proper, but that the Papyrus was introduced from Nubia and cultivated. The reason of its disappearance is probably to be sought, not in any change of climate, but in the physical conditions of the river—perhaps the periodical rise and fall of its waters—not enabling it to hold its ground without human intervention.

The earliest figure of the Egyptian Papyrus is that given by Prosper Alpinus, 1640 (*De Plantis Ægypti*, p. 111). He simply alludes to it as a plant of the River Nile (*est planta fluminis Nili*), and that the Egyptians call it Berd. Bruce found it in the last century in Lower Egypt. According to Delile it occurred at Damietta, and Savary speaks of it as growing near Lake Menzaleh as well. Bromfield, however, searched there in vain for it (*Letters from Egypt and Syria*, p. 235), and elsewhere (p. 180) "he speaks of the rumour of the Papyrus still lingering in the vicinity of Lake Menzaleh, proving, it seems, a mistake; another species having been confounded with the true Papyrus of antiquity." M. Figari (quoted by Parlatore) believes this to have been Cyperus dives.

Bruce was of opinion that the Papyrus was only an introduced plant in Egypt. It did not appear to him to have been a plant that could have existed in the Nile, or, as authors have said, been proper to it "Its head," he says, "is too heavy, and in a plain country the wind must have too violent a hold of it. The stalk is small and feeble, and likewise too tall; the root too short and slender to stay it against the violent pressure of the wind and current: therefore, I believe it never could be a plant growing in the Nile itself, or in any very deep and rapid river."

Savary (*Lettres sur l'Egypte*, p. 323) quotes a passage from Strabo, according to which those who had the manufacture of a writing material from Papyrus were careful to restrict its growth to a very few places in Lower Egypt. It is owing to the fact that it was—if this account be true—never allowed to become very plentiful that the way was prepared for its final extirpation. It seems probable, therefore, that the Papyrus lingered down to the last century in the marshes of the Nile delta, and is now finally extinct in Lower Egypt. But this fact seems to afford no secure basis for Schweinfurth's generalisation as to a deterioration of the climate.

Du Petit Thouars discovered a Cyperus in Madagascar which has been described as a distinct species—Cyperus madagascariensis—by Willdenow. It is closely allied to the Papyrus, if indeed it be more than a slight variety of it. The same form also occurs in Mauritius, but is probably naturalised there. This extension of the species is more especially interesting, seeing that the African distribution extends so far south as Delagoa Bay. *W. T. Thiselton Dyer.*

Botanical Notes.

In the *Bulletin of the Linnean Society* of Paris, M. de Lanessan continues his observations on the Formation and Distribution of the Vascular Bundles in Plants, and succeeds in showing by numerous illustrations that M. Van Tieghem's dictum, that an organ is not to be considered as an independent foliar organ unless it receives directly from the axis a vascular bundle, is subject to too many exceptions to be accepted as axiomatic. On the other hand, it appears to us that M. de Lanessan lays himself open to a similar charge, when he says "that the study of the arrangement of the vascular bundles of the adult plant cannot lead to any result in the determination of the morphological nature of any particular organ."

—— At a recent meeting of the Linnean Society of Paris, M. Ramey called attention to the Exhalation of water from the Leaves of Amorphophallus Rivieri (figured in *Gardeners' Chronicle*, 1873, p. 609). The plant was grown in a pot in a dry room and allowed to suffer for want of water. Water was then supplied abundantly, and after an interval of from two to four hours, all the lobes of the leaves showed near their points a drop of water, which disappeared subsequently as if reabsorbed by the plant. This is analogous with what has been previously observed in another Aroid (Colocasia).

—— Professor Eichler, of Kiel, has lately published the first part of a volume on the Symmetry of Flowers, under the title of *Blüthendiagramme* (Williams & Norgate). The work is intended to give in a concise form the plan of construction of the flower in the principal natural orders of plants. For each order a diagram is given, showing the disposition and relative position of the several organs. The text contains an explanation of the diagrams, together with other information. We propose on a future occasion to refer at greater length to this volume, which is one of first-rate importance as regards vegetable morphology.

—— M. Chabaud, in the *Bulletin of the Central Horticultural Society of France*, records the Fruiting for the second time at Toulon of Encephalartos Altensteini. The flowers were fertilised with the pollen of a species of Macrozamia. Fruits were formed, but no embryo, though the seeds were otherwise perfect. The same absence of embryo characterised the seeds or fruits of Stangeria paradoxa, which fruited some time since in the collection of Mr. Wilson Saunders.

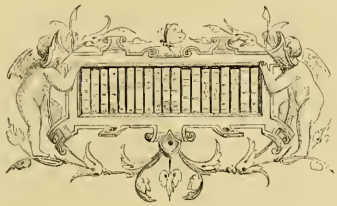
Forestry.

The Russian forest reports, from which we have already given some extracts, contain many interesting paragraphs, from which we select the following:—

The construction of boats and various kinds of river-craft forms an important branch of industry. Every year upwards of 100,000 vessels of different descriptions descend the water-ways of Russia. Very few of them make the return voyage, but are demolished for fuel or building purposes after reaching their destination. More than two million roubles are annually spent on wood for renewing or completing vessels for river navigation. Scotch Pine and Norway Spruce are usually employed for this purpose, but recently, the value of these timbers having increased, the Aspen is used for lining barges, particularly in the Governments of Mohilew and Minsk. Sawing is now done to a great extent by steam. In the Government of Arkangel there are six steam saw-mills solely occupied on Pine timber for exportation to England. About eighty saw-mills are constantly employed cutting out timber for exportation, at least two million trees annually falling for this purpose.

Resinous products are a source of considerable wealth, and in many parts, especially in the Arkangel, Volgoda, and Kostroma governments, their collection and preparation is the chief employment of the inhabitants. In the North, where forests are abundant, the trees are drained to death in from ten to fifteen years, in the same wasteful manner practised in the Pine forests of the Landes of Gascony during the last century. The tar, both for home consumption and exportation, is obtained for the greater part by a very primitive process, a hole being made in the earth and a rude furnace constructed. But, within the last few years, several factories have been established, not only for the extraction of tar, but also for the preparation of various refined articles belonging to this class. It would be difficult to ascertain the quantity of tar consumed within the empire, but something like 7000 tons are annually exported. Under the name of *goubki* the following Boleti are exported, viz., obtusus, undulatus, and laricis. In 1871 about 9350 lb. of this article were exported.

Recently the Aspen, which was considered as a tree of a very little use, has become of great importance in the manufacture of paper. In 1871 there were ten manufactories in Russia, and two in Finland, occupied in grinding the wood by means of hydraulic mills. The low price of this wood, the facility with which its pulp is blanched for making paper, and the increasing high price of rags, promise a grand future for this industry, especially as the forests are rich in reserves of the Aspen, and it renews itself without the aid of man. The annual value of the wood consumed within the empire is estimated to amount to at least 265,450,000 roubles. The railways use wood for fuel to the amount of 7,200,000 roubles yearly.



Notices of Books.

The Aerial World: *a Popular Account of the Phenomena and Life of the Atmosphere.* By G. Hartwig, M. and P. D. Longmans.

We have frequently had occasion to allude to the publications of Dr. Hartwig, and to speak in favourable terms of his efforts to interest the general reader in some of the more important natural phenomena, their causes and effects. Good, however, as have been the author's works on the polar world, the sea, the tropical world, &c., we are of opinion that he has been even more successful in the present case. A treatise on meteorology is to most folk but dry reading, but Dr. Hartwig has contrived to construct a book which may fairly be styled "meteorology made easy." It was no part of his plan to write a scientific treatise, but to make public, in an agreeable, yet accurate form, the results gained by modern investigation into the nature and phenomena of the atmosphere. Accordingly we have in Dr. Hartwig's pages chapters devoted to the composition and qualities of the air, the force and direction of winds, the nature of clouds, waterspouts, fogs, dew, rain, snow, storms, cyclones, electrical phenomena, &c. The concluding chapters are devoted to the balloon as a scientific instrument, and as an observatory in time of war. The illustrations are numerous and for the most part good and appropriate, but we fail to recognise an Orchid in the cut at p. 409, entitled "Orchids growing on dead trunk," and which, if we mistake not, has done duty elsewhere. The work as a whole is one which, judged from its own standpoint, deserves our warm recommendation.

The History, Structure, Economy, and Diseases of the Sheep. By W. C. Spooner. Lockwood, 1874.

It would hardly have been necessary for us in this place to do more than announce the publication of a third edition of Mr. Spooner's admirable little book on the sheep, were it not that sundry questions relating to hybridism and cross-breeding have lately been attracting the attention of some of our cultivators. We believe that the rules and principles which have been deduced from experience in the animal kingdom will apply equally well, all due allowances being made, among plants. It may not be without value, therefore, to condense in a few words what Mr. Spooner says about cross-breeding among sheep. A Pelargonium is not a sheep, decidedly, but it shares with the animal a number of qualities and functions, and it cannot be without interest to compare the two. In trying to improve a breed of sheep, says Mr. Spooner, the qualities of both parents must be considered, with a view of correcting as well as perpetuating good qualities. It must be acknowledged, however, that in the majority of cases the influence of the male parent preponderates, so that the offspring shows more of the characteristics of the sire than of the mother, though this rule is not without exception. This is perfectly in accordance with Dr. Denny's views on the Pelargonium. To render crossing successful, says Mr. Spooner, we should endeavour to find "some affinity of constitution between the improvers and those we wish to improve."

No raiser of hybrid Vines or florists' flowers will contest that dictum. We fancy, however, that greater objection would be raised to the statement that "a first cross between a superior and an inferior race is, as a general rule, very successful, producing animals approximating in most respects to their more improved parents, but after the first cross the breed often deteriorates."

Among plants the first cross is often productive of a very large and often misshapen progeny, some of which may possess desirable properties, and may in time be improved; but as to the majority, but little favourable can be said. In any case the raiser of plants will agree with our author that "crossing is an experiment sometimes succeeding and sometimes failing in producing a proper combination of the qualities of both parents. Judgment is shown in selecting the successful and rejecting the others." It was by judicious crossing and careful selection that Bakewell ultimately produced from a great variety of flocks of different characters the celebrated breed of New Leicester sheep. Having gained what he wished, he altered his plan, and, instead of continuing to cross, took every means to secure the purity of his flocks by in-and-in breeding. With regard to the latter process, it must be remembered that the circumstances and conditions are so different in the human race and in animals—in which latter case every care is taken to secure the health and *physique* of both parents—that no fair analogies can be drawn. Certain it is that close intermarriage in the animal kingdom is far from being prejudicial to the issue, as a rule; and were circumstances different it need not necessarily be so among the human family.

Among plants we do not think we have sufficiently numerous or authentic data to decide the question; but in the case of Wheat, for instance, in-and-in breeding can hardly be injurious.

We conclude this notice by citing a sentence from Mr. Spooner, the principle of which should be acted on as far as possible by every hybridiser. Though crossing may be practised with impunity, or even advantage, "yet no one should do so for the purpose of establishing a new breed unless he has clear and well-defined views of the objects he seeks to accomplish, and has duly studied the principles on which it can be carried out, and is determined to bestow for the space of half a lifetime his constant and unremitting attention to the discovery and removal of defects."

—— Mr. Murray promises for the ensuing season a new book by Mr. Darwin, called *Insectivorous and Climbing Plants.* According to the *Athenæum*, it will consist of two parts, the first of which is devoted to a discussion of the sensitiveness of the leaves of Drosera, Dionæa, Pinguicula, &c., to certain stimulants, and of their power of digesting and absorbing animal matter; the second to the habits and movements of climbing plants. Three books of travel are also on Mr. Murray's list:—*The Caucasus, Persia and Turkey in Asia, being a journey through the Caucasus to Tabreez, Kurdistan, down the Tigris and Euphrates to Nineveh and Babylon, and across the Desert to Palmyra*, by Baron Max Von Thielmann, translated from the German by Mr. C. Heneage; *The Land of the North Wind, or Travels among the Laplanders and Samoyedes, and along the Shores of the White Sea*, by Mr. Edward Rae; and *The Hawaiian Archipelago, Six Months among the Palm-Groves, Coral-Reefs, and Volcanos of the Sandwich Islands*, by Isabella Bird.

—— Of *Warner's Select Orchidaceous Plants* (Reeve), Parts 11 and 12 have recently been issued. It is to be regretted that this fine work, the most attractive now publishing of all the books devoted to this most attractive race of plants, should make its appearance at such uncertain and distant intervals that one never knows when to be on the look-out for it. From the size of the page, Mr. Fitch's sketches are most effective, and the execution of the illustrations is, in most cases, quite satisfactory. The numbers before us contain a splendid plate of Oncidium varicosum Rogersii, drawn from Messrs. Veitch's specimen plant (the plate lettered O. verrucosum); Lælia pumila, the Cattleya marginata of many collections; Masdevallia Veitchiana, a plant which no artificial colouring can reproduce; Lælia anceps Dawsoni, remarkable for its chaste and elegant colouring, and which is still very rare; the singular Batemannia Burtii, well represented from Mr. Hume's plant; and finally, a grand figure of the lovely × Cattleya exoniensis, one of the earliest and finest of the Messrs. Veitch's hybrid Orchids, and one in which the colouring of the lip is most superb. It was obtained by crossing Cattleya Mossiæ with Lælia purpurata, and combines the best features of each.

—— The first volume of the reissue of *Yarrell's History of British Birds* (Van Voorst), under the editorship of Prof. Newton, is now completed. It is needless to say anything in commendation of so well appreciated a book.

—— Messrs. Edmonston & Douglas, Edinburgh, will shortly publish, in one volume, demy 8vo, with illustrations on wood by Whymper, *Saskatchewan and the Rocky Mountains*; a diary and narrative of travel, sport, and adventure during a journey through the Hudson's Bay Company's territories in 1859 and 1860. By the Earl of Southesk, K.t., F.R.G.S.

HORTICULTURAL EXHIBITIONS, 1875.

FEBRUARY.

17.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.

MARCH.

3.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.

10 and 11.—Leeds Horticultural Gardens Company. Spring Flower Show. Sec. and Manager, James Birbeck, 103, Hyde Park Road, Leeds.

16.—Manchester Botanical and Horticultural Society's Floral Meeting in the Town Hall. Manager, Bruce Findlay.

17.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees. Hyacinth Show.

24.—Glasgow and West of Scotland Horticultural Society. Spring Exhibition. Sec., F. G. Dougall, 167, Canning Street, Glasgow.

31.—Royal Botanic Society, Regent's Park. Spring Show. Sec., W. Sowerby.

APRIL.

7.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.

21.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees. Early Rhododendron Show.

22.—Royal Horticultural Society of Ireland. Spring Exhibition. Sec., A. Balfe, 28, Westland Row, Dublin.

27.—Manchester Botanical and Horticultural Society. Exhibition of Auriculas, &c., in the Town Hall. Manager, Bruce Findlay.

THE

Gardeners' Chronicle.

SATURDAY, JANUARY 16, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY,	Jan. 19	Sale of Pigeons and Poultry, at Stevens' Rooms.
WEDNESDAY,	Jan. 20	Royal Horticultural Society: Meeting of Fruit and Floral Committees, at 11 A.M.; Scientific Committee, at 1 P.M. Sale of Dwarf-trained Fruit Trees, Roses, Shrubs, &c., at Stevens' Rooms.
THURSDAY,	Jan. 21	Meeting of the Linnean Society, at 8 P.M. Sale of Lilium auratum Bulbs, at Stevens' Rooms.
SATURDAY,	Jan. 23	Sale of Hardy and Ornamental Trees and Shrubs, Fruit Trees, &c., at Stevens' Rooms.

IN the midst of disquieting rumours concerning the future of the ROYAL HORTICULTURAL SOCIETY, which, whether partially true or wholly false, shake public confidence and prevent useful development, it is satisfactory to have to announce the inauguration, on Wednesday last, of a series of EVENING LECTURES ON HORTICULTURAL SUBJECTS at South Kensington. These lectures were suggested by the present Secretary, Mr. W. A. LINDSAY, to the Council, and were by that body at once sanctioned, as likely to tend to the fulfilment of what should be the main object of the Society—the advancement of horticulture. The remarks with which the Secretary prefaced the inaugural lecture were much to the point, and evinced a just appreciation of the claims of science in general, and of horticulture in particular. At no time, he remarked, was horticulture, whether as a science or as a practical art, of more importance than at present. Very appropriately and very dexterously did he remind his audience that life, whether manifested in the plant, in the insect, in the animal, was one and the same throughout all Creation, and reached its climax in man. A knowledge of the simpler life in plants is, therefore, an essential preliminary to an acquaintance with the life history of animals and of man. Continuing in this vein Mr. LINDSAY had no difficulty in finding an excuse—not that any such was needed—for the establishment of a series of evening lectures at South Kensington. The noise and confusion incident to the general meeting, the mass of routine business to be got through, the distractions caused by those who come rather to see and be seen, than to listen to learned dissertations, the time of the meetings, which prevent young gardeners and others with business avocations from attending—all these were urged as reasons for the course adopted by the Council. It was pointed out, in addition, that though amongst practical horticulturists the most cherished traditions are those connected with Chiswick, yet South Kensington was not destitute of a horticultural history prior to the establishment of the Society in that locality. One of the most celebrated nursery gardens—that of LONDON & WISE—occupied, in fact, the site of the Kensington garden,—a nursery established in the reign of CHARLES II., and which maintained a well-merited reputation for a long series of years. Allusion was also made to the services which the Society had rendered in past times to horticulture by the despatch of collectors to various districts, and by the introduction, through their agency, of a very large number of useful and ornamental plants. With such prefatory matter did the Chairman introduce Professor DYER, the lecturer of the evening.

The Professor, taking up in a measure the strain of the preceding speaker, soon made it apparent that plants had a life of their own as marvellous as that of animals. It is the general recognition of this fact that is doing so much at present to restore botany to a position whence it ought never to have fallen. For some years botany was taught and studied as if it consisted merely in the determination of variations of the external form of particular parts, in the application of uncouth names to those variations, and of equally unfamiliar names to individual plants distinguished one from another by the diversities just mentioned. All the time this, and little else but this, passed current for botany, it is no wonder people of intelligence sneered at it as an agreeable pastime, and held it in no esteem as an intellectual exercise, and but slightly for its practical utility. Nowadays, thanks in no small measure to Mr. DARWIN, this has been changed. An intelligent purpose and a definite end is seen to underlie even the most apparently trifling and minute variations.

The special subject chosen by the lecturer to illustrate his remarks was the development of Ferns from spores. With great clearness Professor DYER sketched the growth of the spore into a small green plate or prothallus, the formation of reproductive organs of two sexes on the prothallus, and the subsequent growth of a perfect plant thereon as a direct consequence of the contact of the spirally-coiled ciliated filaments of the antheridium or organ analagous to the anther, with the cells of the pistillidium, or organ analogous to the pistil of flowering plants. The possibility of effecting artificial hybridisation was thus made manifest, and allusion was made to the cases in which this is supposed to have taken place naturally, as in many Gymnogrammas, &c.

To those who had already a general familiarity with the details described, the most novel and interesting portion of Professor DYER'S remarks were those relating to the history of the subject prior to the remarkable discoveries of NAEGELI and SUMINSKI. The share which MORISON, the Oxford botanist, and, later, Dr. LINDSAY, took in sowing the spores of Ferns and studying their development is, we are confident, very little known even among professed botanists; and while referring the reader to our report of Professor DYER'S lecture in another column, we may thank him for unearthing historical details which have been well-nigh forgotten. It is curious to learn that while Sir THOMAS MILLINGTON was among the first to discover the proper function of the pollen, and in all probability in the Oxford Botanic Garden, MORISON was the first to sow the spores of Ferns and watch their germination in the same academic garden. The Oxford garden derives additional claims to the respectful attachment of English botanists from this circumstance.

Pending the realisation of what has been the dream of so many interested in horticulture, both in and out of the several Councils of the Society, viz., the establishment of a thorough school of horticulture, scientific and practical, in connection with the Society, great good might be done by carrying out a more modest programme. Of this the series of lectures which has furnished us with a text may well form part. How valuable, for instance, would be a series of practical demonstrations of the proper way of pruning fruit trees, such as are given annually in almost every rural district in France—practical demonstrations, accompanied by sound explanations of the "reason why." We have mentioned pruning as a good subject for rational demonstration, but it is only one among many which might be so treated at little cost to the Society, and to the great benefit of young horticulturists and amateurs.

—— WE have received from Mr. ELWES a prospectus of a MONOGRAPH OF THE GENUS LILIUM which he proposes to publish, with the assistance of Mr. W. HOOD FITCH as the artist. Messrs. WILSON, MAX LEICHTLIN and BAKER have one and all most liberally placed at Mr. ELWES' disposal their specimens, notes, and drawings. A splendid series of oil paintings in the possession of M. LEICHTLIN will serve to illustrate those few species which it is impossible to obtain in a living state. It is proposed to publish a series of folio plates uniform with those of Mr. BATEMAN'S "Monograph of Odontoglossum," which will be drawn on stone from life by Mr. FITCH, coloured by hand in the best style, and accompanied by a complete account of the native countries, culture, varieties, and history of all known Lilies. These will be issued in parts containing eight plates each, at the price of one guinea per part; but this cannot be done in a manner worthy of the subject without the support of a large number of subscribers. The work will be commenced at once, and completed in six parts, which (unless new Lilies are discovered in the meantime) will, it is thought, be sufficient to include all the species, as well as many of the finest varieties. Each part will also contain a large engraving, reproduced from a photograph, of the scenery of the countries where Lilies are most abundantly found—as Japan, the Himalaya, and California. Woodcuts and coloured drawings of the bulbs, seed pods, &c., will be added. Subscribers' names should be sent to H. J. ELWES, Esq., 6, Tenterden Street, Hanover Square, London. We earnestly hope that this spirited proposal will meet with the encouragement which it merits.

—— HYACINTHS and TULIPS in flower in considerable numbers have for a few weeks past appeared in our flower markets, and in the windows of the shops of the flower dealers. Certain varieties are selected because somewhat precocious, and the bulbs—keeping those of each variety separate—are planted as thickly as possible in shallow wooden or zinc trays in about 3 inches of fine soil, and the boxes placed in a brisk bottom-heat. In a month or so the coloured flowers begin to show themselves, and two or three bulbs of equal height and of a similar stage of development are placed in a 48-pot, and they perfect their flower-spikes without appearing to receive any check. They can also be planted in drawing-room boxes, jardinets, vases, &c., or mingled with other plants in more elaborate displays. Tulips and other early-flowering bulbs are similarly treated, but in the case of the Tulips certain varieties are specially selected, such as the Van Thols, Yellow Prince, Tournesol, White Pottebakker, &c. They are simply pulled up from the boxes, and the dense tufts of roots potted in soil as in the case of the Hyacinths, two, three, or four occupying a pot, according to its size. In some cases two white and two scarlet, or two yellow and two scarlet, are placed in a pot, affording bright contrasts. Many thousand bulbs are yearly grown in this way. The easy and rapid manner in which they can be got into flower enhances the value of their brilliant hues at the dead season of the year.

—— In the description of the HATFIELD GARDENS, given in the Special Supplement of the *Gardeners' Chronicle* some time ago, the writer commented especially on the immense quantity of salading planted out there, and described it as growing by the acre; and indeed he was right, for the consumption daily is something enormous. Some idea of the quantities used may be formed when we state that 5000 heads of Celery are grown, together with a quarter of an acre of Chicory, and Endive and Lettuce by the tens of thousands. In five days, in mid-winter, the consumption of Endive has been 800 heads, independent of Lettuce, Chicory, Corn Salad, Cucumbers, the different varieties of Cress, &c. The call for Parsley, we understand, is also very great, and Chervil is almost daily required in quantity.

—— Apparently the high-coloured PRIMROSES of the vulgaris type which have been raised of late years show a precocity not exhibited by cultivated plants of the common Primrose of the fields. There can now be seen in the seed grounds of Mr. R. DEAN, at Bedfont, a bed of strong seedlings raised from

some of the most approved types, that are rapidly coming into flower, while established plants that flowered last spring for the first time have continued to throw up their flowers since October last. It seems matter for regret that such charming bright blossoms should be furnished at a season of the year so ill calculated to show them off to the best advantage; at the same time it demonstrates the value of the Primrose in the mixed border. Tufts of Primroses in February and March, even if cradled in the storms that sometimes prevail at that season, are yet welcome objects, and they gild the lengthening days with the bright promise that the tardy springtime cannot be much longer delayed.

—— At a recent meeting of the Central Horticultural Society of France, M. LEMOINE of Nancy contributed a note on the appearance of VARIEGATION IN THE LEAVES OF THE STOCK, after and in consequence of the engrafting upon it of a scion with variegated leaves. Two cases are cited, the stocks being different, the scion the same, in both cases. The stocks were furnished by a variety of Passiflora Raddiana (kermesina of gardens), and by Passiflora Impératrice Eugénie (supposed to be a hybrid between P. cœrulea and P. Decaisneana or P. alata). On both of these stocks was grafted a variegated scion of the variety known as P. quadrangularis aucubæfolia. The graft was effected *en placage*, marched, consequently the branch of the stock above the graft was not cut away but allowed to remain. From this branch, above the graft, branchlets were produced which bore variegated leaves. Cuttings were taken from them, and the result is that two variegated varieties have been produced, which will be distributed by M. LEMOINE in the ordinary way. M. LEMOINE remarked that the variegation was most intense on those shoots issuing from a green stock, the graft on which, though alive, had never grown, and had even lost its leaves after two or three months. M. LEMOINE further cited a converse illustration, where a scion of Passiflora vitifolia (Tacsonia Buchanani of some gardens) was engrafted on a stock of the variegated P. quadrangularis. The scion or graft now begins to show variegated leaves. In this case it is the variegated stock which has induced variegation in the scion, while in the preceding instances it was the graft which communicated to the stock the tendency to produce variegated leaves. These are excellent illustrations of the reciprocal influence one on the other of scion and stock, of which we have had occasion to record several instances, and which seem to us to afford conclusive evidence of the incorrectness of the old notion, still held by some gardeners, that the stock has no influence over the scion, and *vice versâ*.

—— MM. BALTET, of Troyes, took the *Prix d'Honneur* for a collection of 350 varieties of fruit at the October exhibition in Paris. MM. BALTET'S Pears, Peaches, and other fruits were arranged in alphabetical order. The collections of M. CROUX and of M. JAMIN contained respectively 550 and 400 varieties, for which gold and silver-gilt medals were awarded.

—— A handsome SILVER MEDAL has been forwarded, through the Italian Ambassador, by the Royal Tuscan Horticultural Society, to some of those gentlemen who took part in the BOTANICAL CONGRESS AT FLORENCE.

—— At a meeting of the SEVENOAKS GARDENERS' AND AMATEURS' MUTUAL IMPROVEMENT SOCIETY, held on the evening of Jan. 6, Mr. BLIGH, gr. to A. SWANZY, Esq., read a paper on the CULTURE OF FLOWERING BEGONIAS, in which he traced their introduction, and fully explained his mode of culture, and the best varieties for cultivating for general and exhibition purposes. Some discussion ensued as to the treatment for exhibition plants, in which several members took part, and ultimately a vote of thanks was passed to Mr. BLIGH for his contribution. Mr. TALMAGE gave notice that at the next meeting he would read a paper on the Cyclamen, and Mr. BEACH said that he would read a paper in March on the culture of the Hyacinth.

—— We earnestly hope that the provisions of the ADULTERATION OF SEED BILL, which was passed some year or two since, may be put in force whenever necessity arises. Still more do we hope that the good feeling and moral influence of the trade may suffice to knock this hydra on the head without resort to legal penalties. Respectable seed-houses should endeavour to maintain, not only their own good character, but, so far as in them lies, the respectability of the trade.

—— In the *Monthly Report of the American Department of Agriculture* for October, 1874, Mr. TAYLOR gives his notes on the cause of a disease known as the CRANBERRY ROT OR SCALD. We have already alluded to the very large scale on which Cranberries are cultivated in the New England States, and have pointed out how easy it would be to establish a similar culture in many parts of Scotland, Ireland, Wales, or even in some parts of England, at present left wholly uncultivated. Due precautions must, however, be taken to ensure that there be no stagnant water in the bogs where they are cultivated, else the soil becomes sour and charged with sulphuretted hydrogen, the roots become diseased, and the fruits rot. The circulation of water and thorough drainage appear to be essential to success. To give some idea of the extent to which Cranberry culture is practised in New Jersey alone we may add from the report in question the following particulars:—

"The recent statistical report of N. R. FRENCH to the New Jersey Cranberry Growers' Association shows the entire acreage in New Jersey, under regular cultivation, to be 4969 acres. Average cost at three years from setting (the fruit-bearing age), 334.50 dols. per acre, making total investment 1,662,130 dols. Crops in

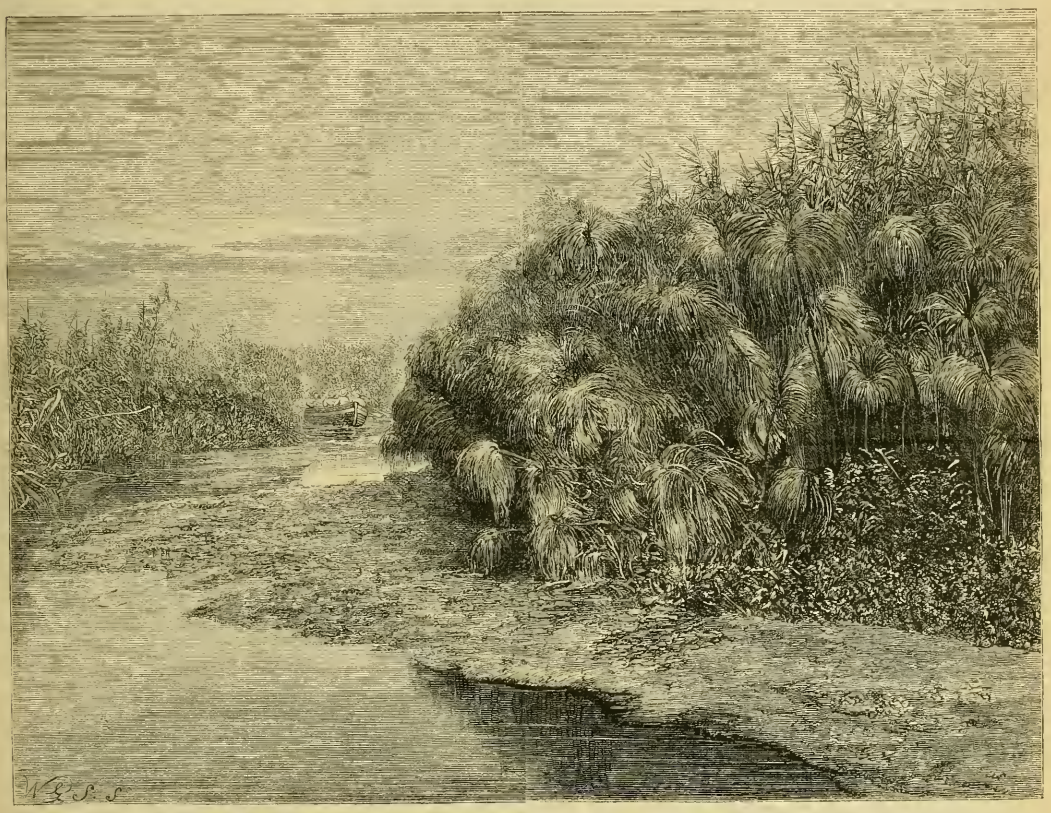


FIG. 14.—THE PAPYRUS AS GROWING ON THE ANAPO RIVER, NEAR SYRACUSE: FROM A PHOTOGRAPH. (FOR DESCRIPTION, SEE P. 78.)

this State have been, in 1871, 58,839 bush.; in 1872, 93,322 bush.; 1873, 116,409 bush. The average market prices have been in the years named, 3.42 dols., 3.21 dols., 2 93 dols. respectively. Abating 1 dol. per bushel from market price for cost of picking and marketing would make the crop of 1873 worth, on the vines, 224,716 dols., or 13½ per cent. on the entire investment.

"The New Jersey fruitage in 1873 was most bountiful, but 40 to 50 per cent. was destroyed by the rot. This season the average fruitage upon old plantations is believed to be 30 to 40 per cent. below last year, but the rot on these has not been so severe. New bogs have suffered most, as usual, the entire crop in many cases being lost. Allowing for increase of acreage, we think the entire crop of the State must be 25 per cent. below that of a year ago.

"The crop on the eastern portion of Cape Cod is very light, and in many districts almost an entire failure. The western portion and the adjoining islands have good crops. The other Cranberry districts of Massachusetts and Rhode Island, nearly all of them, have good crops. The few plantations on Long Island and other portions of New York have good crops.

"The fruit not affected by New Jersey rot seems sound and solid, promising to keep well."

—— M. ROGER, in the *Bulletin* of the Central Horticultural Society of France, declares that from *à priori* reasons it must be impossible to GRAFT a scion on the TUBER OF A POTATO, but, as we doubt the correctness of his premises, we prefer to rely for the present on the experiments of Mr. FENN, which we have seen, and which appear to us in some particulars to contradict M. ROGER'S preconceived ideas.

—— We have been favoured with the following copy of a letter addressed to Professor ASA GRAY by Mr. JEAN SISLEY, of Lyons, on the subject of the WEARING OUT OF VARIETIES:—

"In reply to an article which you published in the *New York Tribune*, and in which you have done me the honour to quote me, I take the liberty of pointing out to you that there are in my opinion two incontestable facts—1st, the unity of life under all circumstances; 2d, that every individual is a variety.

"From this it follows, that throughout the universe, and through all created beings, life is transmitted in the same way: that every being that is born must die, and re-enter into universal life, to give place to others of its species, or in a more perfect condition than itself: that variability is everywhere manifest: that there are not two leaves of the same tree that resemble one another identically: that there are not two beings exactly alike, even in the case of twins: that the seeds of the same plant, of the same capsule, never reproduce identically the parent plant: and that no one of them is ever identically the same as others, even amongst annual plants.

"If this be true, man cannot by artificial means perpetuate what Nature has made variable; man has not the power of changing natural laws.

"Can those who say that man can by artificial means indefinitely prolong the existence of a variety (individual) furnish any proof of it? Is the life of man long enough to enable him to know the duration of the life of a plant? We know that annual plants die as soon as they have accomplished the act of their reproduction, and that is all. Has the duration of the life of perennial plants been studied? I think not.

"An objection may be raised to the extinction of varieties, that Nature has provided a large number of plants with the power of continuing their existence by suckers, tubers, or rhizomes. But as Nature has, side by side with this means of reproduction, placed that of the continuation of the race of the species by seed, I conclude that the first method can only be temporary, and that the second permits us to conclude that Nature does not desire the perpetuation of the variety, because it would be in contradiction with the law of variability. Why does man study the laws of Nature? Why does he endeavour to penetrate their mysteries, if it is not to apply them to his wants? Of what use would that knowledge otherwise be to him? It is a useful thing, therefore, for man to know that varieties cannot be perpetuated. Knowing this, man avails himself of the means that Nature offers to him to regenerate varieties and improve races. It is this which is being done instinctively and unconsciously for the Potato and for various fruit trees, and which is done every day in the different branches of horticulture."

—— According to some recent researches of M. MAYER, of Heidelberg, PLANTS have the POWER OF ABSORBING, by their leaves, carbonate of ammonia, in vapour or in solution in water. The nutrition of a plant by means of ammonia absorbed in the manner above mentioned, may induce a more vigorous growth and increases the proportion of organic matter. The amount of absorption varies greatly in different parts of the same plant. Although plants can be made to absorb ammoniacal gas artificially, it does not appear that in a natural state they absorb ammoniacal gas from the air in quantities large enough to be appreciable. The roots constitute the only medium through which plants receive the nitrogen which is indispensable for them, the quantity absorbed by the leaves being too minute to be of any practical importance.

—— A tree that deserves to be planted more extensively is the LUCOMBE OAK, Quercus Cerris, var. subperennis. At the present time, after the cold weather we have experienced, it holds its foliage and looks as cheerful as at the beginning of autumn. The leaves are a bright glossy green, and otherwise like the ordinary Q. Cerris, though they may be a trifle thicker. There is a fine specimen of it at Kew, in the "Sion Vista," just within the Botanic garden, on the right-hand side entering from the pleasure grounds. If this be merely a seminal variation, as LOUDON states—"raised by LUCOMBE, a nurseryman, at Exeter, from seeds of the species, about 1762"—it is rather perplexing. But it seems far more probable that it is of hybrid origin.

—— According to M. BOISDUVAL, the POTATOS in ALGERIA have been very severely injured by the larva of a Tineinous moth belonging to the genus Bryotropha, and called B. solaoella. The insect deposits its eggs on the young shoots of the Potato, the caterpillars, scarcely thicker than a hair, penetrate into the tuber, which they tunnel in all directions. No remedy is at present known for the ravages of this new pest, which is fully described in a recent number of the *Bulletin of the Central Horticultural Society of France.*

—— In view of the forthcoming FLORA of the MAURITIUS and SEYCHELLES, which Mr. J. G. BAKER, of the Kew Herbarium, is now at work upon, the following notes from a letter of Mr. JOHN HORNE, of the Botanic Garden, Mauritius, addressed to Dr. HOOKER, may be of interest. Mr. HORNE has but recently returned to Mauritius from a three months' tour in the Seychelles group. The islands visited by him were Mahè, Praslin, Silhouette, Felicité, La Digue, Aux Frigates, St. Anne's, and Aux Cerfs—all of which were thoroughly explored botanically, the result being the collection of about 300 species, the bulk of which, Mr. HORNE says, he had not seen in his previous tour in 1871. These collections are to be sent to Kew, indeed a portion of them is on its way at the present time; and though many of the species will doubtless not be new to that establishment, they may prove interesting in a geographical point of view. Another point of interest is that of the similarity of the flora of one part of the world with that of another, and perhaps a widely distant one. Thus Mr. HORNE thinks at a glance, without, of course, considering the subject minutely—opportunities for which will be presented when the specimens are worked up at Kew—that the flora of the Seychelles will be found to have closer affinities to the floras of Madagascar, East Africa, Southern India, the Malay Islands, and Polynesia or Oceania, than to those of either Mauritius or Bourbon. The collections before referred to do not contain a single plant which is confined to the islands of Bourbon, Mauritius, and the Seychelles. Numbers of the same genera and species are of course common in all these islands, but are equally common in other countries. On the other hand, the largest portion of the genera and species of the Seychelles are also common in all or in many instances to one or other of the first four places mentioned above—namely, Madagascar, East Africa, South of India, and the Malay Islands. Illustrations of this are to be found in Campnosperma zeylanicum, an Anacardiaceous tree of Ceylon, which is amongst the commonest plants in Seychelles. Dittelasma Rarak, a Sapindaceous tree of 50 or 60 feet high, common in the Malay peninsula and Southern China, is also abundant in the Seychelles, while the Madagascar and East African species are exceedingly common; and of the Oceanic or Polynesian flora; which likewise has many representatives, may be mentioned Barringtonia speciosa and B. racemosa, both trees belonging to the Myrtaceæ; Calophyllum Inophyllum, a very useful Guttiferous tree, growing to a height of some 80 or 100 feet; Heritiera littoralis, a Sterculiaceous tree; Cordia subcordata, and others. Two or three species of Calophyllum are indigenous to Mauritius, but C. Inophyllum is not amongst them. Again, several Oceanic genera and species, though common in Seychelles, do not occur in Mauritius. The geological formations of the several countries as well as the oceanic currents may probably affect the distribution of plants. Seychelles, Madagascar, East Africa, Southern India, and many of the Malay and Polynesian Islands are granitic, and during the whole or greater part of the year a strong sea current passes Seychelles from the east. Interesting as this group of islands is, Mr. HORNE points out the great desirability of a complete exploration of the large and more popularly known island of Madagascar. He thinks that when the plants of this island are better known many will be found there that are now considered peculiar to Seychelles. So satisfied is he as to the great interest and value of the Madagascar flora, that he strongly recommends any young man who wishes to make a name for himself to devote a year or two to exploring and collecting the plants of Madagascar.

—— We learn from the *Sydney Mail* that a meeting was held in that city in October last, to consider the advisability of forming a society for the cultivation of the science of natural history in all its branches. It was resolved after some discussion that such a society should be formed, under the name of THE LINNEAN SOCIETY OF NEW SOUTH WALES, and that the officers should consist of a President, Vice-President, Secretary, Treasurer, and a Council of six. The following gentlemen have been requested to accept the respective offices:—President, Mr. MACLEAY; Vice-President, Sir. W. MACARTHUR; Secretary, Captain STACKHOUSE; and Treasurer, Mr. BURTON BRADLEY.

—— DENDROBIUM TETRAGONUM, a very distinct and interesting species, is now in flower in the Orchid-house at Kew. It is chiefly remarkable on account of the tetragonal pendulous stems, which are produced in a dense fascicle. They have a globose tuberous base, from which they are slender for one-third to three-fourths of their length, then gradually thicken to rather more than the size of a pencil, and bear at the extremities two or four elliptical lanceolate leaves. The flowers are borne in short racemes of from one to six, usually terminal, but sometimes axillary on the thicker portion of the stem. The two lateral sepals are curiously twisted. From the tip of these to that of the dorsal sepal the blooms are 4 inches across, and though of a dull yellow appearance, yet from their profusion in this instance they make some attempt at display. It is a native of Moreton Bay, whence it has been received by the Royal Gardens, and also by the Messrs. Rollisson, from one of whose plants it was figured in the *Botanical Magazine* of 1872. On a block in a cool house it is easily made to flourish.

—— A JUBILEE *fête* will be held, from April 4 to 7 inclusive, at Antwerp, by the Royal Horticultural and Agricultural Society of that city. The exhibition is open to British exhibitors. One hundred and twenty-four classes are mentioned in the schedule. The exhibition promises to be one of importance. Baron CONSTANTIN DE CALERS is the President, and M. ALPHONSE DE COCK Secretary.

—— The ROYAL HORTICULTURAL SOCIETY OF LIÈGE will hold its twenty-third exhibition on March 28 and 29. Ninety classes are comprised by the schedule. The President is M. O. LAMARCHE DE ROSSIUS, and the Secretary Professor EDOUARD MORREN.

—— At a meeting of gardeners and nurserymen, held at the George Inn, Ashford, Kent, on the 7th inst., it was decided to form a Gardeners' and Amateurs' Mutual Improvement Society for that district.

Home Correspondence.

The Weather in the West of Scotland.—The change of weather in the West of Scotland came rather rapidly, beginning with the last quarter of the moon and going on steadily. The ice in the Clyde was of much greater thickness than I had estimated, some of the blocks nearest the water's edge measuring 12 inches thick. There has been no such sample in this quarter for fourteen years. So far as I can estimate, most of the choice shrubs and trees have escaped nearly uninjured, showing clearly that the frost of December 24 and 25, 1860, amounting to 45° below the freezing point, was mainly instrumental in doing the vast damage among Conifers, Laurels, &c. In Scotland generally the frost during last December has been continuous and severe, accompanied in many districts by a heavy fall of snow and dense fog. *James Anderson, Meadowbank Nursery, Jan. 6.*

Electro-culture.—Just two years ago, in the pages of this Journal, I gave an account of an experiment, in reference to "galvanism in plant cases," upon Cress-seed, showing that while a healthy and luxuriant growth took place around the negative pole, at the positive pole the seeds sprouted "heels upwards," made very little growth, but were impeded with fungus mycelium. Soon after the appearance of this announcement I received a communication from Paris, where the subject appeared to have excited some degree of attention, and has evidently not been lost sight of, for in the current number of the *Monthly Journal of Microscopic Science* I find the following paragraph, proving that the principle of action is not confined to the vegetable kingdom alone, but that it is equally applicable to animal life, and hence there is little doubt but that it is one of the general laws of Nature, the cultivation of which may be turned to very great practical advantage:—"Action of electricity on frog's spawn.—M. Onimus, in a recent communication to the Société de Biologie, of Paris, states that by electrifying the eggs of the frog, the development of those which are in connection with the negative pole will be accelerated, whilst the hatching of those in connection with the positive pole will be either retarded or stopped." *W. A. Bridgman, Norwich.*

Flower Shows.—Mr. Shuttleworth, in his letter of the 9th inst., appears to have adopted the legal motto, "Win, tie, or wrangle." He has made serious charges; and, though boasting of "courage," has not yet mustered sufficient to plainly expose what

he has "seen plenty of." A general charge is indefinite, and does not give managers or secretaries of horticultural societies any opportunity to explain or refute the assertions made. If Mr. Shuttleworth wishes the evils he complains of remedied, he ought to say where and when they happened, "like a man." As to the challenge, allow me to say that I cannot accept it, having no desire to drag plant growing or showing down to the level of horse-racing, though even racing men buy yearlings and grow them on. *J. Croucher, gr. to J. T. Peacock, Esq., Sudbury House.* [Mr. Croucher having exercised his right to reply, this discussion must now cease, so far as our columns are concerned. EDS.]

Yucca gloriosa var. angustifolia.—We have a Yucca gloriosa var. angustifolia pushing forward its bloom. The spike is about 15 inches in length, on a stem of nearly 3 feet, elevated nicely above the centre leaves. We gave it a "cap" of straw, during the late severe weather. Is not this a rare occurrence? [No. EDS.] *Harrison & Sons, Leicester.*

Calluna vulgaris.—Some time since Mr. S. J. Salter forwarded to us some singular specimens of Calluna vulgaris, which were subsequently exhibited at the Scientific Committee of the Royal Horticultural Society, and which we have now the opportunity of figuring. The peculiarity consists in the densely tufted branchlets, which form ball-like masses (fig. 15, A, C). In one instance (fig. 15, B) the branchlets have lengthened, but have assumed a downward direction. This variation was found

in great abundance near Poole Harbour, in Dorsetshire. We do not remember to have seen it before, nor is it, so far as we know, in any of the nurseries. We have not been able to discover the cause of this singular growth, to do which would probably necessitate an examination, on the spot, of specimens in various stages of growth, and especially when very young. It is conceivable, however, it may have been caused by insect puncture in the first instance, as in the case of the not dissimilar growths so common in the Birch; or it may be the result of some check to growth arising from browsing of cattle, frost, or exposure to wind, though, if the latter were the cause, we should not expect to see so uniform a shape.

Celosia pyramidalis.—I send you with this some cut blooms of Celosia pyramidalis, that you may see how valuable they are as decorative plants at this season of the year, provided the strain obtained is a good one [as yours appears to be, from the specimens received. EDS.]. For supplying cut flowers they are unrivalled, as few things equal them in lasting qualities, and their light, elegant, drooping habit and fantastic forms add a charm to a vase of flowers quite unapproachable by anything else at this season. For dinner-table decoration they are unsurpassed, as they are of the most symmetrical form, and the rich plumes droop over in the most graceful manner, and form a pleasing contrast to the white cloth, silver, and all the etceteras of a well-appointed dinner-table. To have them in perfection at this season of the year they should be sown in heat in April or early in May, and as soon as the young plants are large enough to handle, they should be pricked out in light rich soil, and replaced in gentle moist heat for a fortnight or so,

FIG. 15.—A, B, C, PECULIAR MOP-LIKE GROWTHS OF CALLUNA VULGARIS.

after which they will be fit to pot off singly in small pots. They should then be replaced in gentle moist heat, and sufficiently near the glass to prevent them from becoming drawn. As soon as the roots fairly touch the sides of the pots they should be shifted on into larger, continuing to use a moderately light, rich compost, as before. If convenience exists for plunging them in a bed of gently fermenting material, the growth will be more rapid; but they must have sufficient space between them to keep the bottom of the plants well furnished, or their beauty will be spoiled, as they will not produce their inflorescence down to the pot, or assume that perfect pyramidal form that adds so much to their beauty. If grown in a house, care must be taken that they do not become dry at the root, or receive a check in any way, or red spider will be the result. To prevent the attacks of this pest they should be heavily syringed and closed early on the afternoons of bright days. As soon as the nights become cold they should be moved to a nice light position in a cool stove or temperate house, where they will continue in beauty all through the winter. If wanted for summer decoration the seed should be sown now, and the plants grown on in cool stove heat, with plenty of light and air to keep them stocky. Even for summer decoration they have few equals, and add variety to the ever-recurring Fuchsia, Balsam, Zonal Pelargonium, &c. *J. Sheppard, Woolverstone.*

Successful Lifting of Fruit Trees of a Large Size.—Samuel Batesen, Esq., of Cambusmore, Sutherlandshire, had occasion to lift some of the fruit trees in his garden some three years ago. Several of the trees were of rather large size, and the following method was adopted. About the first week in August a trench was cut round the trees, and the strong roots, as far as practicable, were cut back, and the ends seared with a red-hot iron. Some finely sifted soil mixed with leaf-mould was placed round the roots, and the trenches filled in again. The trees were allowed to stand till the following March, when they were

lifted, and it was then found that all those strong roots that had been treated as above had emitted a large number of small rootlets. The trees were then carefully replanted and properly staked, and the success has been most complete. I trust to have something more to say by-and-bye about this beautiful place. *John Downie, West Coates, Edinburgh.*

Hybrid Pelargoniums, &c.—My attention has been directed to some letters in the *Gardeners' Chronicle* on the crossing of Geranium pratense (the blue field Geranium) with the Zonal Pelargonium Madame Vaucher. Will you, therefore, allow me a small space in your journal to say a few words on the subject of various crosses from my own experience? There can be no doubt with regard to my seedling Pelargonium, Mrs. Illingworth, being a true cross between G. pratense and Madame Vaucher; the habit is different and more bushy than Madame Vaucher, the leaves are unlike any Zonal, the cluster of bloom is large, the colour pale pink, and the petals closely copy silver paper in texture, hanging down and giving the blooms a distinct and elegant appearance. Another variety, Hebe, differs in having the colour a brick red, and this variety proved very hardy out-of-doors last summer. Several varieties have a bluish-pink tinge. A large number of the seedlings are white, many had evidently not taken the pollen of G. pratense, and scarcely differed from Madame Vaucher, yet Pixy, Puck, Leda, and Liberatrix,

though all white-flowered, are most certainly crosses. The two first-named have the individual blooms very small; Leda will stand a month's incessant rain without its colour changing from a pure white, whilst Madame Vaucher, with a week's rain, will be quite pink. Liberatrix is a grand white flower, but has not yet been planted out-of-doors. I cannot understand why so many persons believe that seedlings take more after the male than the female parent; in my experience only three plants out of 200 had the leaves and habit of G. pratense, and out of nearly 100 seedling Fuchsias, using fulgens as the male, only one had the leaves of that variety. Three months ago I gathered a number of seeds from Fuchsia fulgens, which had been crossed with Delight and other varieties with white corollas, also a number from various varieties that had been crossed with fulgens, so that this summer I hope to strengthen my views. From a number of years' experience, I have formed the opinion that the habit of a plant and the form of its flowers takes after the female plant, whilst colour is given by the male. For many years, where practicable, I have always used a white-flowered plant of good habit for the female, impregnating it with coloured male pollen in order to produce new tints. By carrying out this plan I raised the Imperial Blue Pansy, and, by persevering in the same manner, do not despair of raising a blue Pelargonium. Last summer I was exceedingly successful in raising new varieties of Fuchsias and Pansies. By crossing Fuchsia Sedan with F. fulgens, using the former as the female parent, a cross was obtained which has been named Polyhymnia, having orange-scarlet flowers of large size, a small leaf, and an excellent habit; it is so remarkably distinct and pretty that it must become a general favourite. Another cross, named Concordia, with a strong habit, has the tube and sepals scarlet and the corolla purple and very large, the sepals curving in a very graceful manner; a third, Fortuna, is deep scarlet, with a large purple corolla; and a fourth, Titania, using the small-leaved variety pyramidalis as the male, has the flowers scarlet with a mauve coloured corolla: this variety is quite unlike anything else yet raised. Turning to Pansies, out of over thirty very fine varieties (carefully crossed) having strong vigorous habits and large well-formed flowers, the following may be mentioned:—Johanna, a rich dark blue-purple; Harmonia, deep blue (a splendid flower); Nysa, intense blue; Thyra, lavender-purple self (a splendid flower); Polyhymnia, a lavender self; Diana, pale blue; Brunhilda, black self; Sylvia, clear blue self; Daphne, lavender self; Gerda, dark blue; Olympia, a many coloured fancy; Galatea, blue and white fancy; Camilla, purple and white fancy; Melpomene, pink and white fancy; Pomona, white self with bright blue eye (a splendid flower); Clytie, lavender and straw-coloured fancy, (a splendid flower); Iphigenia, white with blue centre (a splendid flower); Flora, a much improved Imperial Blue; Conservative, another improved Imperial Blue; Princess Teck, a rich crimson-scarlet, purple and white fancy (a splendid flower). The above seedling Pansies have resisted seven weeks' intense frost unprotected, their constitution being as good as Imperial Blue. Mr. Pearson of the Chilwell Nurseries has my Pelargonium Mrs. Illingworth, and Fuchsia Polyhymnia, so that the public will soon be able to judge for themselves as to their claims. Allow me to point out that when a flower has been impregnated it needs no protection from insects, as no second impregnation will take place; care is, however, requisite before this operation, and all stamens should be cut from the female before they have ripe pollen, or the colour of crossing will be lost, indeed some flowers require dissection, as the pollen is mature before they become expanded. *E. J. Lowe, Highfield House, Jan.* 11.

Morello Cherry Training at Scone Palace.—Mr. George Smith (p. 45), in alluding to Scone Palace gardens in the year 1842, says, at Scone gardening as a mechanical art was carried out with great precision; and adds that "to be able to nail a large Morello Cherry tree quickly, with the branches radiating with the regularity of rays of light, and to be a thorough proficient with the scythe, were, with Mr. Dodds, indispensable qualifications for the diploma of a regularly qualified 'blue apron.'" Perhaps it may be gratifying to Mr. Smith to know that the same good points in the proficiency of a well-trained young gardener are, and have been for many years, strictly observed by Mr. Dodds' almost immediate successor, Mr. Halliday. Having had the pleasure of serving under the latter gentleman for some time, I may be permitted to say that nowhere in Great Britain or Ireland have I seen such large, well-trained, and particularly well-furnished Morello Cherry trees as those growing in Scone gardens. I am speaking of seven years ago, and, if I remember rightly, they were growing and trained against a wall (north), 18 feet high, in what was there and then known as the South Garden; and I may here add that the wall was furnished almost to the ground with regular and well-trained shoots. The trees seemed to be more long-lived there than in many other places which I am acquainted with. The bothy at Scone is one of the most comfortable and picturesque in the kingdom, and was erected in 1866, the old one having been previously destroyed by fire; but fortunately the young men escaped with their lives and property. Scone has produced many eminent men, including Messrs. Fish, Douglas, Smith, &c., and I am sure that the old reputation of the place will lose nothing while in the care of Mr. Halliday. *H. W. Ward, Longford Castle, Sarum.*

Gravel Walks.—The severe weather we have had has heaved walks to their foundations, and advantage should be taken of this to remake such as are not satisfactory, or to break up and turn such as are mossy or discoloured. If they are properly made, there will only be a small portion of fine gravel on the surface, and care should be taken not to disturb them too deep, so as to break up the coarse gravel beneath. In forming new walks, or remaking old ones, it is of the utmost importance to start with a good foundation, as success in forming a good firm, dry walk that will be serviceable in all weathers depends principally on this. The soil should be dug out to the depth of from 8 inches to a foot, and a drain laid along each side, so as to be connected with gratings to take off the surface-water, as this should never be allowed to soak into the walk. Any kind of gravel-walk is tolerably firm in fine weather, but one of the principal attractions of a garden at this season is to have walks that can be used when others are dirty and uncomfortable. After the drains are complete, half the depth dug out should be filled up with some good rough material, such as clinkers from ironworks, broken bricks, or rough stones. The former are preferable, as they present a good deal of rough, angular surface, that helps to bind and solidify the bottom, and prevents the annoyance of worms breaking through to discolour or disturb the surface. If chalk or lime cobbles can be obtained, sufficient to fill up all the interstices, it should be shaken in among the rough material; and where chalk cannot be obtained, fine binding gravel or burnt clay may be used as a substitute. It is the greatest mistake possible to have the rough material lie loose and hollow, as a firm walk can never be made on such a foundation. Many put in a rough, loose bottom, thinking to drain the walk, whereas water should never pass through, but he carried off the surface by properly formed drains. If the bottom of a walk lies hollow, it is impossible to have a hard, firm surface, as it will shift under the foot or roller, and never bind properly. After forming a thoroughly sound bottom as above, proceed with the next layer of stony gravel, not sifted too fine, and if this is sandy, or lacks binding material, a little fine dry marl or chalk should be added. The top 2 or 3 inches should be finished off with very fine stones, having just sufficient binding material left in to keep them together. Make thoroughly level, and roll down while dry, and after this advantage should be taken of wet weather to ply the roll till they are thoroughly settled and solid. One of the principal attractions of a garden in the winter season are walks that may be used with comfort, and if made as above they will always be dry and firm, and not subject to weeds, moss, or worm-casts. *J. Sheppard, Woolverstone Park.*

Jatropha australis, the "Australian Physic-nut."—Under these names I have several times met with an evergreen conservatory shrub, concerning which the owners could give me no further information. Among other places where I have observed it are the Liverpool Botanic Gardens, and the greenhouse at Alton Towers. It exists also in private collections at Arundel, Dukinfield, &c. In De Candolle's *Prodromus* the name is mentioned as belonging to something which had not been identified. This state of affairs being uncomfortable to me, I recently forwarded a specimen of the plant in question to Professor Oliver, confident that the resources of the Kew herbarium would enable him to determine it. With his accustomed courtesy and promptitude, Professor Oliver replied immediately, and for the sake of possessors of the plant who care for accuracy in their labels, I now make public the facts. This so-called Jatropha is not even a member of the Euphorbiaceæ. The proper name is Sterculia diversifolia, Don, or perhaps the variety occidentalis, referred to in Bentham's *Australian Flora*. Don gives as a synonym heterophylla, Cunn. MS. The specific name is well deserved, some of the leaves being lanceolate, with a very wide base; others in various degrees trifid, the lobes of the largest being 3 inches in length. They are leathery and glabrous, provided with long petioles, and alternate. Don seems never to have seen the inflorescence, and the plant does not appear to have blossomed in any of the collections where I have seen it. *Leo Grindon, Manchester.*

Crossing the Black Monukka Grape.—In 1870, at the instigation of Arthur Trollope, Esq., of Lincoln, I tried to effect a cross between the Black Monukka and Esperione Grapes. Mr. Trollope is an extensive grower of hardy Grapes, and was desirous of obtaining a seedless hardy early Grape for his collection. I took the greatest pains in effecting the cross, making the Black Monukka the male and the Esperione the female, and was rewarded with seven plants from the seeds sown. Three of these plants fruited last year, but none of them produced seedless Grapes, the bunches and berries being smaller than the Esperione, and their colour black. The berries were all round, like the Esperione, except on one plant that produced many seedless berries, but those perfect with seeds on the same bunch were oval, and like the shape of the Monukka. Like the cross which Mr. Barron effected between the Monukka and Black Hamburgh (p. 18), some of my plants showed a considerable likeness in their foliage to the Monukka, being deeply lobed like it. None of the varieties I have yet fruited are worthy of cultivation from this cross, and will be discarded. The late Lord Kesteven (Mr. Trollope's brother) sent me last autumn a white variety of Grape from Persia, said to be seedless, which if found to be so when fruited may prove worthy of cultivation. The Black Monukka I have fruited for several years, having had it from the Horticultural Society when first sent out. I have found it to be all that Mr. Barron writes in its favour, as to flavour and distinctness from any other variety grown. Here it is much esteemed for using in jellies, its long bunches furnishing no end of little ones, which can be cut off for that purpose. Along with the Monukka and Esperione seedling Grapes I was more successful last year in fruiting a seedling plant from a cross between Lady Downe's Seedling and West's St. Peter's. This variety, inarched this spring on a Lady Downe's in a late vinery, promises to keep as long as that variety, with the fine vinous flavour of West's St. Peter's. Last year it kept till the end of April plump and good although in a pot. It is very distinct in its appearance, the young wood being of a light purple colour, as well as the midribs of the foliage, and the bunches present the same peculiarity of Lady Downe's in coming with a shoulder nearly as large as the bunch itself. *William Tillery.*

The Doum Palm.—With reference to the use of the fruits of the Doum Palm (Hyphæne thebaica, see *Gardeners' Chronicle*, pp. 743, 814, vol. ii., 1874), I may perhaps be allowed to say that a quantity has recently arrived in this country, shipped from Bombay, with a view to their being applied to similar purposes as the vegetable ivory. The hard, bony substance of the Hyphæne, which is used in the East for rosaries, beads, &c., is, however, so small in proportion to the size of the fruit, that it is doubtful whether they will ever be profitable in a commercial point of view, though I am told that it is intended to import a quantity, with the "gingerbread" or rind removed, for the purpose of testing the market. *John R. Jackson, Kew.*

Mushroom Culture in Tan.—It may be of interest to some of your readers to know that Mushrooms can be grown in tan. I have grown them with great success for three years following in tan which had been used for hunting horses to trample on through the summer, and of course there is some of their manure incorporated with the tan. The genial heat that the tan gives renders it one of the best materials that can be used for the growth of Mushrooms. When well beaten together with the horse-dung, "and in sufficient quantity," I find the beds are more productive and last longer than with all horse-dung. The beds are, in fact, masses of clumps with as many as from twenty to fifty in each, which could be and were often taken up whole. Some may ask, Does not tan produce unwholesome fungi? With me, and used in the same way, there is no fear, for I have not found one spurious one. As to flavour, they were pronounced by those who partook of them to be very savoury and delicate. It must not be inferred that I recommend tan alone, but let a quantity be put in a loose box, or any other suitable place where a horse is shut up for a time, so that its manure is well incorporated with the tan, then use it when in a nice friable state, neither wet nor dry; if too wet the spawn will not run so well, and if too dry the beds will not keep in bearing so long. My experience leads me to think that tan will be much sought after when its goodness is more known to Mushroom growers, for I believe it to be superior to all droppings. *Charles Penford, Meynell Langley, Derby.*

New Tulips.—At p. 14, under the heading Florists' Flowers, there is an article about Tulips, wherein "R. D." states that nothing remarkable in Tulips has appeared of late. Permit me to inform him that last year two new species flowered with me, of which the one, Tulipa Eichleri of Regel, is a very pretty species, and the other, Tulipa Greigi of Regel, will outvie anything existing in this genus, as well in compact growth, size of leaf and flower, and coloration also. Indeed, the plant will be the mother of a new generation. The same will be exhibited in London in April next, and it will be worth while walking a few miles to see it. *Max Leichtlin, Baden.*

Baden. [Our correspondent referred to new garden varieties, such as were imported with other Dutch bulbs. EDS.]

The Late Severe Weather.—Although we have had such severe weather, few things appear to have suffered any ill-effects. This may, I think, be accounted for by the still state of the atmosphere, as the air was scarcely moved, and the snow remained where it fell, nestling at the axils of the leaves, and snugly covering the crowns of plants. There was an absence of sun, too, and the temperature did not rise sufficiently high during the day to melt the rich covering of snow, so that plants were not subjected to alternate thaw and severe frost, generally so fatal to sap-vessels. The fact of the thaw taking place during the absence of sun and light was much in favour of vegetation, and to those combined causes plants have escaped much better than could have been expected, taking into consideration the late growth everything made, and the severity of the late frost we have had. It is early yet to judge fully of the effects, but it is satisfactory to find that Broccoli have entirely escaped, and these rarely stand over 20° of frost. Dracæna australis left out, and the stem protected by a hayband, is dead; Eucalyptus globulus are all killed, and fevers may rage with their accustomed virulence, so far as this tree is concerned, as it will never become established in this climate. Although Laurus nobilis has escaped, the common Laurel shows many brown leaves, and appear to have suffered a good deal in places. Laurustinus are a little cut, and Berberis Darwinii are much disfigured and shedding their leaves, but a month or two must elapse before the full effect of the frost shows itself. *J. Sheppard, Woolverstone.*

Flowering of Aralia Sieboldi.—In your number for the 2d inst. a correspondent from Como, commenting on the mention in a previous number of the flowering of Aralia Sieboldi in the temperate-house at Kew, says that it flowered with him at Como in the open air. Permit me to state that it flowered here in the open air last autumn, and was quite unprotected. It developes numerous heads of bloom every year, but this is the first instance in which it has fully expanded them. The plant stands in the open ground, along with miscellaneous shrubs. I send you some wild Primroses, gathered on the side of the road on the 10th inst. *Frederick Tymons, Laskin Hill, Drumcondra, Co. Dublin.*

Gardeners' Royal Benevolent Institution.—Will you kindly permit me to thank, through this channel, the many friends who have sent their proxies or promises to insure the election of Mrs. John Scobie as a pensioner of the Gardeners' Benevolent Institution? I trust her election is safe; but either way I am equally grateful to the many friends—known and unknown to me personally—who responded to my appeal. *D. T. Fish.*

The Paraffin Lamp.—For "J. J.'s" information I beg to state that I have kept coloured Pelargoniums through the last five winters by merely burning a small paraffin lamp. We have had continued frost, and the thermometer as low as he mentions, and the tricolors are looking as well as ever they did in any of the preceding milder winters. *G. W., Aberdeenshire.*

Heating a Greenhouse.—In reply to Mrs. Oakeley, I beg to say that the vapour referred to in "Heating a Conservatory" was simply carbonic acid gas with the smoke, the fatal effects of which have more than once been felt in gardeners' apartments. The peculiarity in this instance was its descending a chimney after gaining the open air. *H. K., Sussex.*

Hardiness of the Loquat.—During last year I mentioned a young plant of the Loquat that was growing in the open ground in a garden near here as having proved itself so far perfectly hardy. It is worthy of note that this same plant, although having young shoots made in the autumn several inches in length, has come out of the severe weather through which we have just passed quite uninjured, although the thermometer on two mornings recorded 20° of frost. I think the Loquat may be planted out in shrubbery borders with comparative safety. *A. Dean, Bedfont.*

Obituary.

We chronicle, with sorrow, the death of Mr. JOHN GIBSON, which took place at his residence, Argyll Lodge, South Kensington, on the morning of Monday last, the 11th inst. In him horticulture loses one of her most worthy sons, and the younger race of gardeners one of their brightest exemplars. Mr. Gibson had for some time past been afflicted with paralysis, which unfitted him for any public duty, and the appointment of Superintendent of Hyde Park, which he had held since his removal from Battersea, was a few months since given to his son, Mr. J Gibson, jun., who had since the commencement of his father's illness been entrusted with his duties.

THE LATE JOHN GIBSON.

Mr. Gibson was born in 1815, and was consequently in his 60th year. He commenced his career as a gardener under his father, at Eaton Hall, near Congleton, and was in 1832 apprenticed to Mr. (afterwards Sir Joseph) Paxton, at Chatsworth. Subsequently in 1835 he was sent by the late Duke of Devonshire to India, for the purpose of obtaining plants of the Amherstia nobilis, and Orchids. Of this journey some account will be found in our volume for 1872, accompanied by Mr. Gibson's portrait, here reproduced. In 1837 he returned to England, and was appointed foreman of the exotic plant department at Chatsworth, remaining there until 1849, when he was appointed to the superintendence of Victoria Park, then in course of formation, the additional charge of Greenwich Park being made over to him

two or three years after. This park he remodelled, making all the new drives, roads, and footpaths, and draining the whole place. He was also very actively engaged with the late Sir R. Mayne in suppressing that great evil—Greenwich Fair. In 1855 he was called upon to undertake, as well, the laying-out and planting of Battersea; this he did, until he was removed there altogether, which took place in 1857. Shortly after this, Kennington Park, or, as they were then called, the Kennington Common Improvements, were entrusted to him, and afterwards Chelsea Asylum grounds, and those attached to Chelsea Hospital, which latter he entirely laid out as they are at present. Battersea Park, however, which he always spoke of as his favourite work, occupied his attention till 1871, when he was appointed to the charge of Hyde Park, with the Green Park, St. James's, and Kensington Gardens attached. This prominent office he filled, with the entire approbation of those in authority, until his health broke up, and the affliction which has now terminated his days fell upon him.

In addition to the above-named offices, Mr. Gibson was called upon to take temporary charge of other parks, &c., when vacancies have occurred; and we are informed that at one time, with one exception, the whole of the Metropolitan parks were under his charge.

To Mr. Gibson we are in great degree indebted for the change in public taste, which has enabled us to break away in some degree from the monotonous formality of modern flower-gardening, and which he effected by bringing the beauties of plant-form into equal prominence with those to be derived from the contrast or harmony of the colours of their flowers. His works will form a lasting memorial.

Foreign Correspondence.

AMALFI, SOUTH ITALY: *Disease in Petunias.*—We were given some seed of very fine double Petunias, and were most successful in raising several varieties. We had bushes 3 feet in height in flower all summer and autumn planted in the beds. I took cuttings from them, and gave them shelter in winter, growing them in good garden mould. They throve well for two years. Last winter all the plants died from disease, which begins with the leaves getting yellow, and having a smell like the Grape disease. The points of the hairs on the underside, when seen with a microscope, are black, instead of being bright white. These leaves fall off, and those that come on are small and hard, of a peculiar green, the roots begin to shrivel up, and the plant dies. Is this disease known in Britain, and if so, what is the cause and the remedy? I have tried sulphur on the leaves, and mixed with the earth—in vain; also sifted earth and various mixtures of leaf-mould and silver sand. The plants get the disease more in the pots than in the ground, but this year I lost many in the beds. This summer I set to work with fresh seed, and raised more than twenty varieties, and by the end of September had over 100 fine plants from cuttings. I have not twelve left now. *X.* [We should be glad to know if our home or foreign friends have observed a similar disease. It is not known to us. EDS.]

THE FARM.

NEW FORAGE PLANT.—For some years past I have been making experiments upon a plant which has been proposed as a substitute for Clover on Clover-sick land, and generally as a green fodder plant similar to, but more robust and producing larger growth upon poor soil than Lucerne. It is a leguminous plant, known as Galega officinalis, and, though European, it is not a native of this country. It is hardy here, as it is in the greater part of Europe. Though it is very enduring, and yields immense cuts of green fodder, it is not, so far as I can learn, very acceptable to sheep or farm stock, while its analysis is rather disappointing on account of the abundance of woody fibre present. The plants analysed were cut on June 10 last, the seed examined having been gathered in September, 1872.

Analysis of Galega officinalis.

	In 100 parts of the		
	Fresh Plant.	Dry Plant.	Seed.
Moisture	81.9	..	14.9
Oil, &c.	1.3	6.5	7.0
Flesh-formers	4.1	22.9	33.2
Sugar, starch, mucilage, and digestible cellulose ..	6.9	38.8	31.6
Indigestible fibre	4.5	24.8	10.4
Ash	1.3	7.0	2.9
	100.0	100.0	100 0

VALUE OF ROOTS.—One of the questions of agricultural interest which I have endeavoured lately to answer has been the relative feeding value of Turnips, Swedes, and Mangels. In analysing these roots it is the custom of chemists to calculate all the nitrogen found into its equivalent of flesh-formers or albuminoids. If this be done, the order of merit of the three roots becomes, in ascending series, Turnips, Swedes, Mangels—in other words, if we have regard to the presence of flesh-formers alone, Mangels would hold the highest place of the three. Now whatever be the fattening power of Mangels, I am given to understand that their flesh-producing character hardly equals, in actual farming experience, the theoretical value assigned to them by the ordinary chemical analyses. An explanation of this discrepancy is not difficult, for much of the nitrogen of Mangels exists in the form of alkaline nitrates, a little in the form of ammonia salts, and more than mere traces in the form of an organic base or alkaloid. I am engaged in solving the problem, which is a rather difficult one, of how much of the nitrogen of this root really does exist in a form which is available for the production of flesh and for the other functions performed by albuminoid matters. All I can say on this point at present amounts to this—that chemists have always hitherto exaggerated considerably the amount of the flesh-formers in Mangels, while they have also rather over-estimated the same substance as present both in Turnips and Swedes. The investigation to which I have just referred has led me to make determinations of water and other constituents in certain roots grown this year side by side under the same condition of manuring, &c. The results are given below, but they must be accepted with the proviso concerning the over-estimation of the flesh-formers to which I have just alluded.

Trimmed roots, about 2½ lb. in weight of

	Turnips.	Swedes.	Mangels.
Water	92.8	90.8	89.1
Cellulose	1 8	3.1	2.6
Flesh-formers	1.1	1.4	1.8
Sugar, pectose ..	3.66	4.7	4.93
Ash	0 64	0.60	1.07

(*From a paper recently read by Professor Church at a meeting of the Cirencester Chamber of Agriculture.*)

Reports of Societies.

Royal Horticultural: *Jan.* 13.—*Evening Meeting.*—W. A. Lindsay, Esq., in the chair. This, the first of a series of evening lectures intended specially for those who from their business engagements are unable to attend the ordinary meetings, was opened by a few prefatory remarks from the Chairman, the substance of which is adverted to in our leading article. Professor Dyer, in commencing his discourse on the growth of Ferns from spores, said that the older botanists were extremely perplexed as to the production of Ferns from seeds. It was at first supposed that they were of an invisible sort, and by a transference of properties common at that time it came to be believed that the possessor of Fern seed would be invisible too. Shakspeare makes one of his characters say—"We have the receipt of Fern seed, we walk invisible." Ray, our great English naturalist, laughs at Tragus for spreading linen cloths upon the ground to catch the seed of Ferns on the eve of Midsummer night, when, as Ray properly observed, it would be indeed astonishing if any fell, seeing that it is not mature till the autumn.

In 1648 Columna argued the question with much ingenuity. He gave three *à priori* reasons why Ferns must be held to have seeds:—First, nothing is said in the book of Genesis about any plants being destitute of them; secondly, it is improbable that such large and stately plants should depart from the rule and analogy of all other plants; lastly, what were evidently seedling plants were often to be found growing beneath older ones. He concluded by comparing the Fern frond to Butcher's Broom, and identified the fructification in the one case, with the flowers in the other. Cæsius came to his help, and, having examined the *sori* of a Polypody, "telescopii adjumento," distinctly made out what he supposed to be the seeds.

What Cæsius saw were, no doubt, the spore cases. W. Cole appears to have first microscopically observed the spores themselves (1669), and Ray (1686) himself described the curious hygroscopic movements of the spore cases, which assist the dispersion of the spores.

Morison (1715) seems to have been the first to put the matter to the test of actual experience. If, he argued, the spores of Ferns are analogous to seeds, plants ought to spring from them when sown. He accordingly sowed the spores of Hound's-tongue, and raised plants from them.

This important observation seems to have been quite forgotten, for we find Dr. Lindsay, a physician trained at Edinburgh, writing to Sir Joseph Banks in 1789, in response to a request for Ferns from Jamaica (where Dr. Lindsay had settled), and suggesting that spores would be much more convenient to send than plants. Sir Joseph Banks seems to have been quite unprepared for this suggestion, which he wrote of as a great discovery. Dr. Lindsay accordingly wrote a paper on the subject, in which he figures the germinating stages of Polypodium lycopodioides, and this was published in the *Linnean Transactions* a few years afterwards.

The spores of Ferns were still regarded as equivalent to seeds, *i.e.*, as the result of a process of fertilisation similar to what takes place in flowering plants. A variety of attempts were made to see in hairs or glands upon the young fronds, or even in the indusia, something that would do duty for an anther. As late as 1832 De Candolle argued that the prothallus, the membranous structure produced by the seedling Fern, was analogous to a cotyledon.

In 1844 Nægeli discovered the antherozoids, which correspond in Ferns to pollen grains. They are not produced by the mature plant at all, but in small bodies on the prothallus. In 1846 the whole matter was finally cleared up by Suminski, who detected the "archegonia," also produced on the prothallus. They are minute, bottle-shaped bodies, containing a cell which is fertilised by the antherozoids, and then by repeated divisions and multiplications grows up into the embryo plant, which we see growing out of the prothallus when the germination is well advanced. The prothallus and the Fern plantlet, although apparently united in their growth, belong to different generations. Ferns, therefore, afford an instance of what is termed "alternation of generations."

A prothallus producing both antheridia (containing antherozoids) and archegonia is a monœcious structure. In some cases there is a tendency to be diœcious. In Osmunda regalis the prothallus in some cases only produces antheridia; in others (apparently it is so in Adiantum) the archegonia are produced much later. These circumstances would seem to favour the possibility of the production of hybrid Ferns. In the genus Gymnogramma there are several forms, which it is easy to believe were produced in this way.

A very curious circumstance has been lately added to our knowledge by Dr. Farlow, an American botanist. He found that in some cases where archegonia were not produced, the prothallus, by a kind of budding, gives rise to a plantlet, which grows up into a native Fern, and is therefore produced asexually. [In proposing a vote of thanks to the Council and to Professor Dyer, Dr. Masters took occasion to urge the importance of establishing, for the benefit of young gardeners and amateurs, a series of lectures such as they had just heard, and specially a series of practical demonstrations of some of the more important garden operations, accompanied by explanatory comments.]

Natural History.

ANOBIUM STRIATUM, OR DEATH WATCH.—The Anobium striatum, or Death Watch, as it is commonly called, from the peculiar sound, like the ticking of a watch, which it has the faculty of making, is well known for its injurious effects on timber. Whether in the most carefully preserved specimens in botanical museums, or the unprotected rafters of farm sheds, the insect is equally to be found at work, and the wood in all stages of attack, from the sprinkling of minute larval borings as if a large pin had been inserted at intervals, to the last stage where it has been pierced till it is little more than a mass of powder crumbling away at a touch. The perfect beetle is easily attracted by newly pasted paper, and the greatest number of it which I have seen together was during a few weeks in the course of last summer in a newly-papered room at Torquay, where it appeared in such quantities as to give an opportunity of studying its habits, partly at large and partly in captivity.

The Anobium striatum is about a line and a-half long, but very variable in this respect, pitchy brown in colour, and somewhat cylindrical in shape, with the elytra reflexed round the edge of the abdomen, and especially distinguishable to general observation by its retractile head and gibbous thorax compressed behind and triangularly raised above. The beetles feign death on being alarmed, and are usually sluggish in their habits, though occasionally (possibly from some atmospheric influence) temporarily brisk and moderately active, and they are so brittle to the touch as to be easily broken to pieces by careless handling.

The place of deposit of the egg seems to be selected with great care, and in captivity the female may be observed moving about with the ovipositor extended, pausing from time to time for a few seconds to insert the extremity into any small hole suitable for oviposition, sometimes apparently simply for exploration, sometimes for deposit of an egg. Where the circumstances provided were tolerably natural the eggs were always deposited singly, and I never noticed more than twelve inside the abdomen of the female Anobium.

The eggs are white, in some degree transparent, and deposited with such a strongly glutinous secretion as to make it almost impossible to remove them from their position—this secretion probably playing a very important part in the insect economy by glueing, as it were, the egg both in the place, and also in the exact

position, suitable, and apparently requisite for the safe transition of the larva from the egg to its future shelter. The form of the egg varies from a perfect lemon shape to a more or less irregular oval, corrugated for the most part, but not invariably all over, the small raised round spots being placed with great regularity, so as to give the smooth surface of the egg from which they rise the appearance of an even network of bands, each spot having a depression in the centre, and the number being approximately thirty-two in the circumference of the egg about a third from the extremity. Complete development of the contained larva appeared to take place in twenty-one days from the date of laying, and under favourable circumstances exclusion from the egg took place about the twenty-fifth day, but where the egg was unsuitably placed for the passage of the larva into its future food it remained, through breaking the egg-shell, helpless within, or, if removed, equally helpless without, as far as its own unassisted efforts were concerned, towards forming its larval burrow.

Where the egg had been placed naturally by the female beetle, the greater part remained firmly fixed as a protecting cap over the boring of the larva—the sides of the egg-shell, and of the hole in which it was glued, apparently giving points of resistance necessary for the support of the grub in beginning its mining operations, for in another case a fully-developed larva placed on the surface of some similar material was totally unable to make any progress towards forming a tunnel for itself till a little hole was bored for it to start in; then, having been placed with its head in the cavity, it at once went downwards, working itself forwards rapidly and steadily.

The larva is white, with brown eyes and tips to the mandibles, six short legs, the head somewhat sunk in the preceding segment, the body sparingly sprinkled with long soft hairs, and the tail incurved; but in the only instance in which I was able to watch a specimen in the act of burrowing, it did not then preserve the incurved form, but stretched itself straight out while working.

The ticking noise resembling the movement of a watch, popularly supposed to mark the hours of some member of the household drawing to a close, is most wearisome, and so plainly audible in the deep stillness accompanying the long, sleepless nights of severe sickness, that it is no wonder a superstition should have arisen where there was little knowledge to account for the measured sound. It is, however, very far from being a fact that

> "A kettle of scalding hot water ejected,
> Infallibly cures the timber affected;"

for the cause of the noise is the beetle, not the maggot, and at the first disturbance it is much more likely to have fallen to the floor than to have remained to be scalded. As far as my own experience goes of death-watches, they will only cease the noise (save a temporary breaking-off) at their own pleasure. The cause of the noise appears to be the search for a mate, the *modus operandi* in the case of the Anobium striatum, as described by Latreille, being merely a stroke of the mandibles on wood, the signal of the beetle under observation being answered from within the piece of timber. [In an old house in the country we have frequently succeeded in making the insects appear by tapping on the wood in imitation of the noise made by the beetle. EDS.]

A good practical remedy for the real evil, caused by the borings of the larvæ, is most difficult to find, but some good might be done by taking the matter in hand in its very earliest stages. The attacked wood when in farm out-buildings is often left entirely alone, the evil of course multiplying itself year by year, and where attended to in other cases is often left alone till the dust falling from chairs, rafters, or whatever it may be, has attracted attention, and some application, turpentine, whitewash, oil, whatever may be preferred, is rubbed or washed over—the fluid by no means necessarily penetrating down the minute holes, or saturating the wood sufficiently to effect the desired purpose. If instead of this the preservative applications were thoroughly well applied to any wood likely to be attacked, directly the beetles made their first summer appearance they would probably answer much better. [In the case of a handsome Bamboo carving soaking in a solution of corrosive sublimate (poison!), such as is used for dried plants, has proved quite successful. EDS.]

The female beetle when in captivity exercises so much care in her choice of a spot for oviposition that when at liberty it is very unlikely she would choose one so prepared as to be unsuitable for her purpose, and as in this case (unlike that of many other insects) it appears necessary to the continuance of the existence of the larva that the egg should be so secured to the wood, which is to be both the shelter and food of its tenant, as to facilitate its first passage into the hard substance, the result would be the destruction of the beetle in embryo. As far as I could gather from careful observation, it appeared that where the female beetle laid in unsuitable circumstances the larva was unable or unwilling to leave the egg, and it remained within, breaking the shell, and moving restlessly about day after day. If removed and laid on material similar to that bored by a larva under natural circumstances of exclusion, it was still perfectly unable to form a home for itself till a little hole was pierced for it, and it was inserted conveniently for its future operations in the cavity, and all seemed to point to the ease with which the wood liable to attack might be made distasteful for her purposes to the beetle bent on oviposition, and that eggs laid elsewhere would perish. *O.*

The Villa Garden.

OUTDOOR GARDEN.—The weather succeeding the spell of sharp frost which waited on the advent of the opening year, has not proved favourable to gardening operations out-of-doors, notwithstanding there are many things requiring the attention of the gardener at this season of the year. It is warm, moist, and miserable, the soil sticking like clay; gravel paths soft and yielding; trees of all kinds as slimy as eels; while the cultivator turns his wistful eyes to the clouds for signs of a break in their dense surface, and the springing up of a breeze that shall scatter them, give birth to a drying air, and make the face of Nature not only a little pleasanter, but a little less moist also than we have seen it of late. But it is such weather as this that always follows a frost; the mud and slush that succeed a thorough thaw is infinitely worse than that which we associate with the dullest days of November.

THE LAWN. — The time for action cannot be far distant, and there is ample work waiting to be done. The grass plat wants a new face put on it. Now that the snow has passed away the brown grass looks as if a deluge had passed over it, and there are various deposits left there which give it an untidy appearance. Bring the broom first of all into requisition, and sweep the surface hard; and then pass the roller over it; and while the turf is thoroughly saturated with moisture, it will yield to the superincumbent pressure, and the sward will become hard, firm, and level as soon as drying weather sets in. If there are appearances of humps or mounds rising above the ordinary level of the lawn, allow the roller to rest on them for a time, or beat them down with the back of a spade, or with a turf-beater. If they will not go down open the turf carefully, take out a little of the soil, relay the grass, and conquer the obstacle in that way. In like manner, where there are evidences of subsidence, open the turf and put in some nice fresh soil till the surface is brought up to the ordinary ground level.

It is necessary at least once a year to pare down the edges of the turf round borders, beds, and by the side of paths, to keep them neat and tidy. There is a constant tendency on the part of the grass to grow out, and trench on the boundary of the beds. Worm-casts are thrown up, soil is washed down to the turf, and the roots lay hold of it and make a vigorous growth. In most cases when the grass of a lawn is neglected it will be observed that it grows rankest at points where it comes into close contact with the soil of the beds. A turfing-iron, as it is termed, reminds one of an old cheese-cutter with a long handle. Any one with the knack of using this tool can pass it rapidly along the edge of the turf, cutting away about an inch and a-half or so, and maintaining an even line. In cutting, the knife should be very slightly (only very slightly) slanted towards the bed. A crooked or fitful line made by the cutter gives the edges a rough and uneven appearance. Every bit of this turf should be gathered up and treasured, for it is of great value for potting purposes. Wheel it away to the compost yard, and lay it by in a heap to rot, and by-and-bye it will give excellent soil for Hyacinths, Pelargoniums, Fuchsias, and many other things grown in pots through the summer. In cutting the grass edges to paths, an ordinary garden line should be used when the path is straight. The line should rest on the turf, but be pulled quite tight at each end; but the operator must be careful not to cut it with the edging iron. Our practice is to trim our grass edges twice a year in this manner—in January or February, when the weather serves, and again in August. The early cutting allows room for the permanent line of Crocuses, which margins our beds, to flower and make their growth.

CROCUSES.—If any one would see Crocuses in perfection let them adopt this method. In the first instance, let a trench from 6 to 8 inches in depth be dug about 4 inches from the turf, and at the bottom of this trench put a good layer of leaf soil; then plant the Crocuses, mixing purple, lilac, striped, white and yellow together, and allow them to remain undisturbed for five or six years, or even for a longer period of time. Permanent lines of Crocus flower earlier than those planted in the autumn, and with a wondrous profusion of bloom. What if the rich crop of grassy foliage that follows the harvest of blossoms of the "happy and beautiful Crocus" does grow a little rank, it is not obtrusive, and the foliage soon ripens and dies away; or the same plan can be adopted that one sometimes sees in country gardens, where the leaves of the Crocuses are tied into knots in a neat and tidy manner.

DAISIES, &c.—There is another simple matter connected with the outdoor garden that requires immediate attention. A spell of frost has a loosening effect on many ordinary border plants, such as Daisies, Pansies, and others too numerous to mention; the consequence is, the plants are raised up slightly above the soil, and when a thaw comes followed by rain the soil subsides, but the plants are left bare at the roots; and when the worms begin to work about them they are either thrust out of the soil altogether, or so exposed that when warm drying weather sets in they suffer and die. All these should be gone over in the beds and borders, and the soil pressed down firmly about the roots, so as to make them secure. Then, when this is done, let advantage be taken of a drying day or two, and the soil about the plants be stirred on the surface, and some top-dressing added if necessary. Beds and clumps of Daisies are fast coming into flower, for it is one of the earliest to bloom of our pleasant spring flowers, and occasional top-dressings of a rich soil does the plants much good. When the Daisy throws out fresh roots, they are produced from what is termed the collar of the plant, *i.e.*, where the stem joins the roots, and they are therefore near the surface, hence the value of top-dressing to keep them growing.

RHUBARB.—By means of a simple contrivance, blanched Rhubarb can be had early in the season, if there be convenience for pushing it on into growth. We have seen excellent forced Rhubarb grown in a shed, by simply fitting up a bed of soil at one end of it, to the depth of 18 or 20 inches, and by lifting some roots of the earliest Rhubarb in the open ground, planting them in the prepared bed, covering them up with some litter, and then they will soon start into growth and throw up their stalks. When leaves are used they are apt to get infested with woodlice, but a little oversight will soon keep them under. Rhubarb grown in this way seems doubly welcome—first, because it is obtained before the ordinary supply furnished by the garden is ready; and secondly, because the fact that it is grown by the cultivator adds a double zest to his enjoyment of it. It is not absolutely necessary to keep Rhubarb entirely dark, but it is best to keep it as dark as possible. In like manner some Seakale, which is considered a great delicacy early in the season, might be grown, but, unlike the Rhubarb, it should be kept quite dark and free from air. Perhaps it would be best to leave the Seakale in the open ground, and force it there, by placing some Seakale pots over it, and then covering them up with dung and leaves. The Seakale pots—at least the old-fashioned ones in use a quarter of a century ago—were roomy, and allowed a free growth of the crisp blanched stalks; and that greater delicacy, Asparagus, can, by a little scheming, be had quite early. Let an old crate or box 2 or 3 feet in depth be procured, and filled with leaves and dung sufficient to give forth a mild bottom-heat, and over this place a thick layer of good soil, to the depth of 3 or 4 inches. Then pack in as thickly as possible in a single layer some good roots of Asparagus, and fill in the soil well about the same till they are covered to the depth of at least 2 inches. Unlike the Rhubarb and Seakale, Asparagus needs plenty of light and air; and if the box or crate could be placed in an early vinery, in which the Vines are being pushed on into growth, the development of this popular vegetable will be much accelerated. Nice green stalks are to be preferred for table to long blanched white stems, though the latter are generally assumed to be the most tender eating.

Garden Operations.

(FOR THE ENSUING FORTNIGHT.)

PLANT HOUSES.

GREENHOUSE HARD-WOODED PLANTS.—Tying and training should, as time is available, be got on with before the season is so far advanced as to interfere with other work. Other matters will be of a routine character, simply attending to watering when required, the admission of air when the weather is such that it can be given without injury, and a diligent look-out as to the weather when the wind is in the direction to bring frost.

Heaths.—Soft-wooded autumn-flowering varieties of the *hyemalis* type do not usually receive treatment in their different stages of growth, subsequent to blooming, such as to give them the best chance of surviving longer than the season when they are intended to flower, far the greater number dying as soon, or not long after, they have bloomed; but, nevertheless, an effort may be made to keep them going, and if they can be got to start fairly into growth in the spring they sometimes will live for years. After they have flowered do not let them remain standing closely

together, but give them a good light situation, and do not over-water, yet at the same time it must be borne in mind that the soft-wooded *Heaths* cannot bear to be allowed to get so dry at the roots as the hardest-wooded sorts. The latter will now begin to swell their flowers, and must not be suffered to get over-dry, otherwise it will sometimes have the effect of crippling the buds. Finish tying in this department as early after the present time as possible; the plants will look much better when they flower, in consequence of a considerable time intervening betwixt their being tied and their blooming, from the leaves and points of the shoots having time to assume a natural position.

SOFT-WOODED GREENHOUSE PLANTS.—Autumn-struck cuttings of *Pelargoniums* of the show section should, as soon as they have filled their small pots with roots, be potted on into larger; from 4 to 6 inches in diameter will be large enough for them the first season, according to the size of the plants, or the vigorous nature of the variety: use good loam well enriched with rotten dung, and a little sand, such as has been advised for the larger plants. Any that have not had their points already pinched out, should now be stopped, so as to induce them to break; such as have made several shoots should be trained so as to lay the groundwork for the future plant. Keep the whole stock, large and small, free from greenfly by fumigation. *Herbaceous Calceolarias* should be moved into larger pots as they require it, not allowing them to get pot-bound before giving them more root-room. The soil can scarcely be too rich, and if a good quantity—one-fourth—of well-rotted leaf-mould is added, they will do all the better in it. Few plants are more subject to greenfly, and they are impatient of severe smoking; consequently, must never be allowed to get much infested with the aphides before they are fumigated. Slight and frequent applications are the safest with these and *Cinerarias*, the large under-leaves of which are injured if submitted to a strong dose of tobacco-smoke. There is no better plan than to always keep in readiness some tobacco-water in a vessel sufficiently large to admit the heads of such plants as the above being dipped as soon as they are found to be affected, which is much better than allowing the pest to spread over the whole before means are taken to destroy it. The useful decorative *Campanula pyramidalis*, both the blue and the white varieties, are worthy of more general cultivation; sown early in the spring they make, if well attended to, fine flowering plants in about sixteen months. Plants sown last spring, or grown from suckers, should now have a light situation, and not on any account be allowed to become stunted for want of pot-room. Keep *Kalosanthes* close to the glass. For ordinary decorative purposes, they are the most useful grown in 6 or 8-inch pots. Do not at this season over-water them, yet they must not be allowed to get so dry as to injure their bottom leaves, which will occur if the soil becomes too dry.

Primula japonica.—To do this plant well it requires very liberal treatment, using rich soil, and giving it plenty of pot room. The soil should be good loam, with one-fifth rotten dung and leaf-mould in equal proportions added, and a good sprinkling of sand. Plants that have filled their pots with roots should now have a liberal shift into soil of the above description. They will then flower strongly and well late in the spring. Such as are intended to bloom earlier should be well supplied with liquid manure; they will bear it tolerably strong.

Chrysanthemum cuttings should at once be put in and struck. Select such as are moderately stout, and not drawn, placing a couple in a 60-sized pot. They will root freely in a house where the temperature is from 45° to 50°. They are better not covered with bell or hand-glasses, as under such they become drawn, and the leaves subject to damp. They should not be placed on dry shelves, but ought, if possible, to stand on a moisture-holding surface, such as ashes or sand. *T. Baines, Southgate, N.*

ORCHIDS.—The temperature to be maintained during January is the same as that recommended for December. Water must be poured over the floors and benches, to create moisture. *Phalænopsis* on blocks will require frequent syringing; those growing in baskets or in pots should be examined every morning, and have the surface kept damp. *Saccolabium retusum* and many of the *Vandas* will now be showing flower. Cockroaches and woodlice are extremely fond of the young spikes, therefore place poison about the house and use Potatos cut in half and hollowed out to trap the woodlice. Plants of *Calanthe vestita* that have gone out of flower should be kept dry until they again start into growth. Many of the plants that have been at rest for some time will possibly show signs of growth towards the end of the month; it is a good practice to place them in the warmest part of the house for a week or two previous to their being potted. *Dendrobiums* that are showing flower should receive a moderate supply of water at their roots; they will require an increase of heat and light to encourage the flowers to grow. *Odontoglossums* and *Oncidiums* will be coming into flower about this time; they must be well supplied with water at their roots, otherwise the bulbs will shrivel. Any new or rare plant which it is desirable to grow into a specimen as quickly as possible, rather than to induce it to bloom for a season, should be encouraged to grow by placing it in more heat and moisture. If any of the pseudo-bulbous Orchids have more than three or four old bulbs, and only one leading growth, the plant should be cut in two between the bulbs; but be quite sure the eyes are sound before you cut them, otherwise you will lose the back bulbs altogether. The best time to operate on them is just as they are showing signs of growth. *Miltonias* generally break freely enough, except *M. candida grandiflora*; this sometimes requires cutting to produce back breaks. Let all the potting material be ready, as recommended last month, as repotting and top-dressing must be proceeded with next month; also have some hard wood in readiness for blocks. *G. Baker, Clapham Common.*

FLOWER GARDEN, &c.

PARTERRE AND MIXED GARDEN.—Should we get a continuance of weather unfavourable to outdoor work, labour may be profitably employed in preparing a good stock of neat stakes of different sizes, suitable for such things as Ricinus, Dahlias, Hollyhocks, and other large growing plants, and smaller sizes for Gladioli, Phloxes, &c. If not already done, the plan of proposed arrangement for the summer bedding should be got out and decided on. By doing this early it will afford a good opportunity of preparing the beds properly for their intended occupants. For such things as *Calceolarias*, *Violas*, *Verbenas*, and other moisture-loving plants, the beds should be specially prepared by trenching at least 2 feet deep, and if the soil is at all light, with porous subsoil, add a good dressing of stiff loam or clay and some rotten manure, and mix these in with the bottom foot or so of soil. Unless the beds contain very poor soil, trenching will be sufficient for such things as *Pelargoniums*, as they produce their flowers more freely when not encouraged to make too much growth, but nevertheless the trenching will be found of great service, as it enables them to root deeply, and withstand the effects of drought. Beds intended for the bronze, tricolor, or gold-leaved section, should be more liberally treated, as these are grown for the beauty of their leaves, and require rich feeding in order to develope them to perfection, and to bring out their colour. This class will now require a little more warmth to start them into growth to afford a supply of cuttings, as these form the best plants to grow on for the following year. Golden Chain is still the most effective of all the yellow-leaved section, but the plants should be at least a year old before they are turned out, and be planted in deep rich soil. A rough estimate of the quantities of the respective kinds of bedding plants should be got out, and if there is likely to be any deficiency, stock plants should be set to work at once to give a supply of cuttings. The beautiful soft lavender-coloured *Ageratum*, *Imperial Dwarf*, propagates very freely in spring, and a few stock plants placed in moist heat now will afford any quantity of cuttings. Our stock last winter was only six plants, and from these we propagated nearly 2000. Seedlings are never satisfactory, as they are very irregular in height, and spoil the uniformity of the bed. Spring struck *Verbenas*, too, are much to be preferred, as they grow on without a check, and soon cover the bed. A few pots put to work now in gentle heat will soon give a supply of cuttings. *J. Sheppard, Woolverstone Park.*

FRUIT HOUSES.

PINES.—In the progress of plants which are swelling off fruit, and those which are required to make growth and start into fruit speedily, very much depends upon proper attention and good treatment at this season, because so little assistance is obtained from natural causes. Unvarying attention should be given to artificial help in this way; syringe what available surfaces are considered fit for it twice every day, and moisten the pathways, &c., as they need it; the plants should also be syringed overhead occasionally early in the afternoon, when the axils of the leaves become dry. At some places it is usual to syringe the surface of the bed between the plants, but this practice is attended with so much danger from the water which is used in that way being conveyed to the collars of the plants by the leaves, and over-saturating them with moisture there, that it is best left alone. Evaporating troughs are likewise used, which are cast or fixed on the heating apparatus: these, being filled with manurial or other water, are almost incessantly kept steaming away; this vapour, which is oftentimes produced by highly heated pipes, or that which rises from the troughs when the quantity is very much reduced by evaporation, is of such a nature as not to be likely to prove beneficial to vegetation; therefore the practice has for a long time been discontinued here in those houses where high temperatures are maintained, without in the slightest degree affecting ordinary results. Fruiting plants and starters should now have a mean temperature of about 70°, varying it 5° according to external aspects; with sunshine open the house at 80° or 85°, and close it at about that degree—at the same time utilise sunshine for heating purposes as much as possible whenever practicable. About the commencement of next month another lot of Queens or other kinds should be started, to supplement the supply of fruit from those plants which are already introduced for that purpose. Beds having hot-water pipes under them can soon be made fit to receive such plants, but it is not the case where fermenting materials alone are used; this matter should be seen to at once, and 85° to 90° should be obtained for this purpose. When plants which have been kept somewhat drier are to be started, if the heat in the bed is well up, see that the balls of the plants are made thoroughly moist, so that with additional heat root-action may directly take place. A night temperature of from 58° to 65° will be suitable for other stock, and from 5° to 10° more in the daytime, according to circumstances. *Geo. T. Miles, Wycombe Abbey.*

MELONS.—If not already done, sow at once for the first crop. The seeds may either be sown singly in small 60's, or a dozen seeds may be placed round the edge of a 32-pot, to be afterwards potted off into 60's. In either case the pots should only be about two-thirds filled, covering the seed about half an inch, and be placed in a brisk bottom-heat of from 75° to 80°, top-heat 70°. A mixture of leaf-mould and light loam in equal proportions, with a moderate dash of sharp river or road sand, pressed gently down, will form a nice porous compost for the young rootlets. The pots should be well drained for this early sowing. I have studiously avoided recommending any particular sort, and, with your permission, will adopt the same course during the ensuing year, for long experience has taught me that it is not the variety, so much as the treatment, that results in a well-finished and richly-flavoured fruit. *T. Simpson, Broomfield Lodge.*

CUCUMBERS.—Never, perhaps, was the wisdom of getting the plants out and well established before the very short days set in more manifest than this year, when the weather has been such as to render their progress at the best but very slow. The autumn fruiters, however, which were sown early in September, are yielding very good supplies. It is now that Cucumbers realise a high price. The temperatures advised, and the directions as to watering and atmospheric moisture, in the last Calendar, should still be maintained. Continue to cut over the foliage once or twice a week, removing weakly and exhausted growths, and lay in from time to time as much of the young bearing wood only as will ensure every leaf receiving a due proportion of light. Still keep a sharp eye for canker, and do not omit to apply a moderate dusting of flowers of sulphur weekly. The autumn fruiters will, under favourable conditions, and such as I have advised, yield a good supply for the next three months or more; those, therefore, who have followed my advice, and who possess the necessary structures, will have no necessity for making further sowings at present. Those, however, who do not indulge in winter Cucumbers, but require a supply early in spring, had better sow a few seeds forthwith, observing the same conditions as are laid down for Melons. It will now take six or seven weeks between sowing and planting out. *T. Simpson, Broomfield Lodge.*

KITCHEN GARDEN.

THE MUSHROOM HOUSE.—The earlier Mushroom-beds, which may have produced abundant crops, will now be showing signs of exhaustion. Where there is good drainage and the materials were not too greatly decomposed at the time the beds were made up, it is possible to resuscitate the waning vigour of the beds by giving to each a good soaking of water heated to about 100° Fahr., and into which about one pint of common salt to every six gallons of water has been well stirred. At the same time the temperature of the house should be maintained at not less than 80° if possible. Beds in full bearing should be surface sprinkled frequently with tepid water, but care should be taken not to allow the bed to become too wet, or soddened with moisture; because if such a condition is brought about, it will too forcibly induce decomposition, and even if the delicate mycelium be not destroyed, which is not at all improbable, the crop will cease to be as abundant as it should be. Later beds, which are just beginning to produce their crops, must be treated very carefully at this particular season of the year in regard to watering. If the beds are known to be formed of light, somewhat dry materials, and especially if they are placed immediately over pipes or flues, and hence are in no danger of becoming, and remaining too wet, they will require watering frequently and freely; otherwise at such a stage a very moderate amount only must be given, and that must be warmed, and its application be followed by a slight increase in the temperature. When beds are in bearing give air daily for an hour or so, along with abundant light, as this enhances both their flavour and the quantity or permanency of their texture, which is quickly exemplified

under the cooking process, by all who test these against those drawn up in dark, airless structures or situations. It is admissible to use good thick coverings of dry warm hay upon all beds placed in positions where a sufficient supply of artificial heat cannot be insured. *William Earley.*

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, JANUARY 13, 1875.

MONTH AND DAY.	BAROMETER. Mean Reading Reduced to 32° Temperature from Average of 18 Years.	BAROMETER. Departure from Average of 18 Years.	TEMPERATURE OF THE AIR. Highest.	TEMPERATURE OF THE AIR. Lowest.	TEMPERATURE OF THE AIR. Range.	TEMPERATURE OF THE AIR. Mean for Day.	TEMPERATURE OF THE AIR. Departure of Mean from Average of 60 Years.	HYGROMETRICAL DEDUCTIONS from Glaisher's Tables 5th Edition. Dew Point.	HYGROMETRICAL DEDUCTIONS from Glaisher's Tables 5th Edition. Degree of Humidity. Sat. = 100.	WIND. Average Direction.	RAINFALL.
Jan.	In.	In.	°	°	°	°	°	°			In.
7	29.93	+0.19	41.7	39.0	2.7	40.5	+ 4.2	37.7	92	SSW: S.	0.00
	29.99	+0.25	42.3	37.9	4.4	39.7	+ 3.4	37.8	93	S.S.E.	0.01
9	29.80	+0.08	45.0	38.0	7.0	41.6	+ 5.3	38.9	88	S.S.E.	0.00
10	29.62	−0.10	45.2	38.7	6.5	41.1	+ 4.8	37.7	89	S.S.E.	0.00
11	29.68	−0.04	49.2	38.8	10.4	44.1	+ 8.1	40.9	88	S.S.W.	0.01
12	29.77	+0.04	48.5	41.0	6.6	45.2	+ 8.9	43.7	97	S.S.W.	0.16
13	29.93	+0.20	49.3	45.0	4.3	47.0	+ 10.6	44.9	93	S.S.W.	0.00

Jan. 7.—Overcast; dull, and mild throughout.
— 8.—Overcast; dull; a little rain fell between 9 A.M. and 11 A.M. Overcast in afternoon and evening.
— 9.—Fine; nearly cloudless about noon. Fine in afternoon. Overcast at night.
— 10.—Overcast, and dull throughout.
— 11.—Fine and mild in morning. Overcast and dull in afternoon and evening.
— 12 —Overcast; rain fell all the morning, but ceased about 3 P.M. Overcast; dull at night.
— 13.—Fine; mild; nearly cloudless between 10 A.M. and 11 A.M. Overcast from mid-day.

—— In the suburbs of London the reading of the barometer at the level of the sea decreased from 30 inches at the beginning of the week to 29 95 inches by the morning of the 3d, increased to 30 08 inches by the evening of the same day, it then decreased to 29.80 inches by the evening of the 4th, again increased to 30.17 inches by the morning of the 8th, and then decreased to 29.88 inches by the end of the week. The mean reading for the week was 30 inches, being 0.18 inch lower than that of the preceding week. The mean daily readings were all in excess of their averages except that of the 4th, which was 0.07 inch in defect.

The highest temperatures of the air at 4 feet above the ground ranged between 51½° on the 4th and 41½° on the 7th, the mean for the week being 47°. The mean of the seven low night temperatures was 40½°, the extreme values being 44° on the 4th and 38° on the 8th and 9th. The mean daily range of temperature was 6½°, ranging from 9½° on the 6th to 2½° on the 7th. The mean daily temperatures of the air were all above their averages, the values being:—3d, 46°.4; 4th, 47°.6; 5th, 45°.6; 6th, 44°.7; 7th, 40°.5; 8th, 39°.7; 9th, 41°.6; and their departures in excess of their respective averages were 9°.7, 11°.2, 9°.4, 8°.7, 4°.2, 3°.4, and 5°.3. The mean temperature for the week was 43°.7, being 7°.3 above the average for the corresponding week, as deduced from sixty years' observations.

The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in sun's rays, were 74° and 90° on the 5th and 6th but on the 7th and 8th it did not rise higher than 45°. The lowest readings of a thermometer on grass, with its bulb fully exposed to the sky, were 34½° on the 6th, and 35° on the 5th, 8th, and 9th, and the mean for the several low readings was 36½.

The weather during the week was generally cloudy, dull, and mild. The direction of the wind was generally S.S.W., and its strength gentle. Rain fell on five days, the amount being 0.27 inch.

In England the extreme high temperatures observed by day ranged from 51½° at Bristol to 45° at Hull, the general average all over the country being 49½°. The extreme low temperatures observed by night varied from 39½° at Bristol to 32° at Manchester, with a general average of 36°. The mean range of temperature in the week from all stations was 13½°, varying from 17½° at Manchester to 11° at Hull. The mean of the seven high day temperatures ranged between 48½° at Bristol and 41½° at Nottingham and Hull, the general average being 45½°. The mean of the seven low night temperatures ranged from 41½° at Bristol to 35½° at Hull, with an average value of 38°. The mean daily range of temperature in the week was 7½°, the greatest range being at Eccles, 9½°, and the least at Nottingham, 5½°. The mean temperature of the air for the week was 41½°, being 3° above the value of the corresponding week in 1874, 5½° below that of 1873, and 1½° above that of 1872; it was 15½° above the mean temperature of the preceding week, the highest in the week occurred at Bristol, 44½°, and the lowest at Hull, 38½°.

Rain fell on the first three days of the week at most stations, varying in amount from eight-tenths of an inch at Bristol to one-tenth at Leicester, the average fall over the country was four-tenths of an inch.

The weather during the week was dull and very mild; the sky was generally covered with cloud.

In Scotland the highest temperatures ranged between 52½° at Leith and 45° at Dundee and Aberdeen, the lowest temperatures varied from 32½° at Glasgow to 29° at Perth, their respective averages being 49½° and 41½°. The mean range of temperature in the week was 8½°. The mean temperature for the week was 40½°, the highest being at Glasgow, 42½°, and the lowest at Dundee, 38°. Rain fell at Greenock to the amount of 2 inches, but at Aberdeen four-tenths of an inch only was measured. The average fall over the country was 1½ inch nearly.

At Dublin the highest temperature was 58°, the lowest 26½°, the mean 46½°, and the rainfall 0.11 inch.

JAMES GLAISHER.

Enquiries.

He that questioneth much shall learn much.—BACON.

35. FINOCHIA. — *R. T. S., Co. Cork*, wishes to know where he can get seeds of this plant. He does not see it mentioned in any catalogue at his command.

Answers to Correspondents.

ANNUALS: *Amateur.* The following twelve sorts of annuals are, on the whole, early to flower, of dwarf growth, and bright and distinct in colour:—Candy-tuft (White Rocket and dark crimson), Collinsia bicolor, C. violacea, Eucharidium grandiflorum, Godetia Whitneyi, Leptosiphon rosaceus, Nemophila insignis, N. maculata, Saponaria calabrica, Silene pendula, and Virginian Stock. They should be sown in the new ground, where they are to flower, as early in March as possible. The Stocks and Asters to succeed the annuals should be sown in prepared beds, in a cold frame, or in shallow boxes, and placed in a greenhouse. If they could be once transplanted previous to being placed out in the border, to succeed the annuals, the plants would be all the better for it.

BOOKS: *H. H.* Cuthill on market gardening, and W. Paul on pot Roses. Briars are obtained from itinerant collectors who traverse the country to obtain them.

BOUVARDIAS: *W. Wood.* We cannot name garden varieties. No. 1 appears to be Hogarth.

COCOA-NUT REFUSE: *G. W.* Most plants root very freely into this substance, and it forms a very good substitute for leaf-mould in all light composts such as may be used for newly struck cuttings of soft-wooded plants, seedlings, &c. Ferns root well into it, but for potting such plants as these and others of a more permanent character, it requires a proportion of the usual potting soil to give it body, and plenty of grit should be used. It is not to be recommended for Orchids, nor for plants like Heaths, which require a special compost.

DAHLIAS: *A Young Amateur.* Divide each old root into two or more parts, each having a portion of the bud-producing "collar" and a good sound tuber firmly attached. Pot each into a rich open compost, and place them in a light airy temperature of 45°. Do not hurry their growth, but when this begins keep only the strongest shoot on each, and induce it to grow as robust as possible up to planting-out time.

DOUBLE ACROSTIC: *H. H. B.* Anticipated. See p. 25, January 2.

GARDENIA BUDS FAILING: *D. Cameron & Son.* The cause of your Gardenia buds turning brown is probably due to a too languid root-action, resulting from an insufficiency of warmth at this season, when the plants require an additional incentive to activity. We fear the loss is irremediable, otherwise we would recommend you to raise the temperature to 60° by night, and 65° by day, with frequent sprinklings overhead, when the manure-water already given may be assimilated by and aid them, not otherwise.

GLAZING: *J. H. Howard.* If a working model is forwarded we shall then be in a position to express an opinion on the matter, but obviously cannot do so unless we see the system. You might also send a model to one of the meetings of the Royal Horticultural Society for exhibition.

HEATING GREENHOUSES: *Amateur.* You should fix sufficient pipe to warm the house by means of a stove placed in an enclosed case just outside the house, or, if a gas stove can be employed and the products of combustion certainly carried out of the house, the stove itself might stand inside in some convenient spot not too contiguous to the plants. We have no faith in heating by means of stoves only placed inside the house.

HEDGES: *Amateur.* The best and quickest growing evergreen for a hedge fit to afford the shelter you need, is the Holly, which would do well in your heavy soil, if well drained and well worked and enriched, so as to make it friable previous to planting.

HOLLYHOCKS, PELARGONIUMS, &c.: *A Young Amateur.* Place 6 inches of ashes in the frame, upon which again place slates, and stand the pots on these. Place also an external covering over the glass at night, leaving a little air at the back all night, whilst the lamp is burning. Water sparingly, and let every plant which requires it be brought out of the frame and receive a good soaking before it is returned.

HOLLY LEAVES: *J. S., Warwick.* They may be gathered any time when in good condition. We will name them if you are moderate in your demands. We do not know of any book on drying flowers.

INSECTS: *S. B.* No. 2 is terribly infested by the thrips: give it three or four good fumigations with tobacco smoke at intervals of three or four days, and watch afterwards to see they do not reappear. Or you may dip the head of the plant, if removable, in some of the insect-destroying washes, as Abyssinian Mixture or Fowler's Insecticide. It has been in too dry, if not too hot, an atmosphere. We do not see that No. 3 has sustained any injury. The dying off and curling of the fronds are quite likely to have arisen from drought at the root, especially if the position "near hot-water pipes" is a new one for it.

MAGNOLIA GRANDIFLORA: *G. S.* Yes.

MUMMY WHEAT: *E. O. M.* There is so much deception and mystification about this, that we are extremely sceptical about the matter. Is your straw Wheat-straw at all? We suppose not, from your description.

NAMES OF PLANTS: *H. Huntley.* 1, Cypripedium venustum; 2, C. barbatum.—*Antony.* Helleborus niger.—*New Zealand.* Lotus tetragonolobus, an introduced plant.—*James Garaway & Co.* Rubus australis, var. cissoides.—*H. T.* No. 4 proves to be a small-pinnuled form, or starved condition, of Adiantum Capillus-Veneris.

ORANGE TREES: *J. S.* We can only attribute the simultaneous fall of the leaves, along with the blooms, to the probable fact that during the past summer the ball became too dry, and that possibly it has never been thoroughly soaked through since. If you have any doubt on this point, place and puddle clay around the outsides of the tubs, and give many waterings in such manner that the water may be forced to percolate down through the very centre of the soil of the ball.

PROPAGATING THUJAS, &c.: *S. G. S.* Arbor-vitæ and similar evergreen trees can be propagated by cuttings, put in in summer in a cool frame, and when callused removed into heat; but the process is slow and altogether too tedious for an amateur.

RAINFALL: *J. D., Mendip Hills.* Symond's *British Rainfall* is probably what you want.

ROSES: *A Lover of Roses.* In your case, we think it would be worth the expense to build a Rose-house such as you describe; but as to what it would cost to build such a house in your locality, we cannot say. A local builder would be the best authority.

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COMMUNICATIONS RECEIVED.—E. P., Ghent (accusé de reception).—S. G.—J. E. L.—J. E. H.—R. B.—G. W.—W. H.—W. P.—W. S.—W. W.—J. K. I.—J. P. L.—R.—G. W. Y.—S. E.—D. T. F.—J. H.—G. S. (shall be glad to hear from you).—J. T. G.

Markets.

COVENT GARDEN, January 14.

The market remains much the same as last week. Imports are heavy from France, comprising salading, Artichokes, Apples, and some first-rate Easter Beurré Pears. The latest cargo of St. Michael Pines came in capital condition, realising fair prices. *Thos. Taylor, Wholesale Apple Market.*

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, Fr., each	0 8–	..	Horse Radish, p. bun.	3 0–	5 0
Asparagus, English, per bundle	.. 8	0–10 0	Leeks, per bunch	.. 0 2–	0 4
— French, p. bund.	2 0–	..	Lettuces, per doz.	.. 1 6–	..
Beans, French, p. 100	2 0–	..	Mushrooms, per pott.	1 0–	2 6
Beet, per doz.	.. 1 0–	2 0	Onions, young, bun.	0 4–	0 6
Broccoli, p. bundle	.. 0 9–	1 6	Parsley, per bunch	.. 0 4–	0 6
Brus. Sprts., p. bush.	6 0–	..	Parsnips, p. doz.	.. 0 9–	1 0
Cabbages, per doz.	.. 1 0–	2 0	Radishes, per bunch	0 2–	0 4
Carrots, p. bundle	.. 0 6–	0 9	— black, Turnip, do.	.. –	0 6
Cauliflowers, per doz.	2 0–	6 0	Seakale, per bundle	1 6–	2 0
Celery, per bundle	.. 1 6–	2 0	Shallots, per lb.	.. 0 3–	..
Cucumbers, each	.. 2 0–	4 0	Salsify, per bundle	.. 1 6–	..
Endive, per doz.	.. 1 0–	2 0	Tomatos, per doz.	.. 1 0–	3 0
Herbs, per bunch	.. 0 2–	0 4	Turnips, per bundle.	0 6–	0 9

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, per ½-sieve	1 0–	1 6	Melons, each	.. 1 0–	3 0
Chestnuts, per bush.	10 0–	20 0	Nuts, Cob, p. lb.	.. 1 6–	2 0
Grapes, English, p. lb.	....		Oranges, p. 100	.. 8 0–	12 0
— Muscats, do.	.. 4 0–	8 0	Pears, p. doz.	.. 3 0–	6 0
Lemons, per 100	.. 8 0–	12 0	Pine-apples, p. lb.	.. 3 0–	6 0
Medlars, per doz.	..	....	Walnuts, p. bush.	.. 16 0–	..

Potatos:—Early Shaws, 120s.; Early Myatt's, 140s.; Early Regents, 120s.; and Early Dons, 120s. per ton.

CUT FLOWERS.

	s. d. s. d.		s. d. s. d.
Azaleas, p. 12 sprays	1 6– 3 0	Pelargoniums, 12 spr.	1 6– 3 0
Camellias, 12 blooms	2 0– 6 0	— Zonal, 12 spr.	0 9– 1 6
Carnations, 12 blooms	2 0– 4 0	Roman Hyacinths, per 12 spikes	.. 2 0– 4 0
Cyclamen, 12 blooms	0 3– 0 6	Roses, indoor, p. doz.	2 0– 6 0
Epiphyllums, 12 bl.	1 0– 2 0	— French, do.	2 0– 3 6
Eucharis, per doz.	6 0–12 0	Stephanotis, 12 sprays	9 0–15 0
French Lilac, p. bun.	10 0–15 0	Tuberoses, p. doz.	2 0– 4 0
Heliotropes, 12 sprays	0 6– 1 0	Violets, per 12 bun.	3 0– 6 0
Mignonette, 12 bun.	4 0– 6 0		

PLANTS IN POTS.

	s. d. s. d.		s. d. s. d.
Begonias, per doz.	6 0–12 0	Heaths, in var., doz.	12 0–30 0
Bouvardias, do.	9 0–18 0	Mignonette, do.	4 0– 6 0
Chrysanthemums, do.	4 0– 9 0	Myrtles do.	3 0– 9 0
Cyperus, do.	6 0–12 0	Pelargoniums, dble., per doz.	6 0–12 0
Dracæna terminalis	12 0–30 0	— Scarlet, do.	6 0– 9 0
— viridis, per doz.	12 0–24 0	Primula sinensis, do.	4 0– 8 0
Epiphyllums, each	1 6– 3 6	Solanums, do.	6 0–18 0
Ficus elastica	1 6– 7 6		
Fuchsia, per doz.	6 0–12 0		

SEEDS.

LONDON: *Jan.* 13.—We have to report an improved demand for agricultural seeds. Cable advices from New York describe the Clover market as somewhat excited, and values hardening. All descriptions of red Clover seed, of both Continental and English growth, are held here with great firmness: choice purple samples command high rates. No noteworthy alteration has taken place since our last in the position of either Alsike or white Clover seed. Trefoils met a fair inquiry at recent currencies. Present quotations, while showing a considerable reduction from opening prices, keep very steady. In Sanfoin seed a strong advance has been established. French Italian exhibits no alteration. Perennial Rye-grasses are obtainable at moderate rates. The unprecedentedly high prices now realised for Canary seed constitute quite a feature of our market, a further advance of £1 per quarter having taken place during the past week. German Hemp seed is in moderate request. Feeding Linseed must be noted 2*s.* to 3*s.* per quarter dearer. Mustard seed, both white and brown, is still cheap and neglected. Owing to an increased inquiry, Rape seed is held at 1*s.* to 2*s.* per quarter more money. Spring Tares being in very short supply, are rapidly advancing in price. *John Shaw & Sons, Seed Merchants*, 37, *Mark Lane, E.C.*

CORN.

Owing to the subsidence of frosty weather, the trade at Mark Lane on Monday was depressed. Dry Wheat receded from 1*s.* to 2*s.* per quarter, while damp and inferior parcels were nominally from 2*s.* to 5*s.* cheaper. Barley was dull, and less money had to be accepted for grinding and distilling qualities. Malt was slow of sale and lower to sell. Sound Oats were 6*d.* per quarter higher on the week, but inferior corn was somewhat easier in price than on Monday last. French Maize gave way 1*s.* per quarter. Beans and Peas were weak, and flour was flat, but not materially so.—On Wednesday the market was very thinly attended, and Wheat sold with difficulty at the reduced rates current on Monday. Barley and Oats were pretty steady, and Maize suffered no further relapse. Beans and Peas were rather lower, and the value of flour, both English and American, had a downward tendency.—Average prices for the week ending January 9:—Wheat, 45*s.* 1*d.*; Barley, 44*s.* 8*d.*; Oats, 30*s.* 1*d.* For the corresponding week in 1874:—Wheat, 62*s.* 1*d.*; Barley, 43*s.* 11*d.*; Oats, 28*s.* 1*d.*

CATTLE.

At the Metropolitan Market on Monday there was not an over-supply of choice quality beasts. Trade was dull, but at scarcely any reduction in price. In sheep business was more active at rather higher rates. There was no alteration in the trade for calves. Quotations:—Beasts, 3*s.* 8*d.* to 5*s.*, and 5*s.* 8*d.* to 6*s.* 4*d.*; sheep, 5*s.* to 5*s.* 6*d.*, and 6*s.* to 6*s.* 8*d.*; calves, 4*s.* 4*d.* to 6*s.* 8*d.*; pigs, 4*s.* 4*d.* to 5*s.* 4*d.*—On Thursday trade was dull, but choice beasts were not lower in price. For sheep Monday's quotations were scarcely altered. Calves were more plentiful, and prices gave way a little. Business was dull for milch cows.

HAY.

There was a full supply of fodder at Whitechapel, but trade was steady, and a moderate inquiry pervaded for the better descriptions. Prime Clover realised from 100*s.* to 124*s.*; inferior, 85*s.* to 95*s.*; prime meadow hay, 90*s.* to 114*s.*; inferior, 55*s.* to 75*s.*; and straw, 33*s.* to 40*s.* per load. Cumberland market quotations:—Superior meadow hay, 112*s.* to 120*s.*; inferior, 90*s.* to 105*s.*; superior Clover, 120*s.* to 130*s.*; inferior, 100*s.* to 112*s.*; and straw, 40*s.* to 44*s.* per load.

POTATOS.

The Borough and Spitalfields markets report moderate supplies of Potatos on sale, and trade slow at the subjoined currency:—Regents, 95*s.* to 110*s.* per ton; Victorias, 100*s.* to 120*s.*; Flukes, 120*s.* to 140*s.*; Rocks, 60*s.* to 75*s.*—The imports of foreign Potatos into London last week amounted to 64 barrels from New York, 737 bags from Antwerp, 731 from Boulogne, 53 tons from St. Julien, 25 bags Rotterdam, 25 tons and 902 sacks from Dunkirk, 4 bags from Gravelines, and 43 tons from Dahouet.

COALS.

In the market on Monday "best" house coals fell 6*d.* per ton, whilst "seconds" were unchanged. Hartleys, however, declined 6*d.* per ton. No further alterations were reported at market on Wednesday.

THE AGRICULTURAL GAZETTE,

A WEEKLY ILLUSTRATED JOURNAL FOR

LANDOWNERS AND TENANT FARMERS.

Published by W. RICHARDS, 7, Catherine Street, Strand, London, W.C.

Price Fourpence; Post Free, Fourpence-Halfpenny.

THE BEST AND MOST DISTINCT PEA OF THE SEASON.

SUTTONS' GIANT EMERALD MARROW PEA.

The above engraving is from Specimens grown in Messrs. SUTTONS' Experimental Grounds in 1874.

☞ *This splendid New Pea, and the other valuable Novelties offered by* Messrs. SUTTON *this Season, can only be obtained direct from them, and each Packet will bear their Registered Trade Mark.*

This New Wrinkled Pea is of a distinct type, and far superior to any of the present tall wrinkled varieties. We have had this Pea under trial for the past six years, while getting up a sufficient stock to offer to the public, and every season its decided superiority has become more manifest when growing alongside all the best sorts. The leaves, stems, pods, and peas possess the peculiar glaucous green colour of our Emerald Gem, but it is a wrinkled variety, growing to the height of 5 feet, coming in for use at the end of June and beginning of July. It is more robust in habit than any of the 84 sorts grown in our experimental grounds last year. From its earliest stages of growth its distinctive character is at once apparent, and it resists drought and mildew in a remarkable manner. In productiveness it is unequalled, and superior to any of the high-priced varieties recently sent out. The pods are from 4 to 4½ inches in length, and hang very thickly, in pairs; they contain from eight to ten fine Peas. The flavour is delicious; and the Peas come to table with the same beautiful green colour that characterises the entire plant.

Price, 5s. per Quart.

The following are the opinions of some of the most eminent Gardeners in the kingdom, who have tried Suttons' Giant Emerald Marrow by the side of other sorts:

From Mr. WILLIAM PATERSON, *Gardener to Her Majesty the Queen, Balmoral Castle.*

"I find your 'Giant Emerald Marrow Pea' is an excellent cropper and of very fine flavour."

From Mr. WILLIAM WHALLEY, *Gardener to His Grace the Archbishop of Canterbury, Addington Park.*

"Your 'Giant Emerald Marrow Pea' is one of the best, if not the best, we have grown, and it is going to be a first-class Pea. It is free from mildew, where nearly all the others are more or less affected."

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"Your 'Giant Emerald Marrow' is a Pea with a beautiful light green foliage, very prolific, large podded, and will make a capital Exhibition Pea."

☞ *At the Royal Horticultural Society's Meeting, South Kensington, July 7, 1875, we offer Silver and Bronze Medals, and valuable Money Prizes, for Six Dishes of Wrinkled Peas, to include Suttons' Giant Emerald Marrow, Duchess of Edinburgh, and Duke of Edinburgh. Further particulars on application.*

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Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE

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Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

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CONTENTS.

SALES BY AUCTION.

Periodical Sale of Poultry and Pigeons.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, January 26, at half-past 12 o'Clock precisely, 300 Pens of choice POULTRY and PIGEONS, from the yards and lofts of well known breeders and exhibitors.

On view the morning of Sale, and Catalogues had.

Hardy Plants and Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, January 27, at half-past 12 o'Clock precisely, a great variety of HARDY TREES and SHRUBS, FRUIT TREES, HERBACEOUS PLANTS, &c.; also a quantity of LILIUMS, GLADIOLI, and other BULBS from Holland.

On view the morning of Sale, and Catalogues had.

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SEAKALE, strong, for forcing, 60s. per 1000.
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OAKS, English, 2 to 3 feet, 30s. per 1000.

Best Seeds Only.

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LAURELS, Portugal, 12 to 18 inches.
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MAPLE, Norway, and
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The usual discount allowed to the Trade.
On account of the short crop of this Celery early orders are requested.
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ORCHARD PLANTING.—Stong Standard APPLES, strong Standard Table and Perry PEARS, Pyramid and Dwarf-trained PEARS. A choice Collection of ROSES; strong Common, Colchic, and Portugal LAURELS; LAURUSTINUS, BOX, YEW, and other Evergreens; Evergreen and Deciduous Flowering SHRUBS; Scotch and Spruce FIRS; CHESTNUT, LIMES, and other Forest Trees, up to 12 feet. Prices on application.
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GLADIOLI—GLADIOLI. —Our AUTUMN CATALOGUE is now ready, and contains all M. Souchet's (and others) NEW VARIETIES for the present season. Also collections for Exhibition or general purposes, all at the most reasonable prices consistent with good bulbs. Delivered free in London, Edinburgh, or Glasgow. LISTS, as usual, sent to all Gardeners and Amateurs free, on application to Messrs. MERTENS AND CO., Walbrook House, Walbrook, London, E.C., or to ourselves, direct—
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Special Offer to the Trade.

A. M. C. JONGKINDT CONINCK, Tottenham Nurseries, Dedemsvaart, near Zwolle, Netherlands, offers several thousand well-grown, transplanted, Standard OAKS, from 12 to 14 feet, at 1s. 3d. each, franco Rotterdam and Harlingen.
Maiden APPLES on Doucin, best varieties, guaranteed true to name, 30s. per 100.
GUNNERA SCABRA, strong plants, 40s. per 100.
Samples can be seen at Mr. T. S. WARE'S, Hale Farm Nurseries, Tottenham, near London.

Vines, Vines, Vines.

VINES.—Fruiting and Planting Canes, strong, well-ripened, short jointed, and with fine plump eyes, of Black Hamburgh, Black Alicante, Muscat of Alexandria, Lady Downe's, Foster's Seedling, Gros Colman, Madresfield Court, Mrs. Pince, Bowood Muscat, White Tokay, West's St. Peter's, Trentham Black, White Frontignan: 2s. 6d. to 5s. each; a few extra strong canes, 6s. 6d.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

Marechal Niel and other Roses from Paris.

LÉVEQUE AND SON, NURSERYMEN, Ivry-sur-Seine, near Paris, beg to offer good and strong plants of MARÉCHAL NIEL, dwarf, from the ground, £2 10s., in pots £2 16s., per 100; Standards, £5; and other TEA ROSES, Standards, £5; Dwarfs, £2 16s. PAUL NERON, Dwarfs, £2 8s.; Standard Perpetuals, our own selection, splendid heads and plants, £4 to £5; Dwarf Perpetuals, our own selection, strong plants, £2 to £2 8s. per 100. SOUVENIR DE LA MALMAISON, on own roots grown in pots, £2 per 100.

Gladioli from Paris, per Names and Seedlings.

LÉVEQUE AND SON, NURSERYMEN, Ivry-sur-Seine, near Paris, beg to offer splendid, healthy, and good flowering bulbs of GLADIOLI, to the prices:—Gladioli, seedling, first-rate, 8s. per 100, £3 per 1000; mixed white, 12s. per 100; do. red, 12s. per 100; do. yellow, 24s. per 100; do. rose, 12s. per 100; per names, 100, 10 sorts, 8s. per 100; 25 sorts, 14s. per 100; 50 do., £1 to £2: 100, £2 to £6, and upwards, according to the novelty of the sorts, all in good flowering bulbs. English Cheques or Post Office Orders on Paris accepted for payment.

Rare Opportunity.

NEW and VERY SCARCE TREE FERN SPORES from AUSTRALIA and NEW ZEALAND.
J. H. LEY, having just received an importation from his Collector, can supply good packets, with directions for sowing and rearing, at 3s. 6d., 5s., and 7s. 6d. each.
The fronds from which three sorts have been obtained are new species, the other four sorts are Cyathea dealbata (silver), C. medullaris, Alsophila McArthuri, Dicksonia fibrosa, and a small quantity of Dicksonia squarrosa. Should be sown now to obtain nice plants before autumn.
J. H. LEY, Royal Nursery, London Road, Croydon.
N.B.—Twelve choice PALM SEEDS, in distinct sorts, 5s.

TREE FERNS, for Conservatory, with magnificent large heads, will be Sold at the following low prices, to make room:—Dicksonia antarctica, trunk 1 foot 2 inches, 31s. 6d.; ditto, trunk 3 feet 3 inches, very stout, 63s.; D. squarrosa, trunk 1 foot 5 inches, 42s.; ditto, trunk 3 feet 3 inches, 75s.: D. fibrosa, trunk 2 feet, 63s.: Lomaria cycadæfolia, trunk 1 foot 2 inches, 42s.; L. gibba major, huge plant, trunk 1 foot 8 inches, 31s. 6d.; L. gibba, trunk 2 feet, 10s. 6d.; Cibotium princeps, trunk 7 inches, 21s.
Also a splendid specimen Platycerium grande, 42s.; Asplenium nidus avis, 15s.
J. MORSE, Nurseryman, Dursley.

NEW JAPANESE FRUIT, ORCHIDS, LILIES, AMARYLLIS, &c.—Our first consignment of Japanese Orchids is in excellent condition, including Aerides japonicum, Calanthe Sieboldi, Angræcum falcatum, Goodyera japonica, &c.; also the new fruit, the Persimmon, in the four best varieties of Japan; also Lilies—L. auratum, very fine, and many rare sorts; Peruvian Bulbs and Amaryllis in excellent condition. A few Bulbs left of the scarce and beautiful Lilium neilgherense.
CATALOGUES can now be had.
THE NEW PLANT AND BULB COMPANY, Lion Walk, Colchester.

Hollies, Rhododendrons, Forest Trees, &c.

G. FARNSWORTH, The Nurseries, Matlock, begs to offer the following TREES, also other NURSERY STOCK, at low rates:—Sycamore, 5 to 6 feet, twice transplanted, 6s. per 100. Ash, Mountain, 3 to 5 feet, 20s. per 1000. Fir, Scotch, 15 inches to 2 feet, 16s. Berberis Aquifolia, 1 to 1½ foot, 50s. Oak, English, 3 to 5 feet, 25s. Privet, Evergreen, 3 to 5 feet, 20s. Holly, 1-yr. and 2-yr. bedded, 25s. Quick, strong, 14s. Hornbeam, 3 to 5 feet, 30s. Rhododendrons, 3-yr. seedlings, 5s.; 3-yr. and 3-yr. bedded, 25s.; 8 to 12 inches, 80s. Chestnut, Horse, 4 to 6 feet, 8s. per 100. Pinus austriaca, 2 to 3 feet, 8s. Poplar, Balsam, 6 to 8 feet, 8s. Limes, from layers, transplanted, 4 to 5 feet, 16s.; 7 to 9 feet, 40s. Laurel, common, 1 to 1½ foot, 8s.; 1½ to 2 feet, 9s.; 2 to 3½ feet, 14s. Arbor-vitæ, Chinese, 2½ to 3½ feet, 5s. per dozen. Laurel, Portugal, 3 to 4 feet, 8s.

Planting Season, 1874-75.

MESSRS. JOHN STANDISH AND CO. invite the attention of intending Planters to their large and valuable Stock, consisting of all the newest and best varieties of the Japanese Importations, as well as a very large quantity of SPECIMEN CONIFERÆ, HOLLIES, LAURELS, DECIDUOUS and EVERGREEN PLANTS, ROSES, FRUIT TREES, &c., all of which are in excellent condition for removal.
Their NEW CATALOGUE is now ready, and will be sent, post free, on application.
Royal Nurseries, Ascot, Berks.

CRANSTON'S NURSERIES, Established 1785.—The following CATALOGUES are just published, and will be forwarded on application:—
DESCRIPTIVE CATALOGUE of ROSES (1874 and 1875).
DESCRIPTIVE CATALOGUE of FRUIT TREES.
DESCRIPTIVE CATALOGUE of CONIFERS, SHRUBS, and FOREST TREES.
DESCRIPTIVE CATALOGUE of BULBS. Address,
CRANSTON AND MAYOS, King's Acre Nurseries, near Hereford.

STRONG FOREST TREES.
LARCH, 2 to 3, and 2½ to 3½ feet.
SCOTCH, 2 to 2½, 2½ to 3, and 3 to 3½ feet.
SPRUCE, 2 to 2½, 2½ to 3, and 3 to 4 feet.
OAKS, English, 3 to 4, 4 to 5, and 5 to 6 feet.
The above, with other sorts, are all strong and good, and there is a considerable quantity of each size on offer. Apply to JOHN HILL, Spot Acre Nurseries, near Stone, Staffordshire.

To the Trade.

S. DYER can supply, in large quantities:—
LARCH, 2½ to 3 feet, fine.
SCOTCH, 1½ to 2 feet.
BEECH, 3 to 4, and 4 to 6 feet.
OAK, English, transplanted, 8 to 10 feet.
MULBERRIES, Standards, very fine.
Prices on application.
The Nurseries, Bridgwater.

Roses.

GEORGE GRAY AND SON, of The Nurseries, Brox, Chertsey, Surrey, are selling some of the finest ROSES in the Trade, of all the various heights, from 9s. to 15s. per dozen; 60s. to 115s. per 100; cheaper by the 1000. Their Collection consists of all the best new and old varieties.
G. G. & SON have received numerous Testimonials, and among other valuable ones they have the following from the Rev. W. F. Radclyffe, Okeford Fitzpaine, who says: "Your charges are most reasonable, and your stock is good."
Catalogues free. No charge for packing.

New Potatoe for 1875.

JOHN CATTELL with the greatest confidence recommends the following, which have received 2 First-class Certificate:—
ECLIPSE KIDNEY (Cattell), price 6s. per 7 lb.
RELIANCE KIDNEY (Cattell), price 4s. per 7 lb.
ADVANCER KIDNEY (Cattell), price 4s. per 7 lb.
The Set 12s. for cash with order. Trade price on application.
See large Advertisement in last page of the *Gardeners' Chronicle* for January 9, 1875.
Full description, and testimonials, post-free on application.
Sole Wholesale Agents in London, Messrs. HURST AND SON, 6, Leadenhall Street, E.C.
Nursery and Seed Establishment, Westerham, Kent.

NEW DWARF SILVER-VARIEGATED GERANIUM, "LITTLE TROT."—This very distinct Geranium was raised by Mr. Davis, The Cemetery, Maidstone, and is placed in W. P. Rotten's hands for distribution. The dwarf, compact-branching habit of this variety, and its broad, clear white margin, will make it invaluable for edging or panel work. Its average height is about 6 inches. The flowers are a deep scarlet. It has been admired by all who have seen it, and received a First-class Certificate from the Royal Horticultural Society, August 29, 1874. W. P. can highly recommend this Geranium as being one of the most distinct and useful varieties of its class yet offered. It will be sent out the first week in May, 1875. Price 2s. 6d. each, 24s. per dozen; the usual discount to the Trade. Orders are now being booked, and will be sent out in rotation at the above date.
WILLIAM POTTEN, Camden Nursery, Sissinghurst, Staplehurst, Kent.

Planting Season.—Avenue Trees.

LIMES, 12 to 16 feet high, straight stems, girting 4 to 8 inches at 4 feet from the ground, with well-balanced heads, and splendidly rooted. A stock of more than 5000 of these fine Trees to select from.
PLANES, OCCIDENTAL, 12 to 16 feet.
HORSE CHESTNUTS, 10 to 12 feet.
SCARLET HORSE CHESTNUTS, 10 to 12 feet.
NORWAY MAPLES, 10 to 16 feet.
All being stout, straight stemmed, and finely rooted. Every Tree has been removed within two years.
POPLAR, CANADENSIS NOVA, 18 to 20 feet.—This new variety of Poplar, for exceeding in rapidity of growth any tree I am acquainted with, is strongly recommended as a Town Tree, especially in smoky districts. There are hundreds in this Nursery 3 years old, measuring 18 to 22 feet high, and stout in proportion.
ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey, S.W.

PLANTING SEASON.
LARCH, SCOTCH FIR, ENGLISH OAK, and all other Forest Trees.
QUICK, and all other Hedge Plants.
COVERT PLANTS in great variety.
FRUIT TREES, including all the best and most esteemed varieties—quarter of a million trees.
ROSES, Standards, Dwarfs, the newest and best varieties—100,000 to select from.
VINES, all the leading varieties in 2000 well ripened canes for fruiting in pots and for planting out.
EVERGREENS in great variety, including large quantities of all the choicest Hollies, &c.
CONIFERS, including Picea Nordmanniana, &c.
ORNAMENTAL TREES and Plants of all sorts.
*** The whole in very great quantity and stout vigorous condition, with fine roots for safe removal.
Priced LIST and all particulars on application.
JAMES DICKSON & SONS, Newton Nurseries, Chester.
☞ The "Newton" Nurseries are within eight minutes' walk, by the new road, from the Chester Railway Station.

These Collections are especially suited to Cottagers', Artizans', and Soldiers' Gardens; and Messrs. SUTTON have pleasure in supplying them at greatly reduced prices, in the hope that every one interested in the social condition of the Working Classes will co-operate with them in extending the valuable influence which the culture of Flowers and Vegetables has on the home-life of the Cottager, Artizan, and Soldier.

SUTTONS' CHOICE VEGETABLE SEEDS.

Price for a Single Collection .. 21s. 6d.

	Per dozen—s.	d.
For 1 dozen and under 5 dozen Collections ..	28	0
For 5 ,, and ,, 10 ,, ,, ..	27	0
For 10 ,, and ,, 20 ,, ,, ..	26	0
For 20 ,, and over	25	0

One dozen packets and upwards sent Carriage Free to any Station in England.

SUTTONS' CHOICE FLOWER SEEDS.

Price for a Single Collection .. 1s. 6d.

	Per dozen—s.	d.
For 1 dozen and under 5 dozen Collections ..	17	6
For 5 ,, and ,, 10 ,, ,, ..	17	0
For 10 ,, and ,, 20 ,, ,, ..	16	6
For 20 and over	15	0

SUTTON & SONS,
THE QUEEN'S SEEDSMEN, READING.

SUTTONS' CHOICE SEED POTATOS

For Planting.

SUTTONS' DESCRIPTIVE LIST
Is now ready, and may be had Gratis and Post Free.

N.B.—Potatos as well as Seeds Carriage Free

SUTTON & SONS,
THE QUEEN'S SEEDSMEN, READING.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—At a General Meeting of the Subscribers to this Institution, held on January 14, for the purpose of ELECTING TWO PENSIONERS on the Funds, the following was the result of the Ballot:—

CANDIDATES.

Name.	Age.	Votes.
THOMAS EYLES	64	802
THOMAS HOPKINS	67	426
HENRY BUTCHER	70	124
GEORGE DYER	67	594
JANE SCOBIE	61	931
JOHN BLACKSHAW	61	121
JOSHUA LANCASTER	40	481

The Meeting then declared JANE SCOBIE and THOMAS EYLES, as having the greatest number of Votes, duly ELECTED PENSIONERS.—By Order,
EDW. R. CUTLER, Secretary,
14, Tavistock Row, W.C.—January 19, 1875.

SATURDAY, JANUARY 23, 1875.

RARE CONIFERS.

WE lately received from Messrs. F. Sander and Co., of St. Albans, a few specimens of cones and branches of Conifers discovered by M. Roezl, and forwarded to them by him. The locality where they were found is not mentioned by these gentlemen, but from the species we are safe to give it as New Mexico. The specimens so received, they have kindly sent for our inspection and opinion, and as they prove to be both rare and curious, our readers will probably be glad to have some note of them.

Those who remember the deluge of pseudo-new species sent by M. Roezl from Mexico some sixteen or seventeen years ago, when upwards of one hundred species were manufactured out of half a dozen, will naturally look with doubt and hesitation upon anything new coming from the same quarter; and we do not deny that when we read who they came from we clothed ourselves with a double armour of distrust. We soon found, however, that the present *envoi* had nothing in common with the old ones; the number of species was small, which in itself was a good sign, and although nothing was absolutely undescribed among them, all were interesting and rare.

The first species is that named ABIES (Picea) CONCOLOR. Its history is brief. It was found on the mountains of New Mexico by Engelmann, and was described by Gordon in the first edition of his *Pinetum* as having leaves much resembling those of Picea grandis, but with both faces of the leaf of the same colour. It was said to be a tall tree with cylindrical deciduous cones, but "nothing further was known" of it. Parlatore, who had received specimens (at least of the cones) from Engelmann, preserves it as a good species, and had we been writing two years ago, before seeing the character of grandis (a variety of which we now take it to be), when growing wild in its native country, we should have done the same thing. The distinguishing characters by which Parlatore separates it from grandis are that the leaves are concolorous both above and below—white, turning greenish with age, and often marked on each side by a middle rib—"the bracts of the scales of the cone a third shorter than the scales, larger than in P. grandis, and not emarginate or mucronate." To these we may add that he notes (in which he is supported by the specimens now under examination) that the leaves, though long and flat, are slightly curved in the falcate fashion of nobilis. In no other respect is any difference indicated. Now, so far as we examined the single cone that we have before us—which we only did partially, for we did not like to tear the whole cone to pieces, and therefore confined our examination to a few of its topmost scales—the bracts of the scales are identical with those of P. grandis, and the cone in size and appearance is also exactly the same. We incline to think, therefore, that there must either be some amount of variation in the form of the bracts, or that in some way Parlatore has been deceived in his estimate of their size and appearance. Be that as it may, we can see no difference. Next as to the leaves: the most striking feature in them—namely, their mealy white appearance—is one that is common to grandis all over the mountains alongside of the alkaline wastes between the Rocky Mountains proper and the Sierra Nevada. There this mealy aspect is the prevailing feature over the whole of the vegetation. Almost everything partakes of it, and in certain parts grandis has it too. The olive, semi-transparent hue of the young shoots, which is characteristic of P. grandis in this country, is, although often present, by no means their commonest phase. They become white, and, in the more barren places, the leaves take the same hue. We brought home specimens (now in the British Museum) from plants the whole of which were every whit as white as the leaves of P. concolor now sent home by Roezl. There only remains the slight curving of the leaves to distinguish concolor from grandis, but even this is not unknown in grandis. We have seen great variation in this respect, generally the leaves lying out quite flat, herring-bone fashion, but sometimes standing up and curving more or less.

Of course it may be said that such specimens belong perhaps to concolor, and that both species may occur in the places to which we refer, but the fact that no American botanist has recognised it there, and that grandis stands without any allied species in the floras of Utah and Colorada, where these white varieties of grandis are common, is sufficient to negative any such idea. As a marked variety, however, it is deserving of cultivation, and it will be of much interest to see whether the young plants retain the character of their parents, or come up as grandis pure and simple.

PICEA MAGNIFICA.—This is one of the most provoking species, so far as we are concerned, that we have ever met with. We described it as a new species in the Royal Horticultural Society's *Proceedings* of 1862, from a cone in the possession of Messrs. Low, of Clapton, and from young plants reared by them. The cone, scales and bracts, were those of a gigantic amabilis, so much so that, from the figures which we gave, Parlatore has quoted it as a synonym of that species; and other botanists of eminence, judging only from these figures, have come to the same conclusion. We had scattered fallen leaves, but no displayed foliage, to go by—only the immature foliage of seedlings, both different from amabilis; but the mature foliage afterwards turned out to be so exactly like that of nobilis that we acknowledge ourselves unable to tell from the trees without the cone which are nobilis and which magnifica. If we could see them in the seed-leaf we could tell, for magnifica has a young state quite peculiar to itself—liker a Spruce than a Picea; but that very soon wears off, and the livery of nobilis comes on. It is a clear case of the voice being the voice of Jacob, but the hands being the hands of Esau. Being so much puzzled with this curious transformation, we latterly, when we have been pounced upon and carried off to say whether a plant is magnifica or nobilis—"for you, having described magnifica, are of course sure to know"—have taken to indulging sceptical notions in regard to our own offspring. May not Messrs. Low of Clapton have made some error in their sowing? While they thought and told us that they had sown the seed of this cone like a gigantic amabilis, may it not have been the seed of true nobilis? But then the curious young stage—so different alike from nobilis and amabilis—how was that to be accounted for? It was therefore with great satisfaction that we found in this *envoi* of Roezl specimens of magnifica—both scales and mature foliage, the foliage as distinctly that of nobilis as is that of the young plants growing in this country, and the cone corresponding with that which we described. We have here therefore the curious anomaly of a species with the foliage of nobilis and the cone of amabilis, and the reader will remember that there is no resemblance between the two cones—that of nobilis being compact and bristling with pro-

jecting bracts, while the bracts are differently shaped and not visible in the cone of amabilis. It may be an example of the creation of a species by hybridisation, in which, instead of a general *melange*, the chief features of each parent have been preserved unaltered.

PICEA BIFOLIA.—We described this species at the same time and place as magnifica, from specimens in the Kew Herbarium. The cone is something like that of amabilis, or rather a medium between it and Pattoniana; and Parlatore, we imagine from this similarity, has reckoned it, too, as a synonym of amabilis. The leaves, however, are wholly different (there are two kinds of leaves, whence the name), and the mature ones are short, thick, curved, and stumpy—more in the line of nobilis than amabilis. Whatever it be, it is certainly not amabilis, and it would appear at all events that it is sufficiently well discriminated to have allowed M. Roezl to recognise it and send it home.

ABIES COMMUTATA.—This is one of the Menziesii race, and we see that the specimens also bear the title of A. Menziesii argentea. It has a handsome silvery gleam on the foliage, and we should think this must prove a valuable addition to the species of this race grown in Britain, if it stands our climate. Parlatore has doubtless rightly united Lindley's A. microsperma from Japan to A. Menziesii. We should have no great disinclination to go a little farther, and regard the other Japanese species, Alcoquiana, as well as the present species also, as varieties of it; but whether species or variety its beauty will remain the same.

ABIES DOUGLASII. — Of course we do not quote this species as a novelty or rarity. We only note it for the locality. We have no information as to the size or vigour of the trees from which the specimens are taken. No doubt they will be of the smaller sized kind, the great giants, reaching to 200 or even 300 feet in height, being confined to British Columbia, while those in the Rocky Mountains and southwards into Mexico are said not to exceed 90 feet in height; still we can vouch for it that many in the Rocky Mountains and Sierra Nevada, high up and on the sides of hills where little nourishment or moisture was to be had, still reached an enormous height and size. The bark of these trees when they are old is of a peculiar character, like dark brown cocoa fibres felted together. Every different species has a different character of bark, and we would suggest to Dr. Hooker that a collection of 6 foot slabs of bark of different trees in the museum at Kew would be not less instructive than, and render more complete the information given by, the array of woods which are there displayed.

PINUS DEFLEXA.—This was first described by Dr. Torrey in the *United States Mexican Boundary Report*, vol. ii., p. 209, where he speaks of it as being closely allied to P. rigida of the Atlantic States, but is sufficiently distinct; and being unable to refer it to any Californian or Mexican Pine hitherto described, he described it under this name. Parlatore puts it among his doubtful species. For ourselves we have no doubt that it is one of the climatal varieties of Pinus ponderosa. Its leaves are indistinguishable from those of ponderosa; and although the cone is slightly different, the base being narrowed towards the stalk, still the difference is not greater than occurs in several of the other admitted varieties of ponderosa, *e.g.*, Beardsleya, Craigana, Jeffreyi, Benthamiana, or Sinclairiana. There is one great character which we have never seen to fail for ponderosa in its native country, and that is, its colossal columnar trunk, rising like an Ionian pillar, and seeming almost as thick upwards of 100 feet up as it is at the bottom. This is specially quoted by Torrey as a character of deflexa, from the notes of the collector:—"A handsome tree, with an even columnar trunk." The trunk is also in all cases seamed with great large scales or plates 2 or 3 feet in length, but Torrey is silent as to the bark.

PINUS FLEXILIS.—One of the erroneous impressions of which we were disabused by a visit to the Rocky Mountains and Sierra Nevada is, that Pinus flexilis was a low-growing, scrubby Pine, not entitled to much favour. It no doubt is, in some places very high up in the mountains, when exposed to cold and severe blasts, reduced to little more than a trailing shrub a foot or two high, wandering over the ground, and with its foliage so densely packed that a man could almost walk over it; but in less trying situations it is a fine object, generally gnarled and twisted, tossing its limbs freely abroad, and with a rich dark foliage. It reminded us of the Scotch Fir, but had not its peculiar shape, nor had its limbs its ruddy hue. It is not, however, distinguished in any way for size, usually not exceeding the dimensions of a Scotch Fir.

PINUS ARISTATA. — This is another species which braves the whirlwind and defies the blast. It was described by Engelmann a few years ago from specimens obtained from Pike's Peak. It has five leaves in the sheath, not more than an inch in length. Seeds and specimens were introduced into England some ten years ago. The branches had every appearance of being very slow-growing; and, so far as we have seen of the young plants raised from the seed, that character has been quite sustained. *Andrew Murray.*

New Garden Plants.

MASDEVALLIA NYCTERINIA, *Rchb. f.*

Mr. Smith does not understand how it is that I have little admiration for his pet, M. Nycterinia. I have already stated that I have never had a chance of seeing such a beautiful flower as that represented by our highly valued artist, though I happened to see several flowers on the very same plant in Mr. Day's excellent collection. After all I must add, that when I write for collectors and amateurs I must look at the things as they do. When I was a young beginner I thought it was very easy to make these gentlemen admirers of Stelids and Pleurothallids, of green Epidendra, brown Acampes, and dirty Maxillarias. I was utterly mistaken. I remember well how Dr. Lindley was amused at it. "Vous ne les changerez jamais," was his answer; for when he was very gay he used sometimes to speak French. He was quite right. I need not add that my botanic feeling does the greatest justice to any small things, yet I cannot praise trifles as being showy. It is often difficult enough to judge of the value of plants from mere flowers, dried scraps, or horrible caricatures, which pretend to be genial masterpieces. *H. G. Rchb. f.*

NEW JAPAN PEAR.

SOME time since, on the occasion of describing Pyrus (Cydonia) Maulei, we gave a list of the species of this genus, chronicled up to that time as natives of Japan. That list certainly does not include the subject of our illustrations (figs. 17, 18), and which was originally figured in the *American Agriculturist* for December, 1871. For our knowledge of it we are indebted to the publication just mentioned, to Mr. Quinn, of New Jersey, and to Dr. Thurber, to whose courtesy we are indebted for the specimens from which our drawing was taken. It is a question whether it should be called an Apple or a Pear, for while the tree has the wood, leaves, and habit of growth of a Pear, the fruit has the shape of an Apple and the odour of a Quince." The leaves are very large, and are stated to remain on the tree late in autumn, and to assume as brilliant a colour as the Maple. The tree is therefore valuable as an ornamental tree, and bears abundance of fruit, which "makes the most delicious preserve, with a positive Quince flavour." The fruits with which we were favoured had a very peculiar musky flavour, without the acidity of the Quince. There are stated to be two varieties of it, differing in the fruit, which in the one case is bright green with a few russet splashes, and in the other of a "fine golden russet with conspicuous white dots." It is supposed to have been derived from Japan, where, according to Mr. Thomas Hogg, both forms of the fruit are common. This pomologist considers it specifically the same as the Sand Pear (Pyrus sinensis), an opinion, however, from which we, though under reserve, venture to express our dissent.

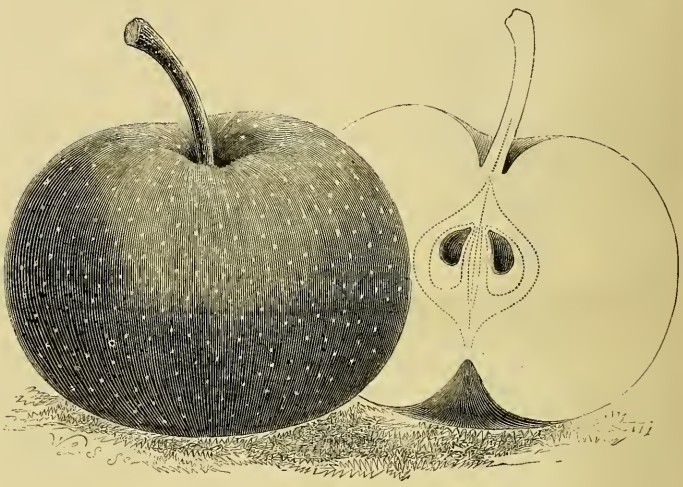

FIG. 17.—NEW JAPAN PEAR.

NOTES ON PINUS AUSTRIACA, &C., IN SCOTLAND.*

I MOST gladly give you what information I possess, as well as my experience of the P. austriaca. I believe I induced the late Mr. Lawson to bring to Scotland seeds of this tree. I corresponded for him with Professor Hess, at Vienna, having passed some time at Vienna (1825), and visited the district where the "Schwarzkiefer" grows. I then thought over the possibility of introducing this beautiful Pine to Scotland. Being a zealous planter, I arranged with Mr. Lawson to have the first crop of plants, and accord-

* Read by Sir John Murray Naismyth at the January meeting of the Edinburgh Botanical Society.

ingly, in the spring of 1836-7, I planted forty Scots acres, mixing the Tyrol Larch with austriaca. In the spring of 1852 nearly the whole of this young wood was burnt, in consequence of workmen smoking whilst making a road in this part of the wood. Mr. Lawson, however, made a great mistake in planting the P. austriaca on a very high and exposed part of my hills. What remains of this wood has never succeeded well; they are mere sturdy stumpy trees, and are year by year dying out. Subsequently I planted very extensively over my woods (which average 800 to 1000 feet above the sea), as well as through the lower grounds. The result of my experience is that P. austriaca will never make a lofty tree in this hilly country. Even in its limited habitat (in Lower Austria, between Vienna and the Sömmering Mountain Pass) it is always a low-growing, and never a large tree.

This tree, as you probably know, is so rich in resin (called by the Germans *harz*) that its chief use in the country where it grows is for lighting the houses. The wood is split into very thin "laths," and about 2 feet long, kept in bundles, and used as candles. I passed a whole summer in the Upper Engadine, and while there made the acquaintance of the head forester of the district between Samaden and Silva-plana. He had formerly had the charge of a great district of forest in the Rhine country—the Eifel. He told me, in answer to my inquiries as to his knowledge and experience of P. austriaca, that the tree had been largely introduced into the German forests of Thuringia, Taunus, Eifel, Schwarzwald, and the Pomeranian forests, and that it had been found to give way after thirty to forty years; the timber also was considered quite inferior to P. sylvestris, owing to the superabundance of *harz* (resin), in fact, it could hardly be sawn or worked. I find this information sadly true. Those I have planted in my hill woods, mixed with P. sylvestris, have attained no size for their years, and are almost without exception dying off; the foliage seems to wither and brown, the tree exudes low in the trunk a quantity of resin, and those I have cut down have with difficulty been sawn, owing to the amount of resin.

When passing an autumn (1863) at Ischl, in Upper Austria, I had the same information given me by the Emperor of Austria's head gardener, who, I remember, was busy transplanting some large specimens of P. austriaca (October): he told me they were merely ornamental, and did not succeed on the mountains. In Mr. McNab's pamphlet on the change of our climate, he alludes to the Larch. Mr. McNab is aware, I think, that the first Larches planted in Scotland were here (Dawick, Stobo, N.B.), brought by my grandfather from Tyrol as seed, and put out in 1725!—(this is an authenticated fact)—six years before those at Dunkeld.

These great trees are now sadly torn, one lately (October 21-22), but the great one was torn in 1820, and one magnificent tree is quietly dying out. All my young Larch plantations I raised from seed sent me by Appelius & Eichel, from Erfurt. I am convinced that one cause of the so-called Larch disease arises from want of timely thinning, as well as from home-grown seed. I have thinned my Larches early and gradually, always insisting upon having room for sun and air to the roots, and I have never had any disease.

As to the Arve, or P. Cembra, I have pruned some, and find they do not bear it so well as the austriaca. They are growing very luxuriantly, but for some years past have been sadly injured by the boring beetle. The P. ponderosa, of which I have one large tree, is a miserable-topped unsightly tree, and is especially preferred by the borer.

The P. pyrenaica has almost entirely failed with me. Being a Spaniard, it lacks sun in Tweedale. The true P. uncinata grows a pretty diminutive tree. The tree named by nurserymen in their lists as P. uncinata is nothing but the P. Mugho. *John Murray Naismyth.*

Fig. 18.—New Japan Pear.

ON THE CONTENTS OF THE CROP OF THE CAPERCAILZIE.*

HAVING occasion recently to examine the crops of several Capercailzie, with reference to their destructiveness to forest trees, it has been suggested that the results of my examination of one or two of the crops might be of interest to the members of this Society, and in accordance therewith I have drawn up the following short notes.

In the crop of a male bird, which I examined on November 15, 1873, I found the contents to be as follows:—203 points of shoots of Scotch Fir with the leading bud entire, some of the shoots being fully 3 inches long, and 2 inches wide, measured across the leaves as taken out of the crop; eleven pieces of young wood, 1½ to 2½ inches long, and about an inch in circumference at the thick end, each having some leaves attached but no terminal bud; and fifty-two buds: making in all the enormous number of 266 shoots and buds of Scotch Fir, besides a large handful of detached single leaves of the same, devoured by one average-sized bird at a single meal. The bird weighed 11¾ lb., the crop weighing 9 oz., and measuring 6 inches in length, 5 inches in breadth, and 3 inches in depth; its circumference being 15 inches the longest way and 12½ inches the shortest. The leaves, buds, and shoots, were all quite fresh and green, apparently selected with good taste from healthy growing trees.

I examined the crop of another rather small male bird on April 16, 1874, and found the contents to consist entirely of the young shoots, buds and leaves of Larch, excepting three small bits of lichen, probably picked off the same tree. I counted five pieces of young shoots, each over an inch long, and the extraordinary number of 918 buds with or without leaves attached, and an ordinary sized teacupful of tender young leaves. The contents in this case were very moist and sticking together in small bundles, but separated easily. All were plump, juicy, and fresh, evidently the produce of a free healthy growth. The bird weighed 9½ lb., its crop when full weighing 7½ oz., the weight of the contents being 6½ ounces. Its length was 4½ inches, breadth 2¾ inches, depth 2½ inches, and circumference, the longest way 12 inches, the shortest way 7½ inches.

By the above analyses of their crops, which are similar to many I have examined in the winter and spring, it will be seen that where Capercailzie are very numerous they must do considerable injury to Larch and Scots Fir plantations, although their food is by no means confined to the produce of those trees, as at other seasons I have examined crops which contained (besides Larch and Scots Fir) various sorts of berries, such as Junipers, Mountain Ash, or "rowans," haws, hips, Brambles, Cranberries, Blackberries, &c., generally mixed with a few leaves of the same plants; and sometimes the leaves and buds of Birch, Hazel, and Oak, but the latter is rare. In July and August I have found some crops filled with nothing but the young tops and bloom of heather, Erica cinerea and E. Tetralix, both species generally intermixed, neither seeming to be preferred. In birds of the first year there is generally found a large quantity of Fern fronds and less of the Scots Fir, which at all times afterwards seems to form their staple food. The Fern fronds are almost wholly the common Polypody (Polypodium vulgare), but occasionally I have found small quantities of the male Fern (Lastrea Filix-mas) the Lady Fern (Athyrium Filix-fœmina) and Lastrea dilatata. Barley and Oats are also found in the crops of birds when got in the neighbourhood of cultivated land, but I have never found them in any quantity; and in all the specimens I have examined, young or old birds, I have never found a single morsel of Spruce Fir, although the bird is said to feed freely upon it in Norway.

From my own observation, and in reply to inquiries I have made of people who are in the habit of observing the Capercailzie feeding in the northern forests, I believe it prefers to feed upon the healthy young "sappy" growth of vigorous trees, and they have been known to return to the same tree day after day until they had completely denuded it of its healthy young buds and points of shoots; however, I believe cases of such severe injury are rare, and, generally speaking, if the birds are not too numerous, the injury they do is trifling compared with the great pleasure and gratification of seeing such a magnificent bird again becoming common in the forests of our native country. *M. Dunn, Dalkeith Palace Gardens.*

Mr. Dunn opened before the meeting the crop of a female Capercailzie which had been shot in Perthshire the previous day. The crop was filled with the leaves and buds of the Scotch Fir.

* Read at the January meeting (14th inst.) of the Edinburgh Botanical Society.

GLASS.

IT is now, I should think, twenty years ago that I witnessed a new process for making glass, which was invented and patented by Mr. Bessemer (*the* Bessemer), and by which the manufacture was rendered less costly by at least 50 per cent. I went over the experimental factory in Agar Town, saw the whole machinery, simple, ingenious, and complete, from the first preparation of the "metal," the melting, annealing, and perfect completion of the article, some of which I saw and handled.

The process differed from the usual and present mode of making glass in this respect: instead of putting the crucible containing the raw material on the fire, the fire was made to go into the crucible, by which simple reversal of the manipulation time and fuel were economised in the proportion that five hours bear to sixty hours. The crucibles employed in fusing the "metal" are made of very non-conducting material—Stourbridge clay, and are of enormous thickness, so that when placed over the fire days and nights elapse before the heat gets through the pot, and fuel is consuming all the time. By the improved process, a large rotating fan, charged with heated air, conveyed like an immense blow-pipe a flame of intensest heat direct upon the "metal," and the pot was heated only, as it were, incidentally. This superheated blast, of some 20 feet or more in length, afterwards expended its heat in other duties, as in keeping up the temperature of the annealing ovens. A very ingenious plan was employed for lifting and tilting the crucible. Beneath, the crucible was supported upon the pistons of an hydraulic press: by letting in a small stream of water, and which could be regulated by a tap, the massive vessel with its contents was gradually raised into the spot where the immense tongue of flame was playing; this was slowly and surely accomplished by the pressure of water, and it could be arrested at a moment. When the metal was sufficiently melted, the crucibles were lifted at the back edge, and thus tilted on to a metallic slab in front. The molten "metal" was then rolled out into sheets by passing under rollers; thence it gradually travelled down an inclined plane, and was received at the other end on to waggons which were used to transfer it to the annealing ovens. These rollers and metallic slabs were kept cool by currents of cold water passing through them. The glass thus made was rolled glass—rough plate; but the principle of melting could of course be applied to blown glass such as is used for ordinary glazing.

Such, briefly, was what I saw, and now I want to ask, what has become of this process? I was given to understand at the time that the patent was bought up at a goodly price by a well-known glass manufacturer for the purpose of burking it. A commercial *coup*—a *coup de commerce*—I suppose, it must be called. Such a process of making glass was calculated to revolutionise the whole trade; of what use henceforth would be all those cumbrous furnaces, and those immense buildings, if glass could be made like this? Every appliance in the already existing manufactories, all the details, all the machinery, mechanical and human, would be at once rendered obsolete. So the spirited proprietor of one of the largest works bought the invention out of the way, satisfied with the profits he could make in the old mode; and doubtless the talented inventor accepted the cash with another sigh over his last offspring, strangled before it could cry, and kept the money to nurture the next bantling that was to come from that fertile brain.

But what has all this to do with the *Gardeners' Chronicle?* Surely this is obvious. Most of your readers, I feel certain, would hold up their hands for a reduction in the price of glass; and if this patent had not been suppressed there is no reason why glass should not now be had at 5*s.* the 100 feet, or from that to 15*s.*, according to quality; but beyond the smaller or personal importance of the question there is a much wider and higher one, and even a national interest, in the production of a cheap glass, so essential to health, by introducing light and cleanliness into our homes; while the whole science of horticulture, and therefore botany—and therefore many economic sources of national wealth—would be enhanced by the increased facilities which a cheap glass would give to both scientific investigators and mercantile producers.

The patent has long ago expired. It would be a good speculation for a company to take up the plan, and start a factory. *W. H. O.*

DALLAM TOWER, WESTMORELAND.

THIS place, the seat of G. E. Wilson, Esq., is beautifully situated on the banks of the River Bela, eastward from and near the head of Morecambe Bay, into which the river empties itself a little lower down. A more lovely situation could not well be selected. The mansion, a large, substantial stone building (fig. 19), fronts northwards, overlooking the river, which, when the tide is in, forms a broad expanse of water. Coming up into the park, eastward lies an extensive and finely wooded park of magnificent land, with broad open glades; the ground rises in this direction gradually far away until is reached the wood-clad summit, which stretches right and left, forming an elaborate framework to the enclosed landscape. Here and there, on a judiciously selected elevated spot, are clustered a few trees, groups of the Scotch Fir (Pinus sylvestris), the dense black-green foliage of which contrasts well with the paler tints of the neighbouring groups of deciduous Limes and Beeches, still further brought out by noble round-headed Chestnuts. The land here, mostly resting on the limestone rock, is extremely fertile, necessarily dry and free from stagnant water, yet everything looks fresh and green even in dry summer weather. The high ridge in this eastward extremity of the park, besides the fine effect it produces, affords a most welcome break to the eastern blasts that come sweeping down from the higher hills in the winter season. Westward, at some three-fourths of a mile distant, lies the bay, with its magnificent sheet of water, in calm weather placid as a mirror, yet when lashed by the western gales its rolling waves come surging in as if intent on engulphing everything that opposed them; but the effects upon vegetable life of these breezes off the bay are of a totally different nature to what is experienced off the open sea, where the salt-laden gale stunts and dwarfs almost the whole vegetable family. The nature of the land, here undulating on the surface, breaks the force of the wind; almost everything in the shape of timber trees, evergreen and deciduous shrubs, thrive most luxuriantly; things of a half-hardy character, such as Fuchsias, Hydrangeas, Myrtles, and numbers of others of similar nature seldom feel the effects of the mild winters. On the opposite shores of the bay, in the direction of Coniston, the view is most extensive, stretching away to the more western and distant hills: the eye here takes in one of the finest agricultural districts in the kingdom, including Furness, so famed for the corn-growing capabilities of its red ore-impregnated soil.

At the westward end, and connected with the mansion by a glass-covered colonnade, stands the conservatory; it is an irregular shaped structure built of iron with a curvilinear roof, which is nicely clothed with Passifloras, the Jasmine-leaved Bignonia, Tacsonias, and other similar things. The centre is occupied by Tree Ferns, Cordyline australis, and others of commanding appearance, filled in with the usual blooming plants, such as Lilies, specimen Fuchsias, Pelargoniums, &c. The plants are arranged naturally, most of them standing on the floor, or on very low irregular shaped stages, and have a pleasing effect. On the southern front of the mansion is a terrace running the whole leagth of the building, over 80 yards, bounded on the side opposite the house by a stone balustrade sloping into a deep narrow valley laid out as a lawn. Here is one of the most beautiful bits of combined Nature and Art that could well be imagined; it slopes gradually from east to west, with an irregular outline at the opposite side, and which rises almost perpendicularly for several hundreds of feet, the whole surface of this slope being covered with fine trees intermixed with evergreens and intersected by lengthy walks completely shaded and forming an agreeable retreat in hot weather and for evening promenade, under the thick dense foliage. At the bottom of this lawn, on the south side from the mansion, are some of the most perfect specimen trees of Weeping Beech and Ash; sheltered as they are here, growing in the best soil, they assume a character only to be attained where such favourable conditions for their growth exist: they not only come down to the turf, but the branches lie thickly upon it for a considerable distance, care being taken that in mowing they are not injured in the least. At the foot of the terrace is a small flower garden, filled with bedding plants and dwarf Roses: this has a very beautiful effect, not being too large. The space it occupies is not more than a twentieth of the green surface out of which it is cut; the plants used are of such subdued colours as not to be offensive, even to the most fastidious eye in these matters, contrasting most favourably with the overdone flower gardens too often met with, which fill the whole possible space, leaving no room for the all-essential broad grass margin, the absence of which always puts one in mind of a big gaudy picture, with all the canvas filled with

glaring colours and minus a frame. This garden was planned and made by Mr. Sarple, Mr. Wilson's gardener, and does much credit to his taste.

Eastward in this valley are planted coniferous trees, forming a small pinetum; they comprise many of the most popular kinds, one especially exemplifyng the mild nature of the climate—Cryptomeria japonica, which here grows most luxuriantly dense, and as green as the grass from the surface of which it springs; it escapes unscathed from the effects of winter. The soil here as to quality is similar to the generality in the neighbourhood, but where this Cryptomeria and its congeners are grown it is rather shallow, consequently they do not make such rapid growth, but are less likely to suffer from frost. The greater portion of both deciduous and evergreen trees and shrubs that will withstand our winters even in the south of the kingdom thrive here.

Proceeding from this point southwards, by a continuation of broad Yew and Holly shaded walks, at some distance, is situated the walled kitchen garden, wherein are the different plant and fruit-houses. It occupies a similarly sheltered position to the last, and is divided from it by the high-lying ridge already noticed, and is also bounded on the south-west by similar high ground rising abruptly. To form this garden on the south side has been no small affair; the rock in some places has had to be quarried to the depth of 12 or 14 feet, and removed to a considerable distance; it is indeed rather too much sheltered almost on every side by the high-lying ground by which it is enclosed; this, and its proximity to the sea, as will be supposed, gives it an almost immunity from spring frosts, but there is a difficulty in getting summer-growths matured in such things as Peaches, which consequently do not bear satisfactorily; Apricots, on the other hand, from the humid nature of the country where indigenous succeed better, as also Figs; Pears likewise do fairly on the walls; Plums succeed moderately. A quantity of Apples on Paradise stocks, and Pears on the Quince, were planted three years ago, but the results are yet to be learnt. Few varieties of Strawberries will succeed well in this part of the country, most of them making too much leaf: those which do best are Veitch's Eclipse and President. Birds exist here in such numbers that it was found impossible to deal with them in the ordinary way. A portion of the borders have been enclosed with a durable wooden framework against the walls, as high as, and similar in shape to, a range of lean-to houses: the upright posts are let into stone sockets, which prevents their rotting better than if simply inserted in the ground; from these light rafter-shaped bars extend under the wall-plates, these are secured in their places with tie-pieces of timber, and the whole is covered with inch mesh wire netting. Strawberries thus enclosed, as well as the fruit on the walls, are securely out of the reach of the marauding songsters; the only objection to the plan is its first cost. Early vegetables do well in this garden, and in summers like the last such things as French Beans and Lettuce, that through the season have been very difficult to manage in some parts of the country, have succeeded well here; but in the early autumn, from its confined position, Peas mildew seriously. At the western extremity of the garden is an orchard of considerable extent, filled with bush and standard trees in good bearing condition: adjoining this, and separating it from the kitchen garden, are the houses, the first of which is a moderate sized plant stove filled principally with fine-leaved subjects, mixed with Ferns, Palms, Dracænas, Alocasias, and Marantas, amongst which was a very fine example of M. Veitchii, and Agave filifera.

Next to this is a stove in which was a grand plant of the lovely Hoya bella, 4 feet by 4, and Bougainvillea glabra, finely in flower; some good Orchids, amongst others two very fine plants of Lælia purpurata; the beautiful winter flowering Cœlogyne cristata, very strong, some of the bulbs measuring 4 inches in length. There are also in this house a number of winter flowering Dendrobiums, Cypripedium caudatum, several plants of Anthurium Scherzerianum, Stephanotis floribunda, a fine specimen of Nepenthes Rafflesiana, and an extraordinarily well-grown and finely coloured example of Croton interruptum—a plant not often seen in good condition.

The next is a large span-roofed general plant house, filled with mixed hard and soft-wooded greenhouse subjects, consisting of Daphnes, Heaths, Acacias, Kalosanthes, and a very fine lot of half-specimen Azaleas, comprising good sorts, such as Brilliant, Prince of Orange, Madame Ambroise Vershaffelt, and Roi Leopold. Here also was a good plant of Sarracenia flava, doing beautifully in this cool situation. Associated with it was one of the finest coloured plants of S. purpurea I have ever seen, and in the same corner Dionæa muscipula and Cephalotus follicularis doing equally well. Here, likewise, was a number of the best table decoration plants imaginable. They consisted of Abutilon megapotamicum, grafted at about 18 inches upon A. Thompsonii, and trained umbrella fashion, with heads about a foot in diameter, loose and airy, with its flowers hanging beautifully at the under-side of the head. They were in 6-inch pots, with straight thin stems, and were altogether the best and most effective plants for the purpose I have met with. With these were a selection of the best of the new flowering Begonias.

At a short distance are the vineries, lean-to, with a south-eastern aspect. The first is 40 feet by 20. It has been planted two years. In it were Madresfield Court Muscat, bearing a few good bunches showing no symptoms of cracking; Mrs. Pince's Muscat, Black Hamburgh, Lady Downe's, and Golden Champion—the latter good in both bunch and berry, but here inclined to crack. After all that has been said about this Grape, it is evident that it deserves a better character than it received after its first being tried. I have seen it in at least a dozen places through the autumn, in all of which it was bearing very fine fruit in both bunch and berry, and while the roots were principally inside, or under such control as to keep them dry, as also the atmosphere of the house, there were no signs o cracking, but where the reverse of these condition existed it suffered materially. The Vines in the hou were in fine condition, carrying a few bunches each, yet not too many, so as to injure them. The wood was strong and thoroughly ripe, with the foliage large, green, and free from spider. They are planted inside, and the roots occupy the whole of the inside of the house. The front wall is on arches, with a 12 feet border outside.

Adjoining is another house, similar in size to the last, and also two years planted with Muscats. These have done equally well, carrying about four bunches each, which they were finishing beautifully; they had made plenty of good strong wood that was ripening as early as the fruit, promising well for another year.

The next is also a vinery, similar in size to the two preceding, filled with very old Vines; these are planted outside, and are very nearly worn out. Mr. Sarple has in this house made a new inside border and planted young vines, to make way for which the old ones are being gradually cut away as the new ones require room, and will ultimately be removed altogether, and the outside border remade. All the borders are covered in the autumn before the heavy rains come on, which is here necessary. In the pits used for bedding plants in winter were remarkably fine crops of Melons: Victory of Bath is the sort most held in esteem here. The place altogether is well kept, reflecting very great credit on Mr. Sarple

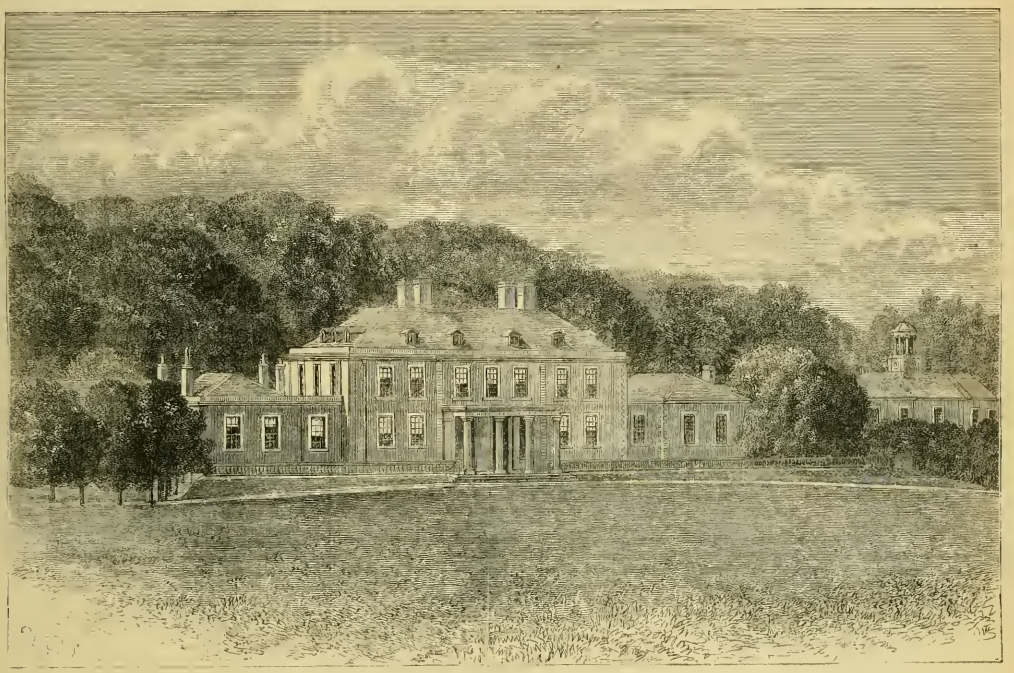

FIG. 19.—DALLAM TOWER, WESTMORELAND, THE SEAT OF G. E. WILSON, ESQ.

whose care and attention are alike to be seen in each department.

Southwards from Dullam Tower, at the distance of about a mile, on a hill of considerable height, rising immediately from the bay, is to be seen a most remarkable natural curiosity. On the side of the hill, and extending for a considerable distance towards its summit, the surface is composed of rock, channelled and worn as if (and no doubt) by the action of water, all at one time evidently having been in one gigantic piece, like a huge flag covering the surface, but by some violent upheaving of the earth the whole has been lifted up, which has had the effect of breaking it into pieces of some 4 to 8 or 10 feet square, to the depth of 6 or 8 feet. These fissures are almost regular in size, from 3 to 6 inches wide; the entire surface is free from any covering of earth, sand, or loose material of any kind, and consequently denuded of vegetable life, except in the fissures, where in some places there are a few Ferns, native Heaths, grasses, and similar vegetation. It is altogether one of the most singular examples of Nature's gigantic handiwork probably to be seen in the country, and is visited by many who are interested in geological pursuits. *T. Baines.*

Forestry.

Now that the snow is nearly gone the ordinary operations can be proceeded with, but, as is often experienced, there are many duties which the forester has to discharge by no means very intimately connected with practical forestry, and, for the sake of those who may feel disposed to murmur at having to do things not belonging to their so-called profession, I will briefly indicate from time to time a few which we not unfrequently have to discharge, and which after due reflection will be seen to come more properly under the forester's duties than under that of any other *employé.*

Cover beating for game is an employment for which the woodmen are almost invariably called out, and, generally speaking, the young men like the job very well. It seldom extends over a few days, the shortest and most wintry in the season; with it, there is an amount of excitement which many people greatly enjoy. Much, however, depends upon the nature of the cover itself, and the treatment the men receive, whether they will like or dislike the employment, and, as they are usually under the direct command of the gamekeeper while on duty, their pleasure or discomfort mainly depends on him. On some estates Whin or Furze greatly abounds, on others the covert is composed chiefly of Bramble and Briars. When the latter abound outer clothes of sheepskin leather are essentially necessary for the beaters. Hat, coat, breeches, leggings, and gloves must all be of leather, as ordinary moleskin or corduroy, not to speak of tweed or cloth, would be literally torn to fragments in a few hours. Each man is also provided with a strong clasp pruning knife in his pocket, a long staff in his hand, and a game bag upon his back. Thus equipped he enters the covert lithe and strong, but before half a mile's travel he is very much exhausted. To those who have never roughed a real tangle of Bramble and Briar covert, or know what it really is, the use of a large knife can scarcely be imagined, but to those of us who have had to cut our way inch by inch, and roll out when walking was impossible, the use of the knife is a well realised fact.

Every beater is instructed to lift and carry all the dead game he finds, and, to encourage them in this, a premium is usually given for each head in addition to the usual pay. Dinner or luncheon is always provided for the beaters at a certain hour and known place, and, being more savoury than their ordinary fare, adds another, and by no means unimportant, attraction to the covert beating.

When the general covert beating is over, the woodmen's services are still further required by way of ferreting, digging out, and killing rabbits and rats, both of which classes of animals are highly injurious to forest produce; hence the forester's interest in having them killed down, especially as they are increasing all over the country to an alarming extent.

Levelling Dykes.—Before planting and other pressing work begins all old turf dykes should now be levelled, and holes filled up, so as to get rid of every rabbit, for unless they are completely eradicated all successful forestry is impossible.

We commonly let the levelling of old turf dykes by contract, and pay from 10*s.* to 16*s.* per 100 yards lineal. The former price is sufficient when there are no roots or Whins to contend with, and the earth is thrown equally to both sides, but when tree roots ramify in the earth and Whins have to be cleared off before the spade and mattock can be applied, the latter is sometimes barely sufficient.

Roads.—Shooting roads should now also be proceeded with as weather and other circumstances will permit, for there is no season of the year when the gamekeeper is more willing to let the forester have freedom in the woods than between the covert shooting and the time when hatching commences. He should, therefore, prosecute with all diligence the clearing of Whins, and forming of rides and roadways in the woods.

Various modes have to be adopted in forming shooting roads, according to the state of the ground and kinds of herbage and trees upon it. Where Heath abounds as under-cover and trees as top growth, we cut the latter first and clear them off, and with a strong Whin scythe mow the Heather and rake it off. In cutting roads through masses of Whins, we prefer cutting them close to the ground with a hand-bill, letting them lie upon the stools one year, in order to promote decay or weaken the roots, and afterwards clear them off, when they soon decay. Fifteen feet is a common width for shooting roads, but they are made of various widths, from 10 feet to 20 feet, according to circumstances or wish of the proprietor. Some prefer sacrificing trees to game, while others would rather lose a shot than cut down a tree. *C. Y. Michie.*

—— A valuable report on the *Durability of New Zealand Timbers*, drawn up by Mr. Kirk, has been forwarded to us, and from which we shall probably extract some portions at a future time. The trees especially mentioned are the Kauri (Dammara australis), which produces the most valuable timber; various species of Podocarpus, of which P. Totara is the best; Dacrydium cupressinum, Phyllocladus trichomanoides, Libocedrus Bidwillii, Leptospermum ericoides, Vitex littoralis, various species of Fagus and Metrosideros, Elæocarpus dentatus, Sophora tetraptera, and several others, including Fuchsia excorticata, which furnishes timber large enough for house-building purposes.

Foreign Correspondence.

ROYAL HERBARIUM, BERLIN, W. FRIEDRICHSTRASSE, 227: *January* 18.—I was pleased to find in your numbers 47 and 50 of the last year so full an abstract from my preliminary notes on the botany of the Libyan desert and its oases. I shall feel much obliged to you if you would kindly allow me to make a few corrections. Most of them concern the spelling of Arabic names, which I accommodated in my paper, of course, to German pronunciation. They would, in consequence, I am afraid, be pronounced very incorrectly by English readers—thus it will be preferable to spell

Berées instead of	Beris		Mookhéyt instead of	Mucheet	
Bédak	,,	Bulak	Seréer	,,	Serir
Dékhel	,,	Dghakel	Seeées	,,	Siiss
Dukhn	,,	Dohn	Séewah	,,	Siwah †
Ésnah	,,	Eshneh	Tenéedah	,,	Tenida

Then allow me to correct two slight mistakes. I would not say that all Date trees at Seewah have brown leaf-ribs, as I only noticed the occurrence of a brown-ribbed variety in a certain number of individuals. The fruit of the sweet Lime is more juicy than aromatic.

I recognised the two undetermined species of the list, p. 646, as Matthiola livida and Helianthemum Lippii, both gathered in flower and fruitless specimens. Nitraria tridentata also is to be enclosed in this list. *P. Ascherson, Dr.*

BOTANICAL INSTRUCTION AT HARVARD.—The change in the public appreciation of botany is due to the fact that the first botanists have written most popular works, and by their aid intelligent people now look upon botany not as a mere study of stamens and pistils, and giving of hard names to plants, but as a science which regards every phenomenon of plant-life and every relation of plants to the earth, the air, and to animals, including man. Taking this view of botany, it is not to be wondered at that it has risen in public estimation, and that instead of being dismissed with, "it is a beautiful study for ladies"—a doubtful compliment to both ladies and the science—it has come to be thought worthy of the serious attention of our educators, and Harvard has provided ample facilities for all who would study botany as an essential part of a liberal education, or take up some department of it as a special pursuit. The botanical department of Harvard is, of course, at the Botanic Garden; and the writer can contrast the single combined dwelling-house and study, the swampy, rubbishy garden and dilapidated greenhouse of twenty years ago, with the handsome range of botanical buildings, conservatories, and well-arranged garden of the present. With the advantages here offered, there is no need that the botanical student go abroad, for at the head of the whole is Professor Asa Gray, not only the very first of American botanists, but if we enumerate the five leading botanists of the world, his name must be included. He remains as Director, and the magnificent herbarium which he founded, and his unequalled library, are accessible to students. While Professor Gray has transferred a portion of his duties to others, he still remains as supervisor and "court of last appeal." Botanists everywhere will be glad to know that he is devoting himself to the *Flora of North America*, and will join in our wish that he may be spared to complete this much needed work, one which no one else is so well able to undertake. His labours on this are much interrupted by correspondents in all parts of the country, who send him plants to name, and his time is much frittered away in doing that which any one fit to edit an agricultural or horticultural paper should be able to do—and we know that he would be very glad to be relieved of much of this. Plants from the higher Rocky Mountains, Arizona, Alaska, and such out-of-the-way places, he would be glad to see, but do not trouble him with near-at-home specimens. We may add that a postal card enclosed for an answer is no small saving of time. Every man of science is annoyed by descriptions of wonderful things in his department. A poor specimen is better than the best description; such things only take up time, and are only, after all, conundrums to be given up. We volunteer this on behalf of Professor Gray, knowing how much his time is taken up by inconsiderate people, who might as well get their information elsewhere.

Professor Sereno Watson, formerly botanist to Clarence King's Expedition, is now the curator of the herbarium, and attends to its accessions, and looks after the wants of those who consult it. Besides this he is doing much valuable work, not the least of which is an index to the scattered materials of North American botany.

Professor Goodale takes the work of general instruction in botany. The classes, which now number fifty or sixty, meet in the new lecture room and laboratory; this building communicates on the one side with the herbarium and library, and on the other, with the conservatories and hothouses. The laboratory is very conveniently arranged and well equipped; each student is provided with a simple dissecting microscope, and each advanced student with a compound microscope for his special use in minute investigation.

Professor W. G. Farlow, a former pupil of Professor Gray, and later abroad with De Bary and Thuret, has charge of the botany at the Bussey Institution (also a department of Harvard), where he is establishing a laboratory, with all the modern appliances, for cryptogamic botany. He will give especial attention to the lower fungi, so injurious to plants and animals, and about which there is a great want of positive knowledge. Professor Farlow also gives instruction in the regular course, in cryptogamic botany, especially to intending medical students. He is full of enthusiasm in his specialities, and we look for valuable results from his work.

Professor C. S. Sargent is in charge of the Botanic Garden, which contains many old specimens of rare plants, and which has recently been greatly improved by bringing the species into botanical order. He has charge of the horticulture at the Bussey Institution, and will establish the Arnold Arboretum, for which there is abundant provision, and which, with his thoroughness and enthusiasm, will be the finest arboretum in America.

Besides the regular collegiate course, there is at Harvard a summer course especially for teachers; this was started by Professor Gray, and is now continued. Last summer there were about twenty teachers from various parts of the country, a majority of whom were ladies, who, as Professor Gray says, "worked like good fellows." Some have been there two and others three years in succession, and all are learning to be good investigators and better teachers. In addition to these, Professor Farlow contemplates a summer course on the lower cryptogamic plants, at some place upon the sea-shore not yet selected.

It will be seen from this account, that there is at Cambridge ample provision in the way of instructors and apparatus for all who would study botany in general or in special departments. The herbarium is not only the largest in the country, but one of the most valuable in the world, and is well supplemented by the great abundance of living plants in the garden and houses. *American Agriculturist.*

Notices of Books.

Descriptiones plantarum novarum et minus cognitarum in regionibus Turkestanicis *a cl. P. et O. Fedschenko, Korolkow, Kuschakewicz et Krause collectis, cum adnotationibus ad plantas vivas in horto Imperiale botanico Petropolitano cultas.* Fasciculus ii. Auctore, E. Regel.

We have taken this up more particularly for the purpose of reproducing Dr. Regel's defence of his ideas of specific limitations in the genera Tulipa and Vitis. It will be remembered by some readers of the *Gardeners' Chronicle* that we have more than once alluded to the theory advanced by this acute botanist respecting the origin of the varieties of Grape collectively known as Vitis vinifera, from V. vulpina and V. Labrusca.

* *Ey* as in valley.

† Not Sinah, the well-known Oasis of Jupiter Ammon.

Before proceeding to Dr. Regel's defence we may briefly notice the other contents of this part. The descriptions of new plants from Turkestan are mixed up with those of various garden plants obtained from all parts of the world, a conspectus of the species Eucephalartos, and an enumeration of the species of Primula found in Russia and Mandschuria. A large proportion of the new plants from Turkestan belong to the genera Astragalus and Oxytropis. The following new species of Primula are described:—P. Kaufmanniana, Thian-shan and Turkestan; P. Fedschenkoi, Turkestan; P. Maximowiczi, North China; and P. Olgæ, Turkestan. Then follow some amended and amplified descriptions of plants recently figured in the *Gartenflora*.

We now come to the "supplementary remarks to my enumeration of the species of the genera Tulipa and Vitis."

Dr. Regel says, "Various botanists, whose opinions carry considerable weight with them, have accused me of having too freely combined the species of Tulipa and Vitis: but a fresh investigation of the genera has convinced me of the contrary, and that instead of having distinguished too few species, I have admitted too many, especially in the genus Tulipa."

He goes on to argue that our ideas of species and forms in an unprejudiced examination are essentially biassed or formed from the nature and extent of the material under investigation; and, what is quite true, specimens from one or few localities are quite insufficient to illustrate the extent to which a species may vary. In the absence of intermediate or transition forms, species are frequently founded upon extreme forms of one and the same species. But numerous specimens from various localities, extending over the entire geographical area of a species, present us with the manifold deviations we are accustomed to see in cultivated plants. Systematists of the old school either excluded cultivated specimens in drawing up their diagnoses of species, or, like Schrader with the genus Berberis, made a species of each individual. And it was a pretty generally received notion that North American plants must necessarily be specifically different from those of Europe or Asia, and this opinion long prevailed, in spite of the facts to the contrary cited by Asa Gray, Maximowicz, and by Regel himself.

Respecting the Tulips, Dr. Regel states he had extraordinarily rich materials at his disposition, which, he maintains, fully justified him in reducing many so-called species, based upon such inconstant characters as colour and size, to T. sylvestris. Moreover, he thinks T. saxatilis, Sieb., should share the same fate, and his T. sylvestris, L., η turkestanica, would be more correctly placed as a form of T. biflora. T. Schrenkiana, Regel, is, doubtless, the wild form of T. Gesneriana, whose bulb-coats were described chiefly from cultivated specimens, and supposed to be different.

"Respecting T. suaveolens, it may be observed that I subsequently had an opportunity of examining specimens from the Caucasus, and I see no objection to combining T. altaica, Pall., and T. strangulata, Reboul, with it. Further, I saw no specimens, or very incomplete ones, of T. Didieri, Jord.; T. Lehmanniana, Merklin; T. soogdiana, Bge.; T. armena, Boiss.; and T. Silthorpiana, Sm.; so that I could not form any opinion respecting these species. Finally, T. Haageri, Regel, is one of the handsomest forms of T. sylvestris, which must be placed near T. sylvestris Orphanidea.

"Coming to Vitis, it has been urged upon me that the Asiatic and American species of this genus are certainly specifically distinct from each other. But Asa Gray, the best qualified judge of North American plants, who has also thoroughly studied the flora of Japan, unites V. Thunbergii to V. Labrusca; and I can only reiterate, that not only is there no specific difference between these first species, but also between the Asiatic and American forms of vulpina. I am only in doubt whether V. amurensis and V. æstivalis should not be regarded as transition forms of V. vulpina to V. Labrusca."

Other critics have objected to the union of certain forms (V. heterophylla, β Maximowiczii, and V. Labrusca, *c* incifolia and *d* sinuata), because they are constant under cultivation. But who would affirm that the cut-leaved varieties of Alnus incana, A. glutinosa, Betula alba, Tilia parvifolia, Sambucus nigra, &c., are not forms, but good species? Although non-sexually propagated they retain their respective characteristics, and the forms of Vitis mentioned are non sexually propagated. Dr. Regel adds that Maximowicz informs him that these forms, with deeply-divided leaves of both species, are usually confined to shady places in Japan, where he had the opportunity of observing them; and seen in their native habitats, nobody could doubt their being merely varieties. Further, Dr. Regel contends that there is a gradual transition in the varieties of V. Labrusca and V. vulpina with acute sinuses to those with rounded sinuses, and the non-sexually propagated cut-leaved varieties of V. vinifera are admitted without question. Finally a comparison of the floras of North America and North-east Asia is instituted, and palæontology is also cited in support of the argument. In a great measure we can accept the views held by Dr. Regel; but we should probably not agree as to the origin of the forms. But the great points, so far as descriptive botany is concerned, is to draw a medium between excessive division and aggregations of forms. Carried too far either way, no useful result is gained.

—— The January number of the *Botanical Magazine* opens with a double plate of a very striking Eucalyptus, E. cornuta, which flowered in the course of the summer in the temperate house at Kew. The name cornuta was evidently given from the long horn-like calyx, like that of an Eschscholtzia, and which assumes a brilliant red colour, and the upper portion of which ultimately falls off. The plant is a native of South-Western Australia. Crocus Byzantinus, a figure of which follows next, is a fine autumnal species with pointed perianth segments of a purple colour. Jamesia americana is a hardy deciduous shrub, with terminal panicle of white flowers, which has lately flowered with Mr. Ellacombe, at Bitton. Blumenbachia chuquitensis is a handsome Peruvian hardy herbaceous plant, closely allied to B. coronata. It was introduced by Mr. Pearce to the establishment of Messrs. Veitch. The last plate in the present number represents Odontoglossum maxillare, a plant of which was recently exhibited at the Royal Horticultural Society.

—— By the aid of photography and the Dallastype process, Messrs. Sutton & Sons have reproduced their *Amateurs' Guide* in a very neat form, in the smallest possible size, and at a considerable reduction in price. The type, though clear, is painfully small.

—— The ninth part of Sowerby and Johnson's *British Wild Flowers* (Van Voorst) brings the work up to the genus Senecio. Though of little scientific value, the small coloured figures are useful as reminders.

Natural History.

SUMMER PESTS IN THEIR WINTER QUARTERS.—There are a number of destructive insects which may be reckoned on with tolerable certainty each year as summer guests, always raising a disturbance when their unwelcome presence is perceived, but yet which, during the winter season, when they are quietly maturing in nooks and corners for the summer campaign, though in many cases visible, and in others so presumably present that the appropriate remedy might be applied, are generally left in peace, and not being then aggressive are not then attacked.

When summer comes, with its masses of flowers, swelling fruit, and luxuriant leafage, a large portion of the plant is hidden from minute observation, and difficult to reach without causing injury to the coming crop. Sometimes it is almost impossible to do battle effectually with the insect destroyer, and the very conditions of existence point to the probability of the ordinary means of continuance of the insect being such as cannot without some degree of difficulty be counteracted.

When the Cabbage butterflies appear, a pinch is generally at the service of any unlucky specimen which comes in reach, but during the winter the chrysalis may hang unscathed, wherever it may have found convenient to attach itself; and here, to begin with, some good might be done by a thorough brushing down of rough shed walls, clearing out corners, and especially looking well into all the nooks in rough woodwork, behind badly-fitting doorposts, under bars, and all other favourite lurking places.

The pupa may be generally described as somewhat club-shaped, obtusely pointed at the larger end, more gradually narrowed to the caudal extremity, by which it is hung to the little lump of web that it wove in its larval stage; the length about an inch, and the colour a dull greenish, striped with yellow and spotted with black. Hung motionless on a wall, the chrysalides make little show, but gathered in a mass, a minute's inspection, with a little disturbance, will show them full of vitality, even in their endeavours to regain a point of attachment, fixing themselves firmly to each other by the caudal processes, sometimes as many as three at a time, and so securely as to allow of being raised and held in the air by one of the group independently of any web or threads. These pupæ change from the larval state in the autumn, and remain undeveloped till the following April or May, and meanwhile a thorough search indoors and out, and the destruction of all that are found, would diminish the summer attacks much more than the desultory attempts at capture of such as may chance then to flit by on the wing as recognised destroyers.

Another unwelcome visitor is the Gooseberry and Currant moth, Abraxis grossulariata, often known as the magpie moth, which in the larval state is the cause of great mischief. The moth is usually distinguishable by its white wings with yellow band, and

FIG. 20.—ABRAXIS GROSSULARIATA.

blotch at the base of the upper ones and black blotches on both pairs, but it is variable in the extreme in its markings. It appears about midsummer; the egg is deposited on Gooseberry and Currant bushes (as far as its garden selection is concerned), and the caterpilar, after feeding some weeks on the leaves, spins the edges of one of them together, and having also taken the precaution of spinning the leaf to its twig (thus securing it against the autumn fall) waits sheltered within its folds for the return of spring, when emerging it attacks the new leaves and changes to a chrysalis, in a slightly spun cocoon, in May.

When occurring in numbers the attack of the larva is almost sure to be fatal to the Gooseberry crop of the year if left unchecked, and the application of lime, hellebore powder, and all the other remedies, not certain cures for the evil, are apt to do at least no good to the growing fruit, whilst a survey of the bushes during the winter months may do all that is requisite. A careful search beneath the Gooseberry branches will most likely show some dried leaves hanging solitarily from them, and if these are opened they will most likely be found to contain the caterpillar. Even where the moth was of rare occurrence I have found the dried leaves hanging exactly as so well described by Newman, in his account of this insect in his *History of British Moths*. The bushes should be gone over during the winter, and these dead leaves carefully removed and destroyed, and after the picking and winter pruning is concluded the top earth should be removed from beneath the bushes to the depth of about 3 inches, so that all stray larvæ may with certainty be also removed. The operations would not take long, and would assist much towards saving the summer crop.

The under sides of Apple boughs form another starting-point for unbounded summer mischief from American blight; the parts exposed to sight are cleaned and dressed most carefully with whatever may be thought desirable, but it is no easy matter to get a good view of the under-side of an espalier bough a little way from the ground, and without care some masses are left untouched, and with warm weather out comes the white, woolly testimony to the renewed presence of the insect in quantities of places utterly impossible to reach without great injury to the tree when again in leaf. Where from their position the branches cannot be examined all over, it is highly desirable to wash Gishurst Compound (or whatever remedy may be preferred) well in with a brush into every spot where the disease may possibly lurk, an old tooth-brush being a most effective instrument for the purpose, as from its small size and the bristles being at right angles to the handle it can do its work thoroughly where the eye cannot penetrate. Trunks of trees affected with Coccus (especially the Wellington Apple, which may sometimes be found with the bark nearly covered with mussel scale for several feet above the ground), walls in front of which aphis have been prevalent—and in which consequently the eggs abound, which during the winter carry on the race instead of the viviparous production of the summer—and any spots in which a little reflection would point out insect pests as in all likelihood finding a shelter, should now be well scrubbed, dressed, or cleaned in whatever may be the most effective method. Whilst the winter still lays them open to operation, and by a little careful consideration carried out in general attention to future attacks whilst still in embryo, they might be greatly diminished with infinitely less labour than is spent on many a useless attempt to lessen them when in full progress in the summer months. *O.*

HORTICULTURAL EXHIBITIONS, 1875.

FEBRUARY.

17.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.

MARCH.

3.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.

10 and 11.—Leeds Horticultural Gardens Company. Spring Flower Show. Sec. and Manager, James Birbeck, 103, Hyde Park Road, Leeds.

16.—Manchester Botanical and Horticultural Society's Floral Meeting in the Town Hall. Manager, Bruce Findlay.

17.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees. Hyacinth Show.

24.—Glasgow and West of Scotland Horticultural Society. Spring Exhibition. Sec., F. G. Dougall, 167, Canning Street, Glasgow.

31.—Royal Botanic Society, Regent's Park. Spring Show. Sec., W. Sowerby.

APRIL.

7.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.

21.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees. Early Rhododendron Show.

22.—Royal Horticultural Society of Ireland. Spring Exhibition. Sec., A. Balfe, 28, Westland Row, Dublin.

27.—Manchester Botanical and Horticultural Society. Exhibition of Auriculas, &c., in the Town Hall. Manager, Bruce Findlay.

28.—Royal Botanic Society, Regent's Park. Spring Show. Sec., W. Sowerby.

MAY.

1 to 24.—Royal Botanic Society, Regent's Park. Special Exhibition of Clematis, by Mr. G. Jackman.

12.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees. Pot Rose Show.

20.—Royal Horticultural Society of Ireland. Early Summer Exhibition. Sec., A. Balfe, 28, Westland Row, Dublin.

14 to 21.—Manchester Botanical and Horticultural Society's Annual National Exhibition, at the Garden, Old Trafford. Manager, Bruce Findlay.

22.—Crystal Palace Great Flower Show. Sec., F. W. Wilson.

26.—Royal Botanic Society, Regent's Park. Summer Exhibition. Sec., W. Sowerby.

26.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees

THE

Gardeners' Chronicle.

SATURDAY, JANUARY 23, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Jan. 25	Anniversary Meeting of the Entomological Society, at 7 P.M.
TUESDAY,	Jan. 26	Sale of 300 Pens of Choice Poultry and Pigeons, at Stevens' Rooms.
WEDNESDAY,	Jan. 27	Royal Horticultural Society: Lecture at 8 P.M. Sale of Hardy Trees and Shrubs, French Roses and Dutch Bulbs, at Stevens' Rooms.
FRIDAY,	Jan. 29	Sale of Scientific Books, at Stevens' Rooms.
SATURDAY,	Jan. 30	Sale of Hardy and Ornamental Trees and Shrubs, Bulbs, &c., at Stevens' Rooms.

IT is very curious to see what vitality POPULAR ERRORS have, and how large an amount of proof is required to disestablish a prevalent belief. This arises sometimes, amongst other things, from the difficulty of furnishing sufficient proof, and more often from the inability of some people to understand the nature of proof when it is set before them. Such people very naturally set the evidence of their own senses before any proof that other people can lay before them. With the most perfect good faith, people of unquestionable veracity will sometimes cling to the evidence of their senses, when that evidence is known by all other persons competent to judge to be worthless. Thus it is that many popular errors are perpetuated, and so long as human nature remains what it is will continue to be so. While good observers and well-trained reasoners may thus be excused for entertaining a great deal of scepticism, yet, on the other hand, it must not be forgotten that there is such a thing as being too sceptical.

It is not long since that the alleged injurious relation of Berberry bushes to Wheat was looked on by scientific men as a myth. Yet further knowledge has proved the essential correctness of that which was once esteemed a gross popular error. Caution, then, is as incumbent on the man of science as on the untrained observer, and, indeed, much more so.

Two subjects which have lately been revived in our columns may be taken in illustration of our remarks. One of these is the oft-revived story of the TRANSMUTATION OF SOME OTHER GRASS INTO WHEAT, or *vice versâ*, in reference to which, in spite of the numerous cases which have been alleged, not one has stood the test of inquiry and investigation. All have proved myths, misapprehensions, or hoaxes. And yet the same story crops up again and again with slight variation, and we dare say a large number of worthy, respectable witnesses could at any time be brought forward to speak to the fact, as they would term it, and to laugh at the scepticism of the botanists.

The other subject which the rotating wheel has again brought to the surface is the old question, whether VIPERS can or do SWALLOW THEIR YOUNG? Mr. MEEHAN has lately revived this question, and he cites his own youthful experience in support of the occurrence, and also of the statements in the twenty-second volume of the *Proceedings of the American Academy*. An amateur zoologist (ominous appellation under the circumstance) refers us to a large array of testimony collected in America. Far be it from us to dispute the veracity of the testators. We in England have had, not long since, too notorious a series of instances of the fallibility of testimony—even the accumulated testimony of great numbers of honest witnesses—to venture to speak disrespectfully of any honest witness, however sceptical we may be as to the worth of his testimony. It happens, however, that in this snake question a large amount of evidence was afforded in our own columns in the year 1848, when much space was devoted to it. Numbers of writers, some anonymous, others well known, testified to what they had actually seen or thought they had seen. Nevertheless, as will be found on referring back, a small minority, but one including such names as LINDLEY, HENSLOW, BREE, WESTWOOD, and an eminent zoologist (see 1848, p. 603), expressed their decided scepticism, and proposed various tests to prove the correctness of the assertions, not one of which, so far as we can find, was ever put into practice. In spite of overwhelming numbers of ordinary and honest observers, we prefer to adhere to the opinions expressed by a minority of professed naturalists and anatomists. Unless some correspondent, American or otherwise, can bring forward something more than mere assertion—something beyond the evidence of his own eyesight—we must beg to remain among the sceptics. Anatomists can very well understand how, when a viper's body has been laid open by the rude dissection of a spade or a hedge-stake, that the oviduct might well be confounded with the stomach, and the young vipers be supposed to be in the latter when they were really in the former. But that does not explain the reiterated testimony of observers who declare positively they have seen the young vipers, often of some inches in length, enter the mouth of the parent. We confess our scepticism on this point, though we own we do not fully understand what are the appearances which have induced so many people in America, as in Europe, to come to such a conclusion.

Some old readers of the *Gardeners' Chronicle* may perchance remember the "tail-piece" which Dr. LINDLEY appended at the conclusion of the long series of articles on this subject to which we have referred, in our volume for 1848, but, as it may cause some amusement to a new generation of readers, we reproduce it at p. 115.

—— THE River Panaloya is the stream which connects the Lake of Managua with the great Lake of Nicaragua, and close to its outlet from the former lake, which is 156 feet above the level of the Pacific, falls over a ledge of volcanic rock some 13 feet high, forming what are called the Falls of Tipitapa, and naturally obstructing the navigation of the stream. It is usual, therefore, when ascending the Panaloya River to take the canoe out of the water at a place called PASQUIEL, below the falls, and transport it on a caretta drawn by oxen to the lake above the falls. Whilst waiting for his canoe, "The Sue," to be transported thus, Captain S. P. OLIVER, R.A., made the accompanying sketch (fig. 21) of a picturesque "rancho" on the wooded banks of the river. Plenty of Brazil-wood, which is used for dye purposes, was collected here ready for transport to the coast. There are numerous "haciendas" in this neighbourhood, with numerous herds of cattle, houses, &c., whilst the waters swarm with fish and alligators. The trees abound in macaws, with brilliant plumage, and innumerable humming-birds, whilst monkeys and iguanas are seldom out of sight. The hammocks in the rancho are generally occupied through the heat of the day, as the climate within 12° of the equator is enervating at most times. North of the river is what is called a "jicaral," or tract of country overgrown by Jicara (Crescentia Cujete), or Calabash tree, with long thin worm-shaped branches covered with few leaves, but bearing an additional vegetation of bright-leaved Bromeliaceæ, whose tufts often appear like the blossoms of the tree.

—— We have received another letter from Mr. T. M. SHUTTLEWORTH on the subject of FLOWER SHOWS; but while we decline to reopen the question, we may, in justice to Mr. SHUTTLEWORTH, say that he positively denies having bought plants on the eve of the show for the purpose of exhibiting at South Kensington in 1873.

—— We have before us a copy of Mr. BENTHAM'S "Report on the RECENT PROGRESS and PRESENT STATE of SYSTEMATIC BOTANY," read before the Biological Section of the British Association at Belfast. As might have been expected, this is a highly interesting and important document, from a botanical point of view. Its object is sufficiently expressed by its title. After giving a slight, but valuable historical sketch of the subject, Mr. BENTHAM treats of the principal methods by which the progress of systematic botany may most appropriately be advanced—viz., by the preparation of "Ordines Plantarum," or general expositions of the natural orders as in such books as LINDLEY'S *Vegetable Kingdom*, LE MAOUT'S and DECAISNE'S *Traité de Botanique*; 2, "Genera Plantarum," or descriptions of the genera, of which the best illustration is the work of this name published by Mr. BENTHAM himself in conjunction with Dr. HOOKER; 3, "Species Plantarum," or descriptions of the species of plants of which DE CANDOLLE'S *Prodromus* is the best example; 4, Monographs of separate orders and genera, such as LINDLEY'S *Genera and Species of Orchids*, &c.; 5, Floras or histories of the plants of particular countries; 6, Detached miscellaneous descriptions of species. Under each of these heads Mr. BENTHAM explains what should be the general method of treatment, so as to secure completeness, conciseness and uniformity of method, with consequent facility of comparison. Mr. BENTHAM'S opinions and counsel will be valued by all who know the extent of his services to science and the profundity of his knowledge of systematic botany—so much so, that anything like criticism would seem an impertinence. We shall on a future occasion probably revert to this subject, and make some comments on the last section of Mr. BENTHAM'S essay.

—— The following persons are recommended by the Council of the ROYAL HORTICULTURAL SOCIETY to be appointed to the offices of President, Treasurer, Secretary, committee-men of the Expenses Committee, and auditors of the Society, at the annual meeting on February 9, 1875. President: Right Hon. Viscount Bury, K.C.M.G. Treasurer: Mr. Bonamy Dobree. Secretary: Mr. W. A. Lindsay. Expenses Committee-men: Sir Coutts Lindsay Bart.; Sir Alfred Slade, Bart.; Mr. Bonamy Dobree. Auditors: Mr. P. M. Leonard, Mr. Henry Liggins, Mr. Conrad H. Pinches. The ordinary vacating members of the Council are J. A. Hardcastle, Alfred Smee, F.R.S., J. Herbert Tritton; and the Fellows recommended by the Council to fill these vacancies are Hon. and Rev. J. T. Boscawen, William Longman, and J. D. Chambers. Lieut.-General Hon. Sir Alexander H. Gordon, K.C.B., has given notice of his wish to resign, and the Council propose Frederick Campion to fill the vacancy.

—— Having a desire to see other amateur growers of SUCCULENTS come forward at the ensuing exhibitions, Mr. PEACOCK has determined not to compete during the year, in the hope of bringing out the reserve.

—— The *Revue Horticole* speaks of a peculiar seedling variety of a Mulberry, raised by M. BRUN, and which is remarkable for its extremely dwarf tufted habit. During three years the stem has not attained more than about 18 inches, while other seedlings of the same batch have in a like period attained a height of 9 or 10 feet. Now, in the ninth year of its existence, the dwarf variety has a stem of less than 6 feet. The leaves are large, and retain their tufted character. Apart from its curiosity, the dwarf variety is important in relation to the plan of rearing silk-worms in the open air, a plan alluded to by us in 1873, p. 773, and recommended as a remedial or

preventive measure in some forms of silkworm disease.

—— We are informed that the competition for the CARTER CUP and other prizes offered in the schedules of the Royal Horticultural Society by Messrs. JAMES CARTER & Co., for competition at the Society's great provincial show, has now been arranged to take place on July 7 at the Society's gardens, South Kensington.

—— The Federation of the Horticultural Societies of Belgium offers PRIZES FOR ESSAYS on some one or other of the following subjects:—

1. Past history and sketch of the present condition of horticulture in Belgium.
2. Composition and analysis of arable soils, especially of soils used in gardens, such as peat, leaf-mould, humus compost, &c.
3. Essay on construction, warming, and ventilation of glass houses.
4. Essay on market gardening, and especially on the forcing of Mushrooms.
5. Theory of manuring, with indications of the best method of renovating an exhausted soil, and of the best rotation to follow so as not to exhaust the soil, and at the same time to derive all the advantage possible from it.
6. The botanical and horticultural history of a genus or family of plants cultivated in Belgium.
7. Catalogue of grafts and *resumé* of facts concerning the reciprocal influence of stock and scion.
8. Essay on insects injurious to plants grown under glass, remedial measures, &c.
9. Diseases to which the Spruce Fir is subject in Belgium—noxious insects, fungi, &c.
10. An essay on flower-forcing, together with an account of the present state of our knowledge on points of vegetable physiology bearing on premature flowering.
11. A horticultural and botanical monograph of the Ferns grown in Belgium.
12. A horticultural and botanical monograph of the Conifers best suited for Belgian woods.
13. An essay on the use of manures in the culture of ornamental plants.
14. The best methods of heating and ventilating glass houses.
15. A criticism of the work of VAN MONS, with a *resumé* of his works and opinions, with the necessary bibliographical references.
16. Essay on the diseases of the Pear in Belgium.
17. An essay on the nutrition of plants, particularly of dicotyledonous plants.
18. The action of light on vegetation; influence of latitude, altitude, of glass, and of different colours.
19. Structure, growth, and functions of the roots.
20. Transpiration of plants, relation of the quantity of water evaporated to the different circumstances of vegetation.
21. Relation of soil and vegetation in Belgium.

—— One of the French horticultural journals assures its readers that we in this country are in the habit of cooking the pods of LAXTON'S Supreme Pea. We are not aware of this, but have often lamented the waste of serviceable food incurred by throwing away in all cases the pods of peas.

—— The *New York Tribune* publishes the results of a competition among Potato growers, originated in the spring of last year by Messrs. B. K. BLISS & SONS, of New York, who offered premiums to a considerable amount, hoping "as much to stimulate interest in improved methods of cultivation as to induce an extended trial of varieties, in the dissemination of which they were interested." The varieties specially selected were Extra Early Vermont, Compton's Surprise, and Brownell's Beauty, the prizes being awarded to those who raised the largest quantity from 1 lb. of seed, and on a quarter of an acre of ground respectively. The largest quantity obtained from 1 lb. of Extra Early Vermont was 708 lb.; from Compton's Surprise, 900 lb.; and from Brownell's Beauty, 1018 lb. The largest produce of a quarter of an acre of Extra Early Vermont was 6247 lb.; of Compton's Surprise, 7350 lb.; and of Brownell's Beauty, 8899 lb. "The committee—Messrs. Geo. Thurber, F. M. Hexamer, and P. T. Quinn—assure us that, while abstaining from comment on the 'astounding yields from single pounds,' a 'most careful and scrupulous investigation' has fully satisfied them of 'the correctness of the statements.' Of the merits of the Potatos, as developed under this later and more extended test, it is said that there is general acknowlegment of the superiority of the Vermont as an early variety, both for market and table, in fact, 'the earliest and best in cultivation;' that Compton's has given not less satisfaction as a Potato of the highest quality, and that Brownell's Beauty, the newest of the three, has made 'a most splendid record,' not only giving 'much the largest returns,' both from the single pound and the quarter acre, but eliciting 'unanimous praise of all cultivators.'"

—— JONESIA ASOCA is flowering beautifully in the Kew Palm-house. It is a handsome tree, allied to Brownea, having foliage of the same character, but with flowers that differ from being without petals. They are produced in clusters on the old as well as the young wood. No one at first sight would think of referring it to Leguminosæ, the order to which it belongs. The calyx is tubular, with a four divided spreading limb, and, but for the long stamens, would resemble an Ixora corolla, which it quite equals in showiness, and resembles in colour, being of the same orange-yellow as some of the varieties. It is called Ushoka by the Bengalese, and is planted widely throughout India; in the Mauritius also it is cultivated for the flowers and foliage. Some Japan species are said to have flower clusters, 6 to 8 inches across. Surely some of these would be worth introduction.

—— The FERTILISATION OF FLOWERS by INSECTS is the subject of the lecture to be given by Mr. A. W. BENNETT, F.L.S., at the evening meeting of the Royal Horticultural Society, on Wednesday next.

—— Some of the American journals have recently been commenting upon the disastrous CLIMATAL EFFECTS FOLLOWING DISAFFORESTATION. Mr. F. HUBBARD, *Bulletin of the Torrey Botanic Club*, referring to some previous observations on this subject affecting the island of Santa Cruz, by Mr. L. MERRIMAN, says that the final depopulation of this beautiful island seems now to be written indelibly among the decrees of fate. Already some twenty-seven years ago Mr. HUBBARD observed that this island was slowly but surely becoming a desert waste. He mentions the efforts of a planter to reclaim some of the lost land, which were all to no purpose, as they were made too late. Curaçoa is quoted as another instance. Formerly it was a "garden of fertility," now it is an

FIG. 21.—PASQUIEL: PORTAGE BELOW THE FALLS OF TIPITAPA, NICARAGUA.

almost perfect desert; fresh-water is a luxury, though "almost within sight is the coast of the Spanish Main covered with the rankest vegetation, and watered with copious rains." These calamitous results ought to be a warning to the authorities in our possessions in the same region, or we may be confronted with the same serious consequences.

—— SALVIA TUBIFERA VAR., a plant but little grown, is very attractive in the conservatory at Kew; there it has been in flower for many weeks, and has taken the attention of several to whom it was new. As a winter-flowering plant it is of great value, from the long continuance of bloom. The flowers are small but of bright colour, much like Azalea amœna, and shown off well by the dark foliage. In addition to this it has a good branching habit, far better than that of Salvias in general. The leaves are ovate acuminate, with a serrated margin, quite glabrous, and about 4 inches long. It is sometimes grown as S. lantanifolia. Though a tolerably good name, it should not be used, as it belongs to a distinct species, having the leaves and young stems covered with soft hair. Our plant, on comparison with herbarium specimens, agrees well with one from Texas, contributed by Dr. A. GRAY, and named as above by Mr. BENTHAM. It was figured in the *Refugium* as S. Gondotii, to which it was perhaps best referred at the time. The flowers are rather smaller than those of that species, and the leaves broader. No genus can more easily be cultivated than Salvia, yet several fine species appear to have been in gardens that are now lost, or at least rare. S. formosa, S. fulgens, S. mexicana, and S. sagittata may be mentioned as plants which perhaps many would be glad to hear of.

—— A general meeting of the subscribers to the GARDENERS' ROYAL BENEVOLENT INSTITUTION was held on January 14, for the purpose of electing two pensioners on the funds, and the following was the result of the ballot:—

Name.	Age.	Votes.
THOMAS EYLES	64	802
THOMAS HOPKINS	67	426
HENRY BUTCHER	70	124
GEORGE DYER	67	594
JANE SCOBIE	61	931
JOHN BLACKSHAW	61	121
JOSHUA LANCASTER	40	481

The meeting declared JANE SCOBIE and THOMAS EYLES, as having the greatest number of votes, duly elected.

—— On the evening of the 14th inst., at the termination of the annual meeting of the Gardeners' Royal Benevolent Institution, some sixty or seventy of the members adjourned for supper to Simpson's Tavern, Strand, and subsequently presented a handsome TESTIMONIAL to Mr. E. R. CUTLER, the secretary to the Institution. The sum subscribed was £250, and the testimonial took the form of a beautiful silver tea and coffee service, with salver, table forks and spoons, a massive gold watch-chain; and a diamond half-hoop ring and gold watch-chain for Mrs. CUTLER.

—— A male STANGERIA PARADOXA in the stove at Kew has now a fine cone, the smell from which is very delicious, though not easily compared with anything else. Its height is about 15 inches, and one leaf measures 5 feet. This plant shows how deceptive are some members of the vegetable kingdom. Though a Cycad, it was named Lomaria eriopus before the cones were seen, perhaps from the parallel forked veins, which resemble those of that genus. It was long the only species known to botanists, but Dr. REGEL has recently published as distinct his S. Katzeri; and a repmtedly distinct kind, S. schizodon, said to differ by having the pinnæ more deeply and regularly toothed, has been imported to this country. In that particular the original species appears to vary, one of the leaves on the above plant being variously cut, and with some of the pinnæ forked. It is to be hoped that any one having the female plant in flower will communicate with the Kew authorities, and procure pollen.

—— Among the minor horticultural industries of Paris may be mentioned, says M. MAYER DE JOUHE in the *Revue Horticole*, the sale in large quantities of leaves for GARNISHING purposes. They consist of Ferns, Chestnuts, Lilacs, Maples, Nuts, Elms, Poplars, and especially of the Vine, and are used for decorative purposes, garnishing dishes, and the like. Large quantities of Bramble leaves are also used, in spite of their prickles, during the winter season, when they are still to be found in the woods near Paris. The leaves are collected into little packets, slightly pressed, and sold by hundreds of thousands in the Paris markets.

—— A NEW MEDICINAL PLANT, Anemiopsis californica, is mentioned in the *Monthly Reports of the Department of Agriculture* (America) for 1873. The plant in question is, or has been, in cultivation in this country, and was figured in the *Botanical Magazine*, 1862, t. 5292, "from plants raised from seed by Mr. WHEELER." It has a wide range on the western side of North America, from San Diego to Zacatecas in Mexico. Mr. J. J. WARNER, of Los Angelos, California, has recently written to Professor HENRY, Secretary to the Smithsonian Institution, a letter respecting the medicinal qualities of this plant. The letter, and a package of roots accompanying it, was sent to the Agricultural Department. Mr. WARNER states that he has been acquainted with its medicinal properties for some fifteen years, and in his own person, and the persons of others, has known it to have remedial powers of unusual efficacy in the treatment of diarrhœa and bowel complaints, and externally for bruises, for inflammations, and for old ulcers. The use of the plant has heretofore been restricted principally to the Indian population, and to domestic practice among the residents of California. Mr. WARNER believes that its use would prevent or mitigate cholera. Dr. EDWARD PALMER, who has travelled in California, Sonora, and Arizona, as botanical collector for several of the Government surveys in that region, reports that the plant is highly esteemed as a medicinal plant among the Indians in the above-mentioned countries where it grows. It is a scapose herbaceous plant, with oblong leaves on long petioles in the way of an Alisma. The floral structure is peculiar, the flowers being destitute of both calyx and corolla, and crowded in short dense spikes, subtended by a whorl of bracts, giving the inflorescence the appearance of an Anemone flower.

—— An invading weed, in the form of POTENTILLA FRUTICOSA, is somewhat unexpected. "Weeds," as a rule, are of the herbaceous class of plants, but here we have a sub-shrubby plant taking possession of hundreds of acres of land, and inducing the loss of thousands of dollars—at least, such is the information we gather from the *Monthly Reports of the Agricultural Department of America*. Connecticut and Massachusetts are the States in which it has spread so greatly to the detriment of the husbandman. It bears the name of Hardback—a name also applied to a widely different plant, Spiræa tomentosa. The plant in question has a wide range of distribution in the north temperate and arctic regions in Europe, Asia, and America, and it is a native of the North of England. We do not remember a similar case among the weeds of temperate climates.

—— In the *Revue Horticole*, M. CARRIÈRE calls attention to a method of BUDDING GOOSEBERRIES practised by MM. CROUX & SONS, nurserymen, of Sceaux. Among other experiments of this nature, MM. CROUX have trained a number of plants of Ribes palmatum to a single stem, and budded the stock with Gooseberries and Currants of various colours and forms. The result, as may be imagined, has been both curious and ornamental.

—— We have received from Prof. SARGENT the report of the present condition of the ARNOLD ARBORETUM, presented to the President and Fellows of Harvard University, and which shows that, in spite of limited means, satisfactory progress has been made. A catalogue of the trees growing in the arboretum is subjoined to the report.

—— The death of Mr. CHARLES NORVAL THOMPSON, at the early age of forty, and who left a wife and four children unprovided for, makes it desirable for those who knew and valued him to make an appeal to horticulturists on behalf of the survivors. For many years he was the Sub-Editor of the *Journal of Horticulture*, and all who came into contact with him were ready to acknowledge his genuine modesty and worth; and, as a tribute to his memory, it is intended to raise a small fund, which may be applied in the way he would have himself have liked best—the benefit of his little ones. It is hoped that one or two of them may gain admission to some of our orphan asylums, and votes will be thankfully received when the necessary steps are taken, while, in order to carry out this and other plans for their benefit, subscriptions are earnestly requested, and will be received by the Editors of the *Journal of Horticulture*, 171, Fleet Street, E.C.

—— The President of the Royal Society, in his annual address, gave some interesting particulars with reference to the FAIRCHILD LECTURE, from which we learn that in February, 1728, THOMAS FAIRCHILD, of Hoxton, gardener, bequeathed £25, to be placed at interest, for the payment of 20s. annually for ever for preaching a sermon in the parish church of St. Leonard's, on Tuesday in Whitsun week, on "The wonderful work of God in the creation, or on the certainty of the resurrection of the dead proved by certain changes of the animal and vegetable parts of the creation." From 1733 to 1758 most of the lectures were read by Archdeacon DENNE, who in 1746 contributed all his lecture fees to the fund, which, with a subscription raised by the trustees, enabled them, in 1746, to purchase £100 South Sea stock. Subsequently this stock was offered to and accepted by the Society; and the transfer was made in 1767. The lectures have been regularly delivered, but of late years to empty pews; and the Council unanimously resolved that it was desirable to relieve the Society from the Fairfield Trust, and that to this end application should be made to the Charity Commissioners. The regular forms having been gone through, the trust was transferred to the Commissioners in November last, and thus disappears from the Society's balance-sheet.

Home Correspondence.

Rhododendron Growing on the Trunk of an Old Tree.—About fourteen years ago I had occasion to lop off the head of an old Alder tree which grew in a shrubbery forming a boundary to a flower garden; all the upper part, being decayed, was cut off as low as 20 feet from the ground. The finishing cut, being made with a sharp angle, was carefully covered over with lead, so as effectually to prevent water getting in. It is on the edge of this lead that a Rhododendron has established itself, and is now of some seven or eight years growth, being fully a foot in height, with healthy spreading branches. Not very far off is a large clump of R. ponticum, and it is possible the wind carried the seed there. The evergreen foliage has quite a conspicuous appearance amongst the deciduous branches, growing at 20 feet from the ground. While walking through an old plantation a few months back, I discovered growing between the limbs of an aged Scotch Fir a fine healthy Holly plant upwards of 2 feet in height. The tree shows no sign of decay, and the root of the Holly appears to be supported entirely upon decayed foliage and branches that have there accumulated from time to time. I have repeatedly met with Mountain Ash, Sycamore, Gean, Elm, &c., within the forks of large branches of other trees, but I have never seen the evergreens above described. *J. Webster, Gordon Castle.*

The Hardiness of Euonymus japonicus aureo-variegatus.—This plant I always thought only half-hardy, but I find it has stood our last three winters quite as well as the Euonymus japonicus and E. japonicus variegatus. I find some plants a little cut where they had made a late growth, but those matured in growth are not in the least injured. Some plants here are from 4 to 5 feet in height, others smaller; some are much exposed to the cold cutting east winds so prevalent here in the spring. The last frost I think a real test of its hardiness, the thermometer registering for ten days from 10° to 22°. *Henry Hepburn, Scarisbrick Hall, near Ormskirk, Lancashire.*

Pretended Gardeners.—A few correspondents have lately drawn attention to the sufferings occasionally inflicted by jobbing gardeners on their employers, but a much worse trouble lies in men, making a pretence of being gardeners, seeking employment, to gain admittance where they have no business to be. A few days ago a message was brought me that a man wanting employ in my garden was at the back door, and, on going to speak to him, I found a most doubtful looking character, with a stick, who could give no further account of himself than that he was "practical," his arrival being followed by that of another man (avowedly a beggar) with another stick. My second visitor I had ordered off at once; and the first, having nothing further to say, excepting that he had not had a mouthful of bread for two days, although he looked as comfortably fed as one would wish to be, I declined his services, and, as he was difficult to get rid of, cut the matter short by having the door shut in his face. On making inquiries of the nursery gardener, by whom he stated that he was about to be employed (disregarding that he was asking me for work at the time), he knew nothing at all of the man, excepting that he had heard of the same application being made by the same person at several houses. The proposed gardener was a short man, remarkable for looking in any direction except at the person he was speaking to, but not powerful; his companion was quite the reverse—a tall, strong-built man, very likely to intimidate ladies or women servants, if taken unawares; and visitors of such a sort being a likely cause of great annoyance, perhaps you will not think a note of theirappearance ill placed in your columns. *A Suburban Resident.*

Colonel Trevor Clarke's Celery.—A year or two since a very capital kind of Celery, bearing my name, was sent out by Messrs. Veitch. I observe this year that it is quoted as synonymous with a sort called Leicester Red. As this is in effect an assertion that the plant in question is another sort under a new name, it may be interesting to gardeners, and especially to Messrs. Veitch, as well as to the raiser, that its true history should be known. It is not a production of mine at all, but was selected more than twenty years ago, a distinct sport from some red Celery, by my gardener, who brought the seed of it to Welton with him when he took the situation. It is really a red Celery as far as the coloration of the outer leaf-stem goes, but when

prepared for the table appears white, with the exception of a clear red spot at the base of the leaf-stalks, the said spot disappearing in the innermost ones. Ever since we have had it we have, for curiosity, tried some other sort against it yearly, and have found it appreciably better than any we have yet met with. I have allowed Mr. Collins to grow a batch of it for Messrs. Veitch yearly, and, if any doubt exists on the subject, I recommend the trial of Messrs. Veitch's seed, which will be found undoubtedly pure. It is a small, neat, solid sort, not fit for exhibition purposes, but of undeniable excellence where the "proof of the pudding" is in question. *R. T. Clarke, Torquay, January* 18.

Hybrid Pelargonium, &c.—Allow me to correct a misprint in my remarks on this subject in last week's *Gardeners' Chronicle*, viz.: "or the *colour* of crossing will be lost," should be "or the *labour* of," &c. In speaking of the habit of the plant and form of the flowers taking after the female whilst colour is given by the male, it should have been added, "if we use a white flower for the female, and a coloured one for the male." For if the female will produce a more or less similar plant to itself and we merely wish to obtain a new colour, by using a white-flowered female, any change in colour which we obtain by using a coloured male will be given by the male. If Fuchsia "conspicua" be crossed by Fuchsia "fulgens," the progeny will have small leaves, whilst if Fuchsia "fulgens" be crossed by "conspicua," the progeny will have the large leaves of F. fulgens. This example will make what I mean perfectly clear. *E. J. Love.*

Aralia Sieboldii.—The Aralia Sieboldii appears to be meeting attention from several correspondents, not only in England, but Ireland as well. Allow me to state that we grow it here in quantity, in vases, beds, and also under a north wall; and in whichever position planted it flowers without the slightest protection, and I am so satisfied with its perfect hardiness that I intend to plant several at an elevation of 930 feet above sea level, where we have a plantation of Rhododendrons doing remarkably well, and set with thousands of bloom buds. I would also remark that some of our Aralias are 3 feet 6 in. in height, and 5 feet in diameter. *G. Dodd, Woodstock Park, Ireland.*

Snakes Swallowing their Young.—"R." inquires for the overwhelming evidence as regards the snake. My own observation was made when a youth. Not to burden this note by long quotations, I feel safe in saying "R." will agree with me that the evidence as regards true snakes is overwhelming if he will examine it in vol. xxii. of the *Proceedings of the American Association*, a copy of which he may see at the library of the Royal Society, or in those of the Royal Institution, the Royal Geographical Society, Museum of Practical Geology, Royal Astronomical Society, or India Office, or in the libraries of some of the Manchester scientific institutions. As to the occasional viviparous condition of the common toad (Bufo vulgaris), I have to fall back on my memory of the popular literature of thirty years ago, which I think does not deceive me in my statement. I believe it was then regarded as settled beyond dispute, not only that the toad, but lizards, and probably some ophidians, had this power of adapting themselves to circumstances. Very closely allied species were found oviparous or viviparous, and all the physiological differences found in either case were, that while in the oviparous condition the eggs were ejected from the ovarium at once into the water, in the viviparous condition they were simply thrown into the oviduct, where the heat and moisture of the body took the place of solar power. These varying modes of hatching the eggs seem characteristic of species of Bufo. B. obstetricus assists the sun by carrying the eggs on her back, thus adding her own slight warmth to that of the water or atmosphere. Zootoca vivipara always brings forth its young alive, while I think it was proved that Lacerta agilis was sometimes oviparous and sometimes viviparous. I believe our American lizards are usually oviparous, but I have seen Phrynosoma cornuta caught in the dry desert of Colorado, and boxed by one of my companions, be the mother of a nice little family twenty-four hours afterwards. I did not see them being born, but unless, like the snakes, she had the young down her throat when caught, I feel safe in saying they were born alive. There seems no difficulty in regard to impregnation, as suggested by your correspondent, as the fluid can be readily absorbed by the oviduct. It is, as "R." says, not my "special domain;" but yet I think the investigators in that field are hardly aware how great this power is. It fell to my lot to discover that in one of our common insects, Reduvius novenarius, turpentine is placed by the insect on the mouth of the duct, thence drawn into the ovarium, and each egg coated therewith during deposition, both as a means of fastening the block of eggs together, and of protecting them from enemies. [Where is this extraordinary statement recorded? EDS.] It is not the place to quote here, but "R." may find in the best modern works on the subject that even in much higher organisms than toads contact is not absolutely essential to impregnation. In the toads the fluid is more often than not ejected on to the back of the spawn-bearer, and can as readily find its way into the oviduct as anywhere else. But more than this, it was stated in discussions at the time referred to, that there was no impossibility in actual contact when such action was desirable. I think, in a species of Urodela, it was found that impregnation was sometimes by actual contact, and sometimes not. In my own life it has been my endeavour not to rest satisfied with other people's experiments, but to endeavour to repeat them. At the time of the discussion referred to, I watched the toad very carefully, but could never find any in the actual bringing forth of their young alive. I found, however, that the young toads, when brought forth in the ordinary tadpole state, were never smaller than the mature tadpole. Among my toads, which I kept in caves and cellars entirely secure from contact with water, I often found little toads no larger than early frame Peas, and I am sure, from their small size, these never were tadpoles, even had it been possible for them to have emerged from a watery nidus. Still, "might not the eggs have been deposited in the damp crevices of the mortared walls?" I don't know. I feel at least that I might have as good a right, from the analogies and possibilities I have submitted, to ask "might they not have been hatched in the oviduct?" These are the leading grounds for the statements I made. If proved to be untenable, I trust "R." will at least acquit me of having lightly made them. *Thomas Meehan, Germantown, Philadelphia, U.S., Dec.* 20, 1874.

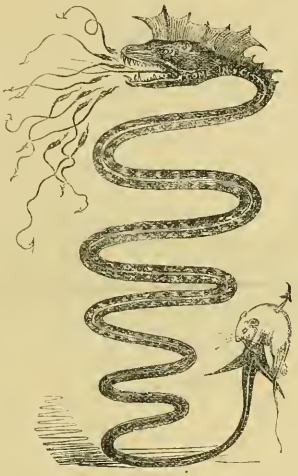

FIG. 22.—A TAIL-PIECE. (SEE P. 112.)

Snakes and Chess.—Your correspondent, Mr. Marshall, Ely, in the *Gardeners' Chronicle* for Dec. 12, 1874, in his strictures upon Mr. Meehan's remarkable statement in regard to the transmutation of Wheat into Chess, seems to assume that the belief that snakes swallow their young is as unfounded as that of the changing of Triticum into Bromus. The botanical question I will not discuss, but if that is as well supported by evidence as the snake story, it has more foundation than I supposed. In February, 1873, Professor G. Brown Goode, of the Wesleyan University, Middletown, Connecticut, in a communication to the *American Agriculturist*, asked for any observations that would aid in settling the question—"Do snakes swallow their young?" In November of the same year Professor Goode, in a communication to that journal, gave in a condensed form the results of his inquiry, which he had presented in detail in a paper read before the American Association in the previous August. He received over eighty letters from persons residing in twenty-four different States and territories, all these being written by farmers and persons in rural life of sufficient intelligence to subscribe to an agricultural journal. Professor Goode says: "The total number of testimonies in my possession is 104: fifty-eight saw the young enter their mother's mouth; nineteen heard the mother warn them by a sharp whistle [!], hiss or click; thirty-two who saw the young enter killed the mother, and found them living within her;" and various other details are given. While I am as thorough a disbeliever in the Chess transmutation as your correspondent, I shall be forced to admit its truth whenever Mr. Meehan or any one else brings such an an array of evidence to support it as that presented by Professor Goode in respect to the snake question. *Amateur Zoologist, Lodi, Dec.* [In the case of testimony of this kind, weight is of greater moment than number. EDS.]

Tillandsia musaica.—This handsome plant (figured for the first time in the *Gardeners' Chronicle*, at p. 487, vol. ii., 1874) is as yet very scarce in Europe. Mr. Wallis and Mr. Roezl both sent over some boxes, but very few of them arrived alive. In 1873 I brought a few boxes over with me; some plants came over well, but many died after unpacking. It is, no doubt, one of the prettiest of stove epiphytes, particularly as regards the variegation on the leaves, which is of all known colours. I promised to send Mr. Bull some dried flowers, for none had been seen in Europe, and he was doubtful whether it was a true Tillandsia. After my return I collected some flowers, and forwarded them, with a sketch, and it has now been ascertained to be a variety. This plant flowers in January or February, when it throws up the spike, and flowers but once, after which the plant does not produce any more leaves, but keeps its colour as before. When the flower is gone, it produces below the stem a stolon 10 or 12 inches long, on which the leaves and roots form, the roots taking hold of the first tree or Palm they reach. The flower-spike is 12 to 15 inches high, of a flesh colour, changing to a brilliant scarlet as it reaches maturity. The flowers are close together, and thick, like wax, from an inch to an inch and a half long, about twenty to twenty-five flowers forming a bullet-shaped inflorescence, which stands upright on the spike. In the place where this plant grows moisture is abundant during the whole year, but I observed that they grew more vigorously where well ventilated than in the thick forests. It is only found in one small district, at a height of about 5000 feet, and, as it is a scrambing plant, the trees and Palms are covered with them from bottom to top. Some of the plants, when not within reach of a tree to climb up, have five or six branches, forming quite a shrubbery; and I noticed that they do quite as well this way, growing in a kind of leaf-mould to an enormous size, the leaves being 4 inches broad. Where I cut some plants off, I found in about a year that the trunks had produced a lot of young ones, forming large tufts of beautiful plants. Very large specimens can be formed in this way for decorative purposes, covering walls, rockwork, or Tree Ferns, and, where moisture can be conserved, would make a beautiful display. I have some plants in my garden growing amongst rocks, fully exposed to the sun; they do very well, and keep a beautiful colour. Seed is very difficult to obtain, and the season when it is well ripe must be carefully noticed, as it sometimes damps off by the excessive wet. It is very likely I shall have the chance of getting some of it if I pay great attention to it after the flowering season is over. All the plants that have been sent as yet have damped off, very few having arrived in good condition; but I think a stock of it might be obtained by means of seed. There are several varieties amongst them, some being light green and darkly variegated, others of a brownish colour; some have long and some short leaves. There is no doubt it is one of the most elegant decorative plants ever introduced. The charming and remarkable variegation of the leaves, like illegible writing, will soon cause it to gain great attention for decorative purposes. *Albert Bruchmüller, Ocaña.*

Transmutation of Wheat.—Your correspondent, Mr. W. Marshall, misapprehends me in regard to the Brome-Triticum matter. What was the use of my asking to have the specimen referred to the Microscopical Committee, if I were satisfied that it was as it appeared? I confess I was puzzled. I was sure, as I expressed myself, that the usual explanations—such, for instance, as the Barley one offered by Mr. Marshall—could not account for it. To show how ingenious was the trick, I may say that a leading scientist of Laporte, Indiana, was first imposed on, then the members of the Indiana Geological Survey, and many of their scientific acquaintances. It was by them sent to the Academy of Natural Sciences, to which it was simply my duty as a member of its Botanical Committee to present it. Some thirty members handled and examined it, and even the chairman of the microscopical section, who is one of the best vegetable biologists in the United States, had the specimen in hand two weeks, and had made microscopical sections and drawings of the various parts before he discovered the trick. All these gentlemen were puzzled, as I was, but it does not follow that on that account we are to be charged with being transmutationists. I still think that the course I took in the matter was the wisest one. It was the means of exposing a trick, which, by a note from Professor Asa Gray, I believe has been played by the party practising it for some years past. It would have been better, of course, if my remarks and the exposure of the fraud could have gone together, but it is the practice of

the Philadelphia papers to publish reports of the weekly meetings of the Academy of Natural Science, and rather than trust to the regular reporters, who make sad work of scientific subjects, I made myself the brief abstract for the use of the *Tribune*. *Thos. Meehan.*

Crossing the Black Monukka Grape.—I beg to inform you that, in 1863, I had an idea that a seedless Grape of improved quality might be got from the Black Monukka, and in September of that year, as soon as the fruit was ripe, I sowed nine seeds of it; three of them came up, but one damped off, the other two both fruited. They had small oval berries, one white, the other black, and both had perfect seeds, but the berries were so small that they were not worth saving. In the same vinery at that time seven other varieties of Grapes were growing, and as I generally draw my hands gently over all the bunches when in flower, I have no doubt but the Black Monukka got fertilised with some of the other varieties. I have several times since tried to raise seedlings from the same source, but have only managed to get one to grow, and it has not yet fruited; it has deeply lobed leaves like the female parent, and so had the two that fruited. *Charles Ross, Welford Park, Newbury.*

Morello Cherry Training at Scone Palace.—I was pleased to see (p. 84) that Mr. Ward, who had been more recently at Scone than Mr. Smith, gave a good account of the fine training of the Morello Cherry trees still carried on there. I helped to nail them in Mr. Beattie's time, along with my lamented friend, Mr. Robert Fish. Mr. Beattie was more particular about the training of the Morellos than of any other of the wall trees. I remember him once finding fault with a young man whose nailing did not please him. "I would rather grub it out by the root than have it left in that state. Begin and unnail it, and see if you cannot mend it." And mend it he did. This was a lesson he never forgot. I remember Mr. Sinclair, a nurseryman from London, calling at Scone while we were nailing. He said they were the best trees he ever saw. I have never seen any like them myself in all my travels. But, in addition to good training of trees and good mowing with the scythe, is there not another qualification indispensable for the diploma of a regularly qualified "blue apron?" I think there is, and it is the being able to dig well. Some years ago a friend of mine, who had been a Scone man, was working in a large London nursery; a gardener who was me with said, "Mr. J., can you change your hands at digging?" "Oh I learned that years ago." "Well, we are the only two among all the men in the nursery that can do it." My friend stated that there were young men there waiting for foremen's places, where they would be expected to direct others who did not even know how to hold the spade properly, much less change their hands. The fact is, many young men think if they get into the houses they are all right. In the opinion of many it is *infra dig* to go to the kitchen garden. These are not the men to make gardeners. *W. Hutcheson, The Gardens, Llwyndu, Abergavenny.*

The Potato Crop of 1874.—Having on September 12, 1874 (p. 339), promised to give an account of the keeping qualities and number of bushels per acre, I may state that we had 150 bushels on 1¼ acre, all of which keep first-rate. We find no bad ones in the following sorts:—Paterson's Victoria, York Regents, Red Flukes, King of Flukes, Scotch Downes, which is a good cropper and keeper; Red Regents being the only one showing any signs of disease. Of the Flourball we took 20 bushels from a "clamp" last week all sound, but they will neither boil nor steam. Where people have the convenience to house their Potatos I would strongly recommend them to do so. We have a large house which for many years, although large, had but little room in it. Four years ago we had bins or stalls put in, holding each about 20 bushels, with sliding boards at one end. We can now look over our Potatos on wet days with pleasure. There is a great quantity of bad Potatos in this neighbourhood this year where they have been left in the ground late. In planting Potatos during the last three years we have ploughed the land after stubble, and as soon as it was cleared got our manure, put it on the land, then ploughed again when dry, and about the middle of March well worked the ground, ridging with double ridge-plough, filling in with crooked fork or manure drag. *T. Capers, Woodcote, Jan.* 12.

Effects of the Late Frost on Vegetation near Farnham.—During the week ending January 1 the thermometer in this neighbourhood registered 17° of cold, the ground being at the same time covered with 3 or 4 inches of snow. It will perhaps interest some of your readers to look over the following list of plants which have withstood the effects of this severe frost with immunity. The species comprised in the first list are natives of Algeria, principally on the coast line, where the thermometer rarely descends below freezing point, and snow does not lie on the ground more than once in twenty years on an average—at least such was my experience during a twenty-five years' sojourn in that country, as well as from report of the natives.

Iris stylosa	Athamanta sicula
„ scorpioides	Ferula communis
Arum italicum	Erodium Munbyanum
Cyclamen africanum	Anagallis collina
Scilla obtusifolia	Ranunculus maccophyllus
„ parviflora	Medicago orbicularis
Lepidium acanthocladum	Ornithogalum berticum
Delphinium pentagynum	Viola Munbyana
Cistus albidus slightly injured)	Allium roseum
Magydaris tomentosa	Corbularia cantabrica
	Asphodelus acaulis

Plants from other countries:—

Iris reticulata	Sparaxis pulcherrima
Crocus Sieberi (in flower)	„ tricolor
„ Imperati (in flower)	Iberis gibraltarica
Oxalis rubella	Triteleia uniflora
„ lobata	Ornithogalum montanum (in flower)
„ pentaphylla	Eucalyptus globulus
„ Bowiei	

This last named species suffered slightly, but the plants were only put in the ground in October last. The following plants were uninjured in a cold frame, but with a coating of about 3 inches of snow on the glass:—

Lachenalia tricolor	Ophrys tenthredinifera
Oxalis filicaulis	„ speculum
„ arenaria	„ scolopax
„ oregana	Saxifraga globulifera
„ tricolor	Poterium ancistroides
Lilium Wallichianum	Anagyris fœtida

The last plant was killed in the open ground. In a cool greenhouse, where the thermometer descended several nights to 25° Fahr., all the Zonal and flower Pelargoniums were uninjured, about twenty species of Cape and Brazil Oxalises were untouched, but Oxalis crassa and O. cernua were evenly stricken. The water in the saucers (left on purpose) was a solid mass of ice. *G. Munby, The Holt, Farnham, Jan.* 18.

Keens' Seedling and other Strawberries.—Thanks to "R.P.B." (p. 593, vol. ii., 1874), the recent controversy about Strawberries seems at last to have been brought upon the right ground, as there is no doubt but that it is chiefly due to the inherent conservatism of Englishmen that such Strawberries as Keens' Seedling, Black Prince, Eleanor, and Elton Pine, are still so extensively grown. Nobody will deny that these kinds have had certain merits, and fully deserved their popularity as long as they were improvements on sorts which were in gardens previous to their introduction; but there is no fruit which in modern times has been so much improved as the Strawberry—a well-known and acknowledged fact with all intelligent and impartial lovers of this delicious fruit. I have grown Keens' Seedling, Elton Pine, and Black Prince, ever since 1849, and still reserve for them a small place for the sake of comparison, but many years have elapsed since I picked a single berry off them, except in cases where I wished to show my friends what Strawberries were thirty years ago and what they are now! I have grown Strawberries as a speciality for more than twenty-five years, in strong as well as in light soils, and in various climates and situations, and can, therefore, speak from personal experience. Keens' Seedling, I repeat, was a fine Strawberry, and I well recollect how proud I was when I picked the first fruit of it twenty-five years ago, but since then we have obtained far superior kinds, thanks to Messrs. Bradley, de Jonghe, Dr. Roden, Mr. Powell, and others, which place Keens' Seedling utterly in the shade. The principal faults that I always find with Keens' are its small size after the first gathering, and further, its softness when quite ripe, and then only has it flavour and sweetness. I must here mention a Strawberry which, although evidently of British origin, seems but little known, and which I have only derived two or three years from Mr. Krelage, of Haarlem—I mean Dumbarton Castle, sent out by Mr. Lawson. This I would recommend to all admirers of Keens' Seedling, as I consider it very nearly the same with the exception that it has none of its faults. The plant bears a close resemblance to Keens', but its fertility is such that I have this year increased it considerably. The fruit is of even, uniform shape and size, and it ripens quite as early as Keens'. Perhaps some of the Scotch readers of the *Gardeners' Chronicle* might favour us with an account of its origin? President is a very fine Strawberry, large, handsome, and of good flavour; but it lacks the firmness and rich colour of Sir Joseph Paxton, which, on the other hand, is a trifle later. "R. P. B." is quite right in saying of Dr. Hogg that it is the sweetest of all Strawberries. Fairy Queen, however, is a worthy companion to it in this respect. The latter bears very profusely, and forces well. Frogmore Late Pine, a noble fruit, has, it is true, a little acidity, but is of a pleasant vinous character; and in that respect it is likewise far superior to Elton and Eleanor, which without the addition of sugar are scarcely eatable. The following is a selection of twenty of what I consider the best Strawberries, to which several others of more recent introduction, and as yet not fully proved, may be ultimately added:—Early: Early Prolific and Duke of Edinburgh (Dr. Roden), President (Green), Sir Joseph Paxton (Bradley), Fairy Queen (Powell), Guenivere, (Mrs. Clements). Medium season: Carolina superba (Kitley), Dr. Hogg (Bradley), La Constante (De Jonghe), British Queen (Myatt), Mr. Radclyffe (Powell), Her Majesty (Mrs. Clements), Lucas, (De Jonghe), James Veitch (Gloede), Sabreur (Mrs. Clements). Late: Cockscomb and Frogmore Late Pine (Powell), Souvenir de Kieff (De Jonghe), Ascot Pine-apple (Standish), Unser Fritz (Gloede). *Ferdinand Gloede, Eppendorf, Hamburgh.*

Houlletia Lowiana.—I was very much surprised to see, at p. 484, vol. ii., 1874, of the *Gardeners' Chronicle*, a description of this new species. I found it here in 1869, when I was travelling for Mr. Hugh Low, and sent him a lot; but it has not been mentioned since. So far as I know, no other collector had been in the place where I found this plant; it only grows in one district, beside a small stream, amongst sterile, mountainous rocks, in a loamy clay. The position is a little shaded, although some of the plants are exposed to the sun the whole day. It will stand a moderate heat, but as it grows at a height of about 4500 feet, an intermediate house is best suited to it. It commences flowering here in the months of January or February, when the weather begins to be dry and sunny. The plant does not grow in strong tufts. The bulbs are small, the flower-spikes rise from the young bulbs to a height of 3 or 4 feet, and the flower is light yellowish in colour, large, and agreeably scented. A single plant, when in flower, fills the house with an aromatic perfume. To the first lot I sent over I gave the name of H. Lowei, as I knew that it was not known; and now that Professor Reichenbach has got a flower he has determined that it is a Houlletia, and named it in honour of Mr. Low. When I first found it I sent a sketch and some dried flowers to Mr. Low, but he at first thought it was a Peristeria, and until now nobody knew what it really was. I introduced another lot last year, but as nobody had seen the flower, they scarcely covered the freight, being sold and given away as of little value. I have found another rarity in the same genus, the flower of which assumes a very large size. It flowers very freely, and has an agreeable odour. There is at present none of it in Europe. *Albert Bruchmüller, Ocaña.*

The Divining Rod.—On this subject (1874, vol. ii., pp. 483, 581) the following extraordinary coincidence should be mentioned, whether "to give the devil his due," or for other reasons. When the late James Veitch, sen., had planted his nursery in the neighbourhood of the city of Exeter, he was anxious to get a good supply of water close to the ranges of glass, and sunk several wells without finding water, until the thing began to look serious, as it had already become expensive. His attention was called to the use of the divining rod at this stage of the work; but he only smiled at the idea of such agency. However, after hearing what wonders had been wrought by this forked Willow wand, he hired the devil's imp, and had the ground pointed out where he should dig for water, and this only a few yards from the spot where repeated trials had been made. The well-sinker set to work and found an excellent supply of water, which twenty-five years ago was pumped upon to supply the wants of the nursery, which were very great. I had never heard before of such a means for indicating the presence of water, and as I had the information direct from Mr. Veitch himself I could not help thinking that it was a singular coincidence. Many years ago a gentleman in Scotland broached the theory that the water veins lay in the direction of north and south nearly, and by sinking wells in the direction of south or north of existing wells the springs would be tapped, and he instanced the case of a lawsuit being tried for taking the supply of water from a water mill although a mile of distance and a high hill lay between the neighbours. Now if this theory could be substantiated, it would take the divining rod out of the hands of the quack, and put it into the hands of men who could "render a reason" for what they did. In the parish where I was born, the wells certainly lay in the direction of north and south or nearly so; the most northerly well was on high ground and rocky, there being a stone quarry a little way from the spring; and from this point there were six or seven wells southward nearly in a line. *A. Forsyth.*

Discovery of the Germination of Ferns.—I am afraid the remarks which I made the other night at the Royal Horticultural Society are hardly adequate to the prominence which you have been kind enough to give them. What you have said, however, makes me the more anxious to correct one or two points in which I find I was not entirely accurate. They are not of much importance, but if scientific history is worth studying at all, it is well to be exact about it. Your report makes me attribute to Columna *all* the *à priori* reasons for believing that Ferns had seeds, which Ray gives in the first volume of his *Historia Plantarum*, p. 132, I find, however, that two of them belong to

Gerarde (1597). Quoting Johnson's edition (1636), p. 1129, I find that he says under Filix mas remota pinnulis dentatis (Lastrea dilatata) :—"Neere the old plants I have observed very many small young plants growing, which came by the falling of the seeds from those dusty scales: for I believe all herbes have seeds in themselves to produce their kindes. *Gen.* i., 11 and 12." What Columna said on the matter is contained in a curious book, of which there is a copy in the Lindley Library—Recchi's *Nova Plantarum Animalium et Mineralium Regni Mexicani Historia* (1648). This was based upon the collections and drawings of Mexican plants belonging to Franciscus Hernandez, of whom nothing seems to be known, except that he was in Mexico at the close of the sixteenth century, and spent a considerable sum of money in having plants drawn. He carried with him to Madrid seventeen volumes, all of which, except five, perished in a conflagration in the Escurial. To Recchi's work Columna added a kind of appendix of annotations, and it was not without some difficulty that I hunted down in the middle of a kind of panegyric of his friend Cæsius, his remarks about Ferns. I will quote what he has to say:—"Et si Rusco Hypoglosso et Lauro Alexandrinæ flores et fructus in summo foliorum constituit conspicuos; quid merum in Filiceis et capillaribus si in eorum dorso non tam conspicuos sed parvos adeo (natura) nasci voluit." Columna argues, from the presence of comparatively large flowers on the upper side of what he supposed to be the leaves of Ruscus, that those on the under side of the leaves of Ferns might well be very small. He then proceeds to describe Cæsius' observations on what he took for the seeds of Ferns (doubtless the spore cases). As I stated, W. Cole (1669) first actually examined the spores of Ferns. His observations were communicated to Hooker, and I have not had an opportunity of examining them in the original. Ray quotes them in his *Historia* (*l.c.*), and I believe that I was mistaken in attributing the first notice of the hygroscopic movements of the spore cases (producing their disruption and the consequent shedding of the spores) to Ray rather than to Cole, from whom apparently Ray quotes it. Lastly, Dr. Lindsay appears to have been anticipated in the discovery of the prothallus. According to Hofmeister (*Higher Cryptogams*, p. 257) this was observed in 1788—the year preceding Lindsay's communication to Sir Joseph Banks—by Ehrhart. *W. T. Thiselton Dyer.*

Crocus Imperati.—This lovely little flower is just now in full bloom with me, taking precedence even of the Aconites, and keeping pace with Helleborus niger. I know of nothing more exquisitely delicate than the blending of its colours, and I know of no spring flower which approaches it. I have for some years past been nursing up my small stock of bulbs, and have saved enough at last to plant a small round bed, which, if spared till next spring, I hope to see a perfect mass of fawn-colour, purple, and mauve. There is a white variety of this beautiful species, said to be not uncommon on the hills round Naples, which ought to be in all our gardens, and which I shall be deeply grateful if any botanical dweller or sojourner in Naples will send me. I get fonder of this beautiful genus every year I live, in fact I may say I have a violent attack of Crocus on the brain. If I were a richer man I would follow the excellent example of my friend, Mr. Elwes, and publish a monograph of all known Croci; perhaps some day, when my ship comes in, I may; meanwhile, there are a good many species whose acquaintance I have yet to make. If home duties did not prevent me I would go off at once and dig them up and bring them home to this chalky corner of Bucks, which will grow Croci, and grow them well, though it is terribly trying to floral life in general. Will all good Samaritans in foreign parts, who know a Crocus when they see it, kindly remember that a bulb or two of the following spring-flowering species will be received with unspeakable gratitude by a botanical beggar who lives at Drayton-Beauchamp Rectory, near Tring?—

Crocus chrysanthus, Roumelia, Asia Minor	Crocus Sieberi exiguus, Transylvania
,, gargaricus, Asia Minor	,, Carpetanus, Spain
,, biflorus Adami, Caucasus, Crimea	,, reticulatus etruscus, Tuscan Maremma
,, biflorus nubigenus, Asia Minor	,, Suterianus, Anatolia
,, suaveolens, Val d'Inferno, Rome	,, aleppicus, Aleppo
,, banaticus, Hungary, Transylvania, Croatia	,, aërius, Mts. of Armenia
,, vernus nivigenus, Steppes of Odessa	,, vitellinus, Palestine
,, vernus Tommasinianus, Dalmatia	,, ,, Balansa, Smyrna
	,, syriacus, Aleppo
	,, Fleischeri, Asia Minor
	,, hyemalis, Palestine
	,, ,, Gaillardoti, Anti-Lebanon range

From February till the end of April these species are all more or less in bloom. *H. Harpur-Crewe, Drayton-Beauchamp Rectory, Tring, January* 16. [Mr. Berkeley, in his remarks at the meeting of the Royal Horticultural Society, alluded to the precocity of Crocus Imperati in his own garden, where it also preceded the Eranthis; and we learn that Mr. Parker and Mr. Barr both have had it for some time in flower. EDS.]

BRITISH GARDENERS.—X.

PHILIP FROST.

THE British gardener whom we introduce to our readers this week—Mr. Philip Frost, of Dropmore—was born at Moreton Hampstead, in Devonshire, on July 10, 1804. His father, who was a farmer's son, became in 1807-8 gamekeeper and park-keeper to Lord Grenville, at Boconnoc, in Cornwall, and about the year 1817 the son became employed, under the forester, Mr. William Pond, in the shrubberies, plantations, and nursery grounds, in the winter months planting on waste lands, in summer chiefly in the nursery, and in early autumn in the young plantations, clearing Brambles and removing superfluous leaders from young trees.

"On November 29, 1822," writes Mr. Frost, "I started from home for Dropmore, where I was first put in the flower-garden, which was not then of so much note as it is now. I soon moved into the frame-ground, where I thought there was more to be learnt. In 1826 I left Dropmore and went to Colonel Howard's, Ashtead Park, near Epsom, under Mr. Hislop. Lady Grenville objected very much to my leaving, and desired me to write and state how I liked it. I found I was rated and treated as a common labourer, but I thought I deserved something better,

and soon obeyed her ladyship's request, the result being an intimation to return to Dropmore immediately and resume my old place. In 1827 I was made foreman of the frame-ground, and at that time we had a vinery to force, which is still producing excellent crops. We had also Melon and Cucumber frames, in very great extent, and it was a fight who should excel. The neighbourhood of Windsor stood prominent in Cucumber-growing, and Gould, Weedon, Patrick, and many others strongly competed for the lead. In the year 1828 I wished to go, for improvement, into a kitchen-garden, and accordingly left on March 20 for Caen Wood, making a sacrifice of 6*s.* per week by so doing. In a short time the foreman, John Milne (a nephew of Mr. Milne, of the Fulham Nurseries), left, and I was promoted to the position of foreman of Caen Wood garden. In June, 1829, I had the offer of a situation in Derbyshire, but went, in preference, to the Botanic Garden, Chelsea, as foreman under Mr. Anderson. I soon gained his confidence, and the improvement I made in the plants was noticed by Sweet, Haworth, and others, who were in the habit of visiting the garden. I raised a new stock from cuttings, which had not been done for years. In the autumn of 1832, Lord Grenville had reasons for dismissing Mr. Baillie, my old master, and told me that he would take me in preference to any one he knew. I must here add that Lord Grenville offered me a botanical work before I left in 1828, and accordingly gave me Sprengel's *System of Vegetables*, and Schultes' *Mantissa in Volumen Tertium, Systematis Vegetabilitis, Caroli a Linné.* I was much interested in English botany, and at that time knew most of the wild plants of this neighbourhood. Lord Grenville had each volume put in two parts, and bound, interleaved, with my name printed on the cover. I took charge of the garden here in January, 1833. In October, 1834, I planted the first trees here—five Deodar Cedars. The largest is now 60 feet high, and measures in diameter of branches 52 feet, the girth of the trunk at 3 feet from the ground being 9 feet 7 inches. From a note of Lord Grenville's, I learn that the seed of the finest Abies Douglasii was sent here in December, 1827, which settles a point I was not clear about. A gentleman from Whiteknights measured it a short time since, and made it 106 feet high. The finest Araucaria is 60 feet high (see *Gardeners' Chronicle*, 1872). There were three A. Douglasii plants raised from seed sent here from the Horticultural Society's garden. One has been cut down, and there are now two growing, but the tree that has had the most attention is a long way the finest—a proof of the method of top-dressing I have adopted being beneficial. There has not been much glass erected since I have had charge—in fact, only a range of Peach-houses 150 feet long, which has produced magnificent fruit. There are two vineries; one here when I came, still going on, the other, planted in 1825, producing excellent fruit and splendid crops. The trees I have planted since 1833 will bear inspection, especially when the nature of the soil—a sterile gravel—is taken into account."

Our readers will remember that in December, 1872, the friends and admirers of Mr. Frost presented him with a handsome silver cup, of the value of £25, on which were engraved the portraits of two of his more remarkable nursings—Araucaria imbricata and Abies Douglasii, together with an annuity purchased with the sum of about £200. Long may he live to enjoy it, and to care for the wants of the magnificent trees at Dropmore.

Reports of Societies.

Royal Horticultural: *Jan.* 20.—W. A. Lindsay, Esq., in the chair. The Rev. M. J. Berkeley, after the usual preliminary business had been completed, called attention to the subject of the awards made by the Fruit and Floral Committees, and observed that though there were many interesting plants from Mr. Wills, Messrs. Veitch, and others, and a fine collection of Cycadaceous plants from Mr. Bull, there was not much that required remark. The Rhododeodron shown by Mr. Baker, gr. to Ambrose Bassett, Esq., which was supposed to be R. niveum, was really R. argenteum, a species described in Dr. Hooker's *Himalayan Journals*, and figured in the *Botanical Magazine*, tab. 5054. With regard to the late severe weather, Mr. Berkeley hoped that the experience of others had proved as favourable as in the case of his own garden in Northamptonshire, which is about 500 feet above the sea level, and in which, owing to a good covering of snow, all the plants seemed to have escaped unhurt, and are now doing well. He was pleased to find lately two patches of Crocus Imperati in full bloom, thus proving to be rather earlier than the common Aconite, and of easy culture: it ought to be in every garden. It is perhaps the most beautiful of the genus, and increases rapidly. A Snowdrop had that day been received from Tweedside, which was very early; in his own garden there would be none for another week. Flowers of Aponogeton distachyon were also shown by Mr. Parker, which had been developed in the open air; and specimens of Corbularia cantabrica in full blossom had been received from Algiers by post. Mr. Bull sent an Arisæma, doubtless a variety of A. Wightii, as it differed slightly from it in colour only, the spadix in Mr. Bull's plant being deep purple and in the typical plant yellow. Mr. Berkeley then mentioned other objects of interest that had been before the Scientific Committee, and the meeting adjourned.

SCIENTIFIC COMMITTEE.—Dr. J. D. Hooker, C.B., Pres. R.S., in the chair. This meeting was well attended, and numerous subjects were brought forward for discussion.

Honey Dew.—Mr. Alfred Smee stated that his "manufactory of honey dew" by means of aphides was in full operation. This will probably be brought forward on a subsequent occasion.

Buds on Roots of Peach Tree.—The Rev. M. J. Berkeley read a letter from Mr. Andrew Murray, enclosing a specimen of the root of a Peach tree with adventitious buds proceeding from it. The tree from which it was taken was understood to be retarded and stunted in its growth.

Knots on Vines.—Mr. Berkeley also exhibited specimens of Vine rods with large burr-like excrescences growing from them, and suggested that it would be desirable to ascertain whether the production was due to the attacks of a fungus like the Exobasidium, known to produce swellings on the leaves of Rhododendron.

Cyathus Thozeti.—A beautiful little fungus from Australia, whence it was sent by Baron Müller, was then exhibited under this name.

Double Cineraria.—A specimen was shown, from Mr. Bennett, gr. to the Marquis of Salisbury at Hatfield, and where the flowers were nearly or entirely absent, and replaced by small green scales—a most undesirable variation for horticultural purposes.

Vibrios in the Roots of Cucumbers.—A conversation took place on this subject, with reference to the figure of these creatures in a recent number of the *Journal of Horticulture*. It was stated that the animal was a species of Gelenchus, but little known to naturalists. Mr. Berkeley had seen a similar occurrence in the roots of Gardenia. [See *Gardeners' Chronicle*, 1872, vol. ii., p. 302. EDS.].

Chestnuts of 1873 preserved fresh.—Mr. Alfred Smee exhibited Chestnuts of the growth of 1873 which had been preserved simply in dry sand in a flower-pot placed in a dry garden shed. On cutting one open it was found to be quite fresh, and the embryo in a good condition. This supplies a valuable hint to those concerned in sending Chestnuts to India and elsewhere. Dr. Hooker stated that the English Chestnuts he had sent to India in sacks had not germinated, but those that he sent from Italy had done so.

Phylloxera.—Professor Dyer called attention to the letter of Professor Forel, of Lausanne, to Professor Westwood, which has already been published in our columns (p. 18, 1875).

The Colorado Beetle.—Professor Dyer also alluded to the recent prohibition enacted by the German Government against the introduction of Potatos from America, so as to avoid the importation of the beetle. [Our Government refused to prohibit the entry of American Potatos, on the ground that "it does not appear that the eggs or larvæ of the beetle have been or are deposited or conveyed in the tuber of the Potato." EDS.]. Mr. Andrew Murray said that he had seen prodigious quantities of the beetle in Canada, where it made great havoc with the leaves and haulm, on the latter of which the eggs were deposited. The Tomato was similarly affected. The species of Solanum originally attacked was a prickly-leaved species. Mr. McLachlan stated that the ravages of the beetle were first observed in Mexico, from whence it had extended and was still extending. Dr. Hooker commented on the singular circumstance that a semi-tropical beetle should be enabled to resist the severe winters of Canada. Mr. McLachlan, in reference to this point, noted the appearance of quantities of the winter moth, Cheimatobia brumata, a night or two after the recent frosts.

Cracked Pears.—From Mr. Webb came some specimens of Pears (Beurré d'Aremberg), which had cracked and grown together again. Mr. Webb stated that with him Pears often cracked to the core and grew up again, so that the split was only perceptible by two lines in the skin. The cracks generally appear after rain, following upon drought.

New Potato Disease in Algeria.—Mr. Alfred Smee alluded to the destruction wrought by a Tineinous larva already reported on in the *Gardeners' Chronicle*.

Luminous Fungus.—The Hon. Sir H. Gordon forwarded a luminous fungus, a species of Marasmius, from the Seychelles.

Fruiting of Hibiscus rosa-sinensis.—Professor Thiselton Dyer stated, with reference to the fruiting of Hibiscus rosa-sinensis—which had been stated, on the authority of Dr. Cleghorn, not to take place even in India—that he had received a note from Mr. H. Gorrie, of Mauldslie Castle, Carluke, N.B., to the effect that in 1871 and 1872 the plant had fruited with him after being artificially fertilised, and that he had raised plants from the seeds. The flowers of the seedlings were larger than those of the parent plant.

Absorption of Ammonia by the Leaves of Plants.—Professor Dyer called attention to some experiments of M. Schloessing, who has shown that plants absorb and assimilate the ammonia of the atmosphere in the way that has been supposed, but not before demonstrated. He grew two plants of Tobacco in the same soil under bell-glasses, supplying both with fresh air. In one case he added some sesquicarbonate of ammonia in very dilute solution, placed at the bottom of the apparatus each day. Between July 31 and September 14, 1.93 grm. of ammonia was volatilised in the atmosphere of one glass, while the other glass received none. Analysis then showed that the plant which grew in the ammoniated atmosphere contained 2.22 per cent. of nitrogen, and the other one only 1.77 per cent., the former being the normal quantity. Although the ammonia must have been absorbed by the leaves, its nitrogen did not remain in them, but was diffused throughout the plant, including the roots. (*Academy*, Nov. 14, 1874, p. 540.)

Mistleto Parasitic on Itself.—Dr. Masters showed specimens from Mr. Corderoy, of Didcot, in which young seedling Mistletos had grown upon the branches of the parent plant.

Graft Hybridisation.—Some conversation then ensued as to the possibility of dividing two buds so evenly as to allow of the adhesion of the two halves of different buds. While it was theoretically not impossible, the committee thought the practical difficulties in the way would be too great to be surmounted.

Monstrous Cyclamens.—Some specimens of Cyclamens, in which the flowers were borne in stalked umbels mixed with leaves, and also in the axils of alternate leaves, were shown. They were obtained from plants growing at Chiswick.

FLORAL COMMITTEE.—Mr. B. S. Williams in the chair. There was a full attendance of members to-day, but a paucity of subjects for adjudication. The largest contributors were Mr. W. Bull, Mr. John Wills, of Onslow Crescent, and Messrs. Veitch & Sons. Mr. Bull's contributions consisted of a very fine group of Cycads, including beautiful specimens of Encephalartos Lehmanni, E. horridus, E. Altensteini, and several forms of E. villosus; Dion edule, Macrozamia spiralis, M. corallipes gyrata, M. plumosa, and Zamia furfuracea. A vote of thanks was awarded. From Mr. Wills came a most attractive group of plants, composed of Orchids, Dracænas, Palms, Ferns, and Lycopods, Aralias, Marantas, &c.; and Messrs. Veitch had a particularly fine collection of Cyclamens, and a smaller group of Primula sinensis kermesina flore-pleno. In both cases the thanks of the committee were voted. The only certificate awarded was one of the first class to Messrs. Veitch & Sons, for × Nepenthes intermedia, a hybrid between N. Raffilesiana and an unnamed species with spotted pitchers. N. intermedia has oblong pitchers, spotted and barred with red. Mr. Baker, gr to Ambrose Bassett, Esq., showed a cut flower of a Bhotan Rhododendron, which proved to be R. argenteum. Its very pretty flowers are white, campanulate in shape, forming a close stiff truss. Cut flowers of Aponogeton distachyon, scented like the Hawthorn, or Odontoglossum gloriosum, and produced in the open air, were shown by Mr. Parker, of Tooting. Messrs. E. G. Henderson & Son sent a few seedling Hippeastrums, and from the Society's garden, Chiswick, came a small group of Primulas.

FRUIT COMMITTEE.—G. F. Wilson, Esq., F.R.S., in the chair. But little of general interest was shown at this meeting, which was well attended. Mr. G. T. Miles, gr. to Lord Carrington, Wycombe Abbey, showed five remarkably fine Charlotte Rothschild Pine-apples, weighing together 35½ lb., and received a Cultural Commendation. Votes of thanks were accorded to Messrs. Stuart & Mein, of Kelso, for a small but interesting collection of Apples, grown in the State of Michigan, U.S.A.; and to Mr. James Batters, gr., Chilworth Manor, Romsey, for a good fruit of the variegated Pine-apple. A Cultural Commendation was also awarded to the Rev. W. Broomfield, who sent a meritorious collection of Apples, grown in the neighbourhood of Kelso. Mr. Batters also sent a nice dish of new Potatos, and one of Mushrooms, and a good dish of the latter was also contributed by Mr. John Stirling, Park House, Swansea. Mr. Bennett, Hatfield, showed fruits of the Telegraph, Improved Syon House, Masters' Prolific, and Monro's Duke of Edinburgh Cucumbers, principally to illustrate the very free-bearing character of the latter. A First-class Certificate was awarded to Mr. Cox, gr. to F. Clarke Hills, Esq., Redleaf, Penshurst, Kent, for a seedling Apple named Redleaf Russet. It was raised from the well-known Golden Knob, which it somewhat resembles, but is flatter and of a more even golden russetty colour. The flavour was said to be particularly good.

The Villa Garden.

CUCUMBER BED.—If a Villa, or perhaps it would be best to be comprehensive and say Amateur Gardener, is proud of any achievement in connection with his garden it is that of growing his own Cucumbers. If he can manage to have some nice bunches of Grapes in his small vinery, and is able to cut a few nice Cucumbers in his frame or pit, he becomes locally quite an authority in gardening matters, and he is pretty well sure to be proposed on the committee of the horticultural society of the place.

Cucumbers require constant attention; they cannot be planted out as one would a Currant bush, and then be left to take care of themselves; they will not take care of themselves, they must be taken care of. They require close attention, they require to be kept growing, healthy, and vigorous, in a moist regular heat; a check from the cold, an injury through neglect, will undo all the precious work of the previous weeks.

Next to growing Cucumbers of the short, prickly, or ridge type out-of-doors during the summer, the most elementary form is that of the old-fashioned dung-bed, and this is the one that must be resorted to in the case of ordinary Villa Gardens. The earlier in the season that the culture of Cucumbers is commenced the more difficult does the process become to those that are in the alphabet of this part of their garden work: there are greater alternations of temperature to contend with; a frequent absence of solar light and heat; and there is also a copious rainfall, which lowers the temperature of the bed at a time when the bottom-heat is most wanted. Still, Cucumbers can be and are grown in this way very creditably indeed, and notwithstanding the difficulties that beset the cultivator.

When Cucumbers are grown on the old-fashioned hotbed the labour of the preparation of the material which forms the bed, by frequent mixing and turning before it is in a fit condition to be made into a hotbed, must be undergone. Then when it is made up there comes a pause, when the cultivator anxiously waits for the time when the burning heat has subsided and the noxious gases have escaped, and the bed is reduced to a sufficiently low temperature to admit of the plants being planted out.

The best materials out of which to construct a Cucumber bed are fresh stable dung and leaves, about two-thirds of the former and one of the latter. Some gardeners prefer to dispense with leaves altogether, others advocate their use to the extent of one-half. Fresh stable manure, that which has lain together for two or three weeks, is preferred to any other kind of manure. Let it be thrown up together, so as to reduce any rankness of the manure before the bed is made; but rank manure need not be rejected, as it can be used to go at the bottom of the bed, and what the gardeners term "sweetened manure" may be placed on the top of it, by way of completing the bed. The mixing together of the materials out of which the bed is to be formed is a matter of some moment, simple as it may appear. Let them be collected and brought to the place where the bed is to be built up, and then let them be well shaken out as loosely as possible, and if the stable manure be dry, as it sometimes does when lying in a confused heap, let plenty of water be thrown over it as the mixing proceeds. It should then be left in a tidy heap, and in the course of a week or so it will have generated a considerable quantity of active warmth through the moist dung. It should then be thoroughly turned and well shaken, and the same process will require to be followed after the same interval of time, when the bed can be made. In building it up, let the space it is to occupy be first decided on, and then lay the manure so as to cover it. The sides should be built up evenly and regularly, and all the material be well shaken out; it should also be piled up high, as it will subside considerably in a week or two. The invariable rule is to have the bed slightly slanting away to the front, say about a foot lower at this part. As the dung is piled up in even layers, it should be thoroughly beaten down as the work proceeds, the sides of the bed being as regularly built up as a wall. A newly formed bed should be 4 to 4½ feet high at the back, and not so deep by a foot in front. It is customary with some cultivators to mix in with the dung the pieces of turf obtained by using the edging iron on grass plats, and anything of a like character, for the purpose of moderating the fierceness of the fermentation that always takes place when dung is thrown up together; and over the manure a layer of turf is placed, with the grassy side downwards, before the soil in which the plants are to grow is placed on it. "The first consideration," states Mr. J. Simpson, of Wortley Hall Gardens, "is the selection of a site for the bed, which should always be in a dry and sheltered situation. Nothing extracts the heat so rapidly as cold winds; indeed where a hotbed is made up annually, it is better to have it sunk two-thirds in the ground. It would be preferable, in fact, to have it wholly in the ground; but, as the bed will settle down at least one-third of its height during the summer, the frame would get below the ground line, which would be inconvenient. For a frame 9 feet by 5, the pit needs to be 14 feet long and 10 feet wide, and if the bed be intended to last eight or nine months it requires to be 4 feet deep, which, allowing one-third of the bed to be above ground, gives a total depth of 6 feet of fermenting material. If the pit be double-boarded with strong rough deal, so as to form a 2-inch cavity all round between the earth and the sides of the bed, the heat will last a considerable time longer, as the cavity prevents the bed being robbed of its heat by the cold earth." These remarks contain some excellent suggestions, and the idea of a sunken permanent pit is a good one, as it can be made serviceable at all times of the year. In the cases of small gardens, where space is a prime consideration, the bed must be put in the most convenient position; but wherever it is possible to do so it is a good plan to fence it in, in some convenient corner of the garden. A compost and frame yard shut in by a Privet, Laurel, Hornbeam, or any other hedge that will screen it from cold winds, and by shutting it off from other parts of the garden prevent it from interfering in any way with the love of order that is always felt by a tidy gardener, is most desirable.

The building up of the bed completed, the frame should be placed in position at the top of it. An ordinary two or three light Cucumber frame is some 2 feet in depth at the back, and rather more than half the depth in front; and it is often recommended that after it is placed in position, in addition to keeping the lights shut down close, some covering, such as loose

litter, should be piled up round the frame, so as to economise the heat, as well as to assist it in spreading itself equally through the body of the bed. "Fermentation sometimes goes on but slowly in a well-trodden bed, if it be not protected in cold weather; but the temperature once raised to the required degree can be easily kept from falling by a little care and attention."

No one must dream of putting the plants into the frame directly the bed is prepared in the way indicated, as the rank heat given forth in the first instance would soon burn them up. The cultivator must wait for a few days till there is a pretty steady warmth of about 75°. But the provision of the plants—one to each light will be required—should have been arranged for previously, so that they may be at hand when the bed is ready for them. It will be obvious that, if the bed is to be used to raise the plants as well as to grow them into fruiting, valuable and important time will be lost. Unless there is other convenience for raising the seeds, or if the kind offices of a neighbour cannot be enlisted, recourse must be had to a nurseryman or neighbouring gardener for the plants required. A little forethought is wanted, so that the plants shall be ready for placing out in the bed as soon as it is ready to receive them.

Obituary.

MR. WILLIAM PORT AYRES, whose name is well-known amongst horticulturists, died, after a lengthened and severe illness, at Carisbrook Villa, Forest Hill, on the 14th inst. His father, Mr. Richard Ayres, occupied a somewhat prominent position in the profession in the early part of the present century, and there is a contribution of his in 1820 to the *Transactions of the Horticultural Society of London* (iv. 306) referring to fruiting specimens of the genus Citrus which had been exhibited by him from the garden of E. M. Mundy, Esq., of Shipley Hall, Derbyshire, at a meeting of the Society held on February 16, 1819. Mr. W. P. Ayres was educated for his profession in the Horticultural Society's garden at Chiswick; and about 1844-6 we find him occupying the position of gardener to James Cook, Esq., of Blackheath, and exhibiting no small amount of ability as a cultivator both of hard-wooded show plants and of fancy Pelargoniums. Subsequently he became a nurseryman and florist at the same place, and at that period was very successful as a raiser of new fancy Pelargoniums, being, indeed, one of the first to give a decided impulse to the improvement of that flower. Business did not, however, prosper in his hands, and for several years he reverted to his old profession as a gardener. Some few years later he removed to Nottingham, and while there was partly engaged in gardening, and partly as editor of the horticultural portion of the *Nottingham Guardian*. Here he brought out his patent imperishable hothouses, for the manufacture of which works were established at Newark, and subsequently in the neighbourhood of London, at Brockley, near New Cross. Mr. W. P. Ayres was a man of undoubted ability both as a gardener and a writer, and was formerly a not infrequent contributor to our columns; but never attained to the influential position in the horticultural world which his abilities would have warranted one in expecting. He was the author of a treatise on the *Cultivation of the Cucumber*, and Co-editor of the *Gardeners' Magazine of Botany*.

—— We have also to record the death of Mr. WILBRAHAM BUCKLEY, of Tooting, which took place, after a long and painful affliction, on the 18th inst. When we first became acquainted with him, now more than a quarter of a century ago, Mr. Buckley occupied a confidential position in the well-known nursery establishment of the Messrs. Rollisson. This position he continued to fill till within a very short period of his becoming incapacitated by an attack of paralysis, which has, after some twelve or fifteen months, terminated fatally. Mr. Buckley was a most worthy and estimable man, with a knowledge of garden plants equalled by very few men of the present day. He was an occasional contributor to our columns and to those of other journals.

—— From a Perth newspaper we learn of the death, at the good old age of eighty-five, of Mr. ARCHIBALD TURNBULL, of the firm of Dickson & Turnbull, nurserymen, Perth. Born in 1789 in the county of Roxburgh, Mr. Turnbull completed his education at Perth, where he first went to reside in 1803, subsequently joining his uncle, Mr. William Dickson, in the nursery and seed business, which has now been carried on under their names for nearly half a century. By the death of his uncle in 1835, Mr. Turnbull succeeded to his property at Bellwood, and continued to conduct the business with great spirit and professional ability. Mr. Turnbull was in early life a captain in one of the local militia regiments, and afterwards joined the Perthshire Yeomanry; he was a Commissioner of Supply and a Justice of the Peace, a Director of Murray's Royal Asylum and of the City and County Infirmary, and for many years was Chairman of the Parochial Board of Kinnoull. In 1829 he filled the office of City Treasurer, and retained his seat at the Council Board until the passing of the Municipal Reform Act of 1832. As one of the original promoters of the Perthshire Horticultural Society, Mr. Turnbull took great interest in its prosperity, and frequently contributed to its annual exhibitions; and by his death on January 19, resulting from a severe attack of bronchitis, the local institutions of Perth have lost a warm and generous friend.

—— The Paris horticultural journals announce the death, on December 31, of M. COURTOIS-GÉRARD, whose treatise on market gardening is a model of its kind, and whose attainments and character entitled him to a high place among horticulturists.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, JANUARY 20, 1875.

MONTH AND DAY.	BAROMETER. Mean Reading Reduced to 32° Fahr.	BAROMETER. Departure from Mean of 18 Years.	TEMPERATURE OF THE AIR. Highest.	TEMPERATURE OF THE AIR. Lowest.	TEMPERATURE OF THE AIR. Range.	TEMPERATURE OF THE AIR. Mean for Day.	TEMPERATURE OF THE AIR. Departure of Mean from Mean of 60 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Degree of Humidity. Sat. = 100.	WIND. Average Direction.	RAINFALL.
	In.	In.	°	°	°	°	°	°			In.
Jan. 14	29.91	+0.19	51.6	45.2	6.4	48.8	+ 12.4	47.1	94	S.S.W.	0.06
15	29.70	−0.03	51.9	45.5	6.4	48.0	+ 11.5	45.9	93	S.S.W.	0.03
16	29.45	−0.28	50.8	44.0	6.8	47.8	+ 11.2	42.5	84	S.W.	0.07
17	29.54	−0.20	48.4	43.0	4.5	46.3	+ 9.6	43.6	91	WSW	0.05
18	29.56	−0.18	53.1	44.8	8.3	49.0	+ 13.1	48.0	94	WSW	0.20
19	29.73	−0.01	52.1	46.7	5.4	49.4	+ 12.4	43.8	82	W.	0.02
20	29.51	−0.23	54.1	44.0	10.1	48.4	+ 11.2	43.2	83	WSW	0.04

Jan. 14.—Overcast; dull; and rain throughout.
— 15.—Fine and bright in morning. Overcast, dull, and rain in afternoon. Fine and cloudless at night.
— 16.—Overcast, and rain fell in morning. Fine; and bright in afternoon and evening.
— 17.—Overcast, and dull throughout. A little rain fell in the afternoon.
— 18.—Overcast; dull; and rain in morning. Dull; overcast; and strong wind at night.
— 19.—Fine; bright; and nearly cloudless all the morning. Overcast; dull; and rain at night.
— 20.—Fine, and bright till 11 A.M. Overcast; and dull afterwards. Fine at night.

—— In the vicinity of London the reading of the barometer at the level of the sea decreased from 29.88 inches at the beginning of the week to 29.80 inches by the evening of the 10th, increased to 30.11 inches by the morning of the 13th, then turned to decrease, and was 30.08 inches by the morning of the 14th, again increased to 30.13 inches by the evening of the same day, decreased to 29.62 inches by the morning of the 16th, and was 29.71 inches at the end of the week. The mean reading for the week was 29.73 inches, being 0.10 inch lower than that of the preceding week.

The highest temperatures of the air by day at 4 feet above the ground varied from 52° on the 15th to 45¼° on the 10th, the mean for the week being 49½°. The mean of the seven low night temperatures was 42¾°, the extreme values being 45¼° on the 15th and 38¾° on the 10th and 11th. The mean daily range of temperature was 6¾°, varying from 10½° on the 11th to 4½° on the 13th. The mean daily temperatures of the air were all above their averages, the values being—10th, 41°.1; 11th, 44°.4; 12th, 45°.2; 13th, 47°; 14th, 48°.8; 15th, 48°; 16th, 47°.8; and their departures in excess of their respective averages were, 4°.8, 8°.1, 8°.9, 10°.6, 12°.4, 11°.5, and 11°.2. The mean temperature for the week was 46°.1, being 9°.5 above the average of the corresponding week, as deduced from sixty years' observations.

The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in sun's rays, were 81° and 70° on the 13th and 16th, but on the 12th, 49° was the highest reading. The lowest readings of a thermometer on grass, with its bulb fully exposed to the sky, were 36° and 36½° on the 10th and 11th, but on the 15th it was 44°; the mean of the seven low readings was 40½°.

The weather during the week was dull, and the sky generally overcast. The direction of the wind was S.W. Rain fell on five days, the amount being 0.33 inch.

In England, the extreme high temperatures observed by day ranged from 59° at Sunderland to 51¾° at Norwich, the general average over the country being 55°. The extreme low temperatures observed by night varied from 41½° at Bristol to 36° at Norwich and Hull, with a general average of 38¾°. The extreme range of temperature in the week was 16½°, varying from 21° at Sunderland to 13½° at Blackheath and Bristol. The mean high day temperatures ranged between 51° at Bristol and Sunderland to 46¾° at Hull, the general average being 49½°. The mean low night temperatures varied from 44½° at Bristol to 39° at Hull, with an average value of 42°. The mean daily range of temperatures was 7½°, the greatest range being at Sunderland, 10½°, and the least at Nottingham, 5°. The mean temperature of the air for the week was 45½°, being 3¾° higher than the value for the corresponding week in 1874, the same as in 1873, and 6½° higher than in 1872; the highest in the week happened at Bristol, 47½, and the lowest at Hull, 42¾°. Rain fell on every day in the week at most stations, the amounts recorded varying from 1 inch at Manchester and Eccles, to one-tenth of an inch at Norwich, the average fall over the country being six-tenths of an inch.

The weather during the week was dull and showery, and the sky generally overcast.

An aurora borealis was seen at Bristol on January 15.

In Scotland the highest temperatures ranged between 55° at Paisley, and 47° at Dundee. The lowest temperatures varied from 38¾° at Greenock to 34° at Perth, their averages being 51½° and 36½° respectively. The mean range of temperature in the week was 15°. The mean temperature for the week was 43°, being 2½° higher than the value for the corresponding week in 1874; the highest occurred at Glasgow, 45¼°, and the lowest at Dundee, 41°. The amount of rain measured at the several stations during the week varied from 1¾ inch at Greenock to half an inch at Leith, the general average fall over the country being 1 inch.

JAMES GLAISHER.

Variorum.

ROYAL HORTICULTURAL SOCIETY.—The following is a list of the gentlemen appointed by the Council to serve on the various committees for the year 1875:—

Scientific Committee—Chairman: Joseph Hooker, M.D., C.B., P.R.S., V.P.L.S., Royal Gardens, Kew. Vice-Chairmen: Maxwell T. Masters, M.D., F.R.S., Mount Avenue, Ealing, W.; Andrew Murray, F.L.S., 67, Bedford Gardens, Kensington, W.; Alfred Smee, F.R.S., 7, Finsbury Circus, E.C.—J. G. Baker, F.L.S., Royal Herbarium, Kew; Henry Charlton Bastian, M.D., F.R.S., F.L.S., 20, Queen Anne Street, W.; James Bateman, M.A., F.R.S., 9, Hyde Park Gate South, W.; Alfred W. Bennet, M.A., B.Sc., F.L.S., 6, Park Village East, N.W.; Professor Robert Bentley, F.L.S., 91, Alexandra Road, South Hampstead, N.W.; George E. Blenkins, 5, Sandford Place, Cheltenham; Major R. Trevor Clarke, Welton Place, Daventry; Charles Darwin, M.A., F.R.S., Down, Beckenham, Kent; J. Denny, M.D., High Street, Stoke Newington, N.; W. T. Thiselton Dyer, M.A., B.Sc., F.L.S., 10, Gloucester Road, Kew; M. P. Edgeworth, F.L.S., Mastrim House, Anerley, S.E.; Rev. T. A. C. Firminger, M.A., Warren Lodge, Edmonton, N.; W. Flight, D.Sc., 46, Great Russell Street, W.C.; J. H. Gilbert, Ph.D., F.R.S., Harpenden, St. Albans; Arthur Grote, F.L.S., Athenæum Club, S.W.; W. P. Hiern, M.A., F.L.S., 1, Foxton Villas, Richmond, S.W.; Robert Hogg, LL.D., F.L.S., 99, St. George's Road, Pimlico, S.W.; Professor Lawson, M.A., F.L.S., Botanic Gardens, Oxford; R. McLachlan, F.L.S., Lime Grove, Lewisham; John Miers, V.P.L.S., F.R.S., 84, Addison Road, Kensington, W.; Thomas Moore, F.L.S., Botanic Gardens, Chelsea, S.W.; Giles Munby, Alice Holt, Farnham; J. Renny, 62, The Hermitage, Rotherfield; W. Wilson Saunders, V.P.L.S., F.R.S., 2, Selden Terrace, Worthing; W. J. Scofield, M.R.C.S., 13, South Hill Park Gardens, Hampstead, N.W.; Major-Gen. H. Y. D. Scott, C.B., F.L.S., Sunnyside, Ealing, W.; R. H. Scott, M.A., F.R.S., 36, Onslow Square, S.W.; Worthington G. Smith, F.L.S., 13, North Grove West, Mildmay Park, N.; Thos. Thomson, M.D., F.R.S., The Cottage, Farleigh, Maidstone; A. Voelcker, Ph.D., F.R.S., 11, Salisbury Square, E.C.; Professor Westwood, M.A., F.L.S., Walton Manor, Oxford; George F. Wilson, F.R.S., Heatherbank, Weybridge Heath. Secretary—The Rev. M. J. Berkeley, M.A., F.L.S., Sibbertoft, Market Harborough.

Floral Committee.—Chairman: W. B. Kellock, Esq., Stamford Hill, N. Vice-Chairmen: John Denny, M.D., High Street, Stoke Newington, N.; R. B. Postans, Brentwood, Essex; Benjamin S. Williams, Victoria Nursery, Upper Holloway, N. Floral Director, Thomas Moore, F.L.S., Botanic Garden, Chelsea, S.W.—Thomas Baines, Avenue Road, Southgate, N.; George Baker, Sister House, Clapham Common, S.W.; Samuel Barlow, Chadderton, Manchester; Edward Bennett, Hatfield House, Hatfield, Herts; J. Croucher, Sudbury House, Hammersmith, W.; William Denning, Londesborough Lodge, Norbiton, Surrey; John Fleming, Cliveden, Bucks; Robert Fortune, 1, Gilston Road, West Brompton, S.W.; John Fraser, Lea Bridge Nursery, Clapton,

E.; Charles Green, Holmesdale Road, Reigate; Peter Grieve, Culford Hall, Bury St. Edmunds; W. E. Gumbleton, Belgrove, Queenstown, Ireland; Andrew Henderson, Wellington Road Nursery, St. John's Wood, N.W.; George Jackman, Woking, Surrey; Daniel Judd, Hawkstone Park, Shrewsbury; W. B. Kellock, Stamford Hill, N.; John Keynes, Salisbury, Wilts; Francis R. Kinghorn, Sheen Nursery, Richmond, Surrey; John Laing, Stanstead Park Nursery, Forest Hill, S.E.; Frederick Q. Lane, Great Berkhampstead, Herts; Charles Lidgard, Albion Road, Hammersmith, W.; Maxwell T. Masters, M.D., F.R.S., Mount Avenue, Ealing, W.; A. McIntyre, Victoria Park, Hackney, E.; Charles Noble, Bagshot, Surrey; Nathaniel Norman, Crescent Road, Plumstead, S.E.; Robert Parker, Exotic Nursery, Tooting, S.W.; Anthony Parsons, Danesbury Park, Welwyn; George Paul, Cheshunt, Herts; J. D. Pawle, Wray Park Road, Reigate; Charles Pilcher, West Hill, Wandsworth, S.W.; Alexander Roger, Era House, Surrey Lane, Battersea, S.W.; Alfred Salter, 11, Pembroke Road, Kensington, W.; George Smith, Tollington Nursery, Hornsey Road, N.; John Standish, Royal Nursery, Ascot, Staines; Zadok Stevens, Trentham Hall, Stoke-upon-Trent; Charles Turner, Royal Nursery, Slough; George Westland, Witley Court, Stourport.

Fruit Committee. — Chairman: Henry Webb, Redstone Manor House, Redhill, Surrey. Vice-Chairmen: George F. Wilson, F.R.S., Heatherbank, Weybridge Heath; Rev. George Kemp, 41, Weymouth Street, Portland Place, W.; John Lee, Royal Vineyard Nursery, Hammersmith, W. Pomological Director, Robert Hogg, LL.D., F.L.S., 99, St. George's Road, Pimlico, S.W.—Peter Barr, 12, King Street, Covent Garden, W.C.; E. J. Beale, F.L.S., Stoneydeep House, Teddington Grove, S.W.; George E. Blenkins, 5, Sandford Place, Cheltenham; George Bogue, The Gardens, Gorhambury, St. Albans; John Cox, Redleaf Gardens, Tunbridge; W. Coleman, Eastnor Castle, Ledbury; Robert Cooper, 152, Fleet Street, E.C.; A. Cramb, Tortworth, Wooton-under-Edge; Francis Dancer, Little Sutton, Turnham Green; J. Douglas, The Gardens, Loxford Hall, Ilford, E.; John E. Lane, Great Berkhampstead; G. T. Miles, Wycombe Abbey, High Wycombe; W. J. Nutting, jun., 60, Barbican, E.C.; William Paul, Waltham Cross, N.; John R. Pearson, Chilwell, Nottingham; John Peel, Cambridge House, Twickenham, S.W.; Thomas Perkins, Warren House Gardens, Stanmore, N.W.; Thomas Record, Vinters Park Gardens, Maidstone; T. F. Rivers, Sawbridgeworth; George Sage, The Gardens, Ashridge Park, Berkhampstead; Alfred Smee, F.R.S., 7, Finsbury Circus, E.C.; T. Speed, Chatsworth, Chesterfield; David Thomson, Drumlanrig, Thornhill, N.B.; H. J. Veitch, F.L.S., Royal Exotic Nursery, Chelsea, S.W.; James Frederick West, Lynmouth Lodge, Reigate; John Woodbridge, Syon House Gardens, Brentford, W. Secretary: Archibald F. Barron, Royal Horticultural Society, Chiswick, W.

Garden Operations.

(For the Ensuing Fortnight.)

PLANT HOUSES.

Plant Stoves.—The length of time through the season that most stove plants that naturally flower over a considerable part of the year can be had in bloom, is consequent upon not giving them too long a rest; if they are subjected to a little more heat, so as to get them moving as soon as the days begin to lengthen, their flowering season is so far lengthened. This is also better in every way than a long rest, and submitting them suddenly to an excessively high temperature. If the stove at the close of the present month is kept some 5° warmer in the night, with a corresponding rise by day, or more when there is a little sun, it will induce many plants to move gently that will thereby have a much longer flowering season; but before any growth is excited everything possible should be done to exterminate or reduce as low as can be the worst species of insects, such as mealy-bug and scale. Where either of these, especially the former, are allowed to get to a head, it is impossible to grow stove plants as they ought to be. The continual brushing and sponging to remove these pests disfigures the leaves, and destroys quantities of the newly-formed, undeveloped flowers. The facilities for destroying insects when the plants are comparatively at rest is also such that as much can then be effected in a short space of time as would take immeasurably longer when there is a considerable amount of young growth. There is also at this season usually more time at disposal to carry out this kind of work. Keep *stove Begonias* at the driest end of the house, and do not allow them to get wet overhead with the syringe, as moisture in this way makes them soft and tender, and the flowers of short duration when cut. The useful winter-flowering *Aphelandra cristata*, and the dwarf brilliant-coloured *A. Roezlii*, will now be coming into flower; give them also a light situation, and as little humidity in the atmosphere as can be without keeping it too dry for the general stock. If in cutting the flowering shoots of *Euphorbia jacquiniæflora* there is not too great a length of the current season's growth removed, they will push out a fresh lot of flowers, but keep the plants, as hitherto advised, as near the glass as possible without their absolutely touching it, as on this depends their flowers having their fine deep colour, and lasting when cut. To secure this the best method of treating this plant through the winter is to tack thin strings across the roof sash-bars 6 inches asunder, then stand the plants so that their blooming-shoots will lie up against these strings, then tack more similar strings under the shoots; this keeps them so that their leaves and flowers do not touch the glass, yet not more than the depth of the sash-bar away from it; so treated the flowers are of the finest possible colour, and will stand when cut in wet sand or water for a week, instead of being, as often grown, worthless through flagging in a few hours. Keep *Gardenias* at the warmest end of the stove, and supply them with sufficient water at the root, yet not too much, for if the roots were to get injured thereby the buds would fall. *Amaryllis.*—Recent additions to this fine family of plants have been such as to make them of still further importance. Their easy growth and moderate size are such as to commend them to general cultivation, for with fair treatment there is little danger of losing them; although in reality many of them are greenhouse plants, still the ease with which they can be brought into flower in heat during the winter, and the fact of their being of more use as decorative subjects during this season than later, when greater plenty of blooming plants are in, makes it desirable to now place some in heat. If they have been kept cool and quite dry, soak the balls by plunging the pots in a vessel of tepid water for some hours, until the soil is moistened; if they are then placed in a temperature of 60° in the night—a few degrees more or less will not matter—they will soon throw up flowers. Any *Gesneras* of the *zebrina* and *exoniensis* type, that are now opening their flowers should not be kept warmer than just sufficient to enable them to open, otherwise they are of little use for conservatory decoration. Even where such is kept at an intermediate temperature, the large bulbed species, such as *G. Cooperii* and *G. Donkelaari*, if they have been dried off in the autumn, may now be started, potting them similarly to *Gloxinias*, and placing them in the warmest end of the stove. If it is desirable to increase these plants, it can be done by dividing the root similarly to *Gloxinias*. In flower-forcing it is necessary to calculate a considerable time beforehand as to the probable requirements and supply, otherwise the result is likely to be either a profusion or scarcity, the best way to avoid which is to introduce into heat a few plants at a time and often; with this view some *Genistas* and *Acacias* should at once be placed in the forcing pit or cooler end of the stove. *Acacia armata* and *A. Drummondii* are well suited for this early work, being compact habited plants, and naturally inclined to open their flowers without being subjected to strong heat. A few *Gloxinias* may now be potted and placed in heat; if there happens to be a scarcity of any variety, and a few large bulbs exist, they will bear dividing, similarly to cutting a Potato for planting, but each piece must have a portion of the central buds attached to it. After potting at once place them in heat. I have known these bulbs seriously injured by being left in the new damp soil in a cold potting shed for two or three days. Some *Achimenes* may also now be put in; these are best started in broad shallow pans, and, after they have made an inch or two of growth, pricked out into the pots or baskets they are ultimately to occupy. Mix one-fourth sifted leaf-mould with the soil the bulbs are started in; this will enable their removal to the flowering pots without injuring their roots materially. Keep *Bouvardias* in a warm temperature, which will not only cause them to flower freely but to push lateral growths, which will succeed the principal shoots in blooming. The glass, especially the roof portion in stoves, soon becomes obscured, more particularly in the winter season, when little air is given, not only from accumulations of soot and dust on the outside, but also on the inside from the slimy confervæ that form upon it. Another good washing outside and in, similar to such as advised in the autumn, will be of very great use in admitting all the light possible. *T. Baines.*

HARDY FRUIT GARDEN.

Where, from unavoidable circumstances, the planting of young fruit trees has been deferred, no time should be lost in making the necessary preparations for their reception. In the formation of a new garden, or for orchard planting, if the ground has not been previously trenched it will be better at the present to take out holes of 6 to 8 feet diameter, turning out the top spit round the side of the hole and afterwards trenching up the bottom to a depth of 18 inches, but should this be heavy clay or gravel a portion should be removed and a good layer of stone or brick refuse, or other suitable material placed in the bottom, so as to form an efficient drainage, without which it is hopeless to expect young trees to continue in a healthy vigorous state of growth. Means also must be taken for the thorough drainage of the ground generally, otherwise taking out holes as above recommended is liable in retentive soils to form receptacles for the retention of water about the roots. Most, or indeed all, hardy fruit trees may be successfully planted during the next month, or even later, providing care is taken to expose the roots to the air as short a time as possible. Indeed, in cold or late soils, where not well drained or otherwise ungenial, it is questionable whether, in the case of young trees removed from the shelter of a nursery quarter, spring planting is not preferable to autumn, unless the latter can be done sufficiently early to admit of the formation of fresh roots before absorption of heat ceases. In either case much will depend upon the necessary attention as to mulching and watering during the first summer after planting. Pruning and nailing wall trees should be followed up as fast as possible, as every day now brings an addition of work, which cannot be deferred where the well keeping of a garden of any pretensions is duly cared for. Dessert and other *Cherries* should be washed with a composition of some kind previous to nailing in. Gishurst Compound is among the best, but these mixtures are so numerous that the selection is best left to the decision of the operator or his assistants. Prune and stake *Raspberries* where not already done, and prepare by well trenching and manuring ground for fresh plantations when required. Many methods of growing this useful fruit are now in practice; where a little expense at the commencement is not an object place strong straining posts, 5 feet high, of iron or wood, at either end of the rows, which should be 5 feet apart; and to these fix three wires, at 18 inches apart, the lowest 2 feet from the ground. The plants should then be put in 2 feet apart, and two rods trained upwards from each stool, which will leave them 1 foot apart for bearing. After pruning, staking, and tying-in established plantations, the ground should be cleaned if necessary, and well mulched with half decomposed manure, but on no occasion fork or dig between the rows except in the case of newly made plantations, when a light summer crop, as Lettuce, Spinach, &c., may be taken for one season only. *William Cox.*

FRUIT HOUSES.

Vines.—Now that the weather is milder forcing will be comparatively easy work, and should be pushed on during all such spells of mildness, as it is always advisable to proportionately reduce the forcing temperature the moment there is a reduction of such outside. A "cut-and-dried line" temperature at which to maintain forcing-houses is wrong in principle, and, if practised, must end in disappointment. Our aim ought rather to be how best to maintain the most equable temperature compatible with the state of the weather outside. In very early houses the Grapes will be ready to thin, in doing which the variety of Grapes being operated upon should be kept in mind, and those kinds producing the largest berries be most thinned. Experience alone can teach how thin they ought to be, or how many bunches each Vine ought to carry. It is always good policy to err on the side of having what is termed a thin crop, which invariably finishes off well, whilst a heavy crop frequently comes to grief through shanking and other ills. Disbud the Vines in succession-houses as soon as the best "shows" can be distinguished, of course taking off the weakest shoots, and leaving one shoot only to each spur. Pinch out the joint of the shoots two or more joints beyond the fruit; but should there be plenty of space for foliage without overcrowding, several joints beyond the fruit may be left with advantage. Discontinue syringing, but keep the floors and walls damp, and otherwise maintain a healthy growing atmosphere. In starting later houses the preliminaries should be—thorough cleansing, top-dressing of borders, and watering the same with tepid water. Late Grapes still on the Vines will require almost daily attention. So long as the weather is damp it will be advisable to keep up a little fire night and day, giving air whenever practicable. Grape rooms deserve to become more general, as, if properly managed, Grapes keep better and need less attention when cut and bottled than if hanging on the Vines. Moreover, the Vines are at rest, and can be pruned and cleaned, and the house put in order for another season's crop. *W. Wildsmith, Hickfield.*

Figs.—The Figs in pots, if started in the beginning of the month, will now be showing their young shoots, and the sturdier they can be kept by plenty of light and air, combined with a slight bottom-heat, the greater will be the chances of gathering a satisfactory early crop. The best and richest flavoured crop of early Figs I ever grew in pots was of the White Marseilles variety, grown on the flue of a Pine pit, where the little trees had plenty of light and heat. The pots were placed each on four bricks on the top of the flue, and the trees watered frequently with weak liquid

manure, and syringed twice a day to keep red-spider down. The night temperature was never below 60° when their forcing commenced in February, and the day temperature from 80° to 85°. Where Figs are permanently planted out in a house and required for early forcing, they must now be pruned and dressed, and when forcing commences duly kept syringed twice a day, should the weather be favourable. The night temperature may range from 50° to 55° when the forcing begins, and in the day-time from 70° to 75° with sun-heat. *William Tillery, Welbeck.*

THE ORCHARD HOUSE.—It may be necessary to say here that the cultural directions which will be attempted to be given under this head are intended to apply only to the orchard-house *pur et simple;* that is, to structures which may vary to any extent as to form and dimensions, but all so far alike in being destitute of any means of increasing their internal temperature, otherwise than by the prevention, to some extent, of radiation by their roofs, &c., and by like means the retention of solar heat transmitted to them by the sun's rays during the day. The possession of heating apparatus of any kind would necessarily constitute such structures, to some extent at least, forcing houses. The advantages which the orchard-house offers for the cultivation of fruit trees over open-air cultivation are very considerable and now generally known. The fruit trees grown in these houses may be either grown in pots or planted in prepared borders or beds of soil. In most cases it is advisable to follow, to some extent, both systems of culture, that is, to have a portion of each kind of fruit tree planted out, as well as a portion in pots. If all such trees, whether planted out or in pots, have been attended to as has been recommended in former Calendars—viz., surface dressed, mulched, &c., and in some instances pruned and dressed, while those in pots will have been placed somewhat close together, and the pots surrounded and the surface well covered with hay or dry litter of some kind, to prevent injury by severe frost—if all this has been done, the trees may be allowed to remain in their present position for some time longer; but as the weather is now very mild, the soil in the pots should be examined, and if found to be very dry water should be given. In most instances, however, the litter with which the pots are covered will have had the effect of preventing the soil from becoming very dry, and in these cases water will not be required until the blossom-buds begin to swell. To prevent, as far as possible, such buds from doing so prematurely, the ventilators of the house should be kept open by night as well as by day, closing only when the thermometer falls under the freezing point, and again opening the same during the day, unless the frost is intense and the sky obscured. It is of importance to prevent, as far as possible, the temperature of the house being raised to any great extent by the bright sunshine which usually accompanies sharp frost, and which would, if the house should be kept close, be sufficient to disturb that state of quietude which it is desirable to preserve in the trees during the entire month of January at least. Although it is quite true that our summers are barely of sufficient length to ripen some of our best late Peaches, &c., even with the assistance of glass, yet it would, nevertheless, be unadvisable to allow such trees to be excited into growth at an earlier period than can be avoided, on account of the danger which is to be apprehended from late spring frosts; for although the blossoms of fruit trees in orchard-houses, on account of being kept dry, can generally bear with impunity a very considerable amount of cold, yet such depressions of temperature as sometimes occur very late in the season (such as that of the night of the 10th of last March, when the thermometer fell to 13°, or 19° of frost), are calculated to endanger the fruit crop, even when under the protecting influence of a glass roof. *P. Grieve, Culford, Bury St. Edmund's.*

KITCHEN GARDEN.

The injurious effects resulting from a severe frost like that we have recently experienced is often too speedily estimated. It will doubtless prove so in many cases this season, particularly where gardens are located in valleys, which at this time of year abound with moisture. Such is the case here, and doubtless we shall ultimately suffer considerably in this respect: already Broccoli plants in quantity are only fit to be removed to the refuse heap. After the departure of such severe weather certain crops will require immediate attention; foremost amongst these will be the winter plantings of Lettuce. These are very liable to be disturbed at the roots by the operation of severe frost, and as being a crop which is everywhere indispensable and most generally esteemed it should have immediate attention, and all those plants which are likely to suffer by being loosened should have the soil pressed firmly round them again. Globe Artichokes will likewise want looking over, and the decayed parts removed from them at once, and so will all other kinds of winter stuff. It is a common practice in some places to have Globe Artichoke roots lifted and stored away from the effects of severe frost. This is quite unnecessary if they are properly protected with ashes round the surface of the roots. For this purpose a mixture of wood ashes is preferable. These are likewise most valuable for other purposes in this department, and therefore should be obtained by burning such materials as accumulate and are only fit for that purpose, and when reduced to this condition they should be stored away in a dry place in readiness for ordinary use, such as the dusting of *Peas, Radishes, Turnips,* &c. As spaces of ground become vacant, which *Rossette Coleworts, Savoys, Early Brussels Sprouts,* and *Celery* have occupied, these plots, if deemed necessary, should be well manured, and at this season be properly prepared. None should be turned over less than two spits deep, if the depth of soil will admit of its being done, not necessarily bringing to the surface soil which is not desirable there. Deep cultivation in combination with good surface mulchings of manure are the best means to be employed for producing vegetables of the finest quality and in quantity under any conditions. If a sufficient breadth of autumn sown *Cabbage* plants are not already planted out, it should be attended to in suitable weather; these plants will provide young tender heads when earlier planted ones are gone or otherwise have become hard and only fit for soups.

Forcing Department.—Turn over and refresh with new materials fermenting beds where *Asparagus* roots have become exhausted, and introduce fresh roots; this, the best of all forced vegetables when properly managed, is oftentimes much deteriorated in quality through not being well aired. Pits having movable lights are best adapted to its requirements; these should always be kept off when the external temperature is 50°. To obtain it from December until March, fermenting beds at from 70° to 80° are most suitable, with the means to introduce a little artificial heat when needed for ventilation purposes. As soon as *Radishes* are up, and onward until rough leaves are formed, these must be well ventilated. Early *Carrots* will require constant attention. Slugs will be very destructive to these if they are not carefully sought. Various kinds of small seeds must shortly be sown, and soil in a proper state for this purpose should be at hand.—*G. T. Miles, Wycombe Abbey.*

Enquiries.

He that questioneth much shall learn much.—BACON.

[MANY enquiries which reach us would be more suitably answered by those of our correspondents whose experience or requirements are, or have been, similar to those of the questioner. These we propose, in future, to gather together for facility of reference; and as fellow feeling makes us wondrous kind, so we would fain hope that this enquiry column may serve as a bond of sympathy and good-will between our correspondents and readers, and be the means of eliciting much valuable information. EDS.]

36. EGYPTIAN WHEAT.—*A Correspondent* asks where he can obtain a few good seeds of the Egyptian Wheat, Triticum compositum?

Answers to Correspondents.

AZALEAS: *Constant Reader.* Our answers to your questions are—1, no; 2, when the blooming season is over, and the plants ready to be started into growth; 3, good sound hbry peat, with sand according to its texture.

EUCHARIS AMAZONICA: *F. Denman.* You will find all the information you require in our volume for 1872, pp. 289, 509.

FERNERY: *F. W.* Glaze with rough plate glass.

HEATING CONSERVATORY: *Old Subscriber.* If you wish to retain the flue you might have a saddle boiler fixed over the present furnace, and the pipes carried alongside the flue; but you had better ask some one accustomed to such work to inspect the house, and advise you thereupon. Any of the hothouse-builders or boiler-makers who advertise in our columns would do this for you, and give an estimate of the cost.

NAMES OF FRUITS: *S. E. Grapes:* The berries were much bruised when received; the white one had become nearly brown. It is most probably Muscat of Alexandria, or perhaps White Tokay. The black one is the Alicante.—*J. C. H.* 9, Yorkshire Greening; 11, Northern Greening; 6, Dumelow's Seedling.—*J. E. Nelson.* 2, Northern Greening; 3, Calville Blanche; 5, Scarlet Nonpareil; 16, Coe's Golden Drop; 14, Sturmer Pippin; 10, 11, Glou Morceau; 12, Uvedale's St. Germain.

NAMES OF PLANTS: *E. J. D.* Momordica balsamina, we believe.—*T. Smith.* Cotoneaster frigida.—*S. J.* If you will send fair specimens, we will name them for you; but we cannot attempt it with such miserable scraps.—*D. H.* Rhododendron arboreum album, or a white seedling of the arboreum type; Grevillea juniperina.—*G. P. S.* Linum trigynum; the other is some Pteroma, but indeterminable in the state sent.—*M. J. K.* 1, Selaginella Schottii; 2, Blechnum occidentale; 3, Polystichum coriaceum; 4, Selaginella lævigata; 5, Cyanotis vittata; 6, Phlebodium aureum.

PLANT GROWING: *John Bates.* All is good time.

SCALE ON FERNS:—*M. J. K.* There is no better plan than persistently to brush off the insects, and wash the plants with any one of the many insecticides from time to time recommended in the Garden Operations and other departments of the paper. If the scales are old, and full of egg, do this with the plant on its side and the fronds over a vessel of water.

VINE DISEASE: *W. S. P.* The nodules on Vine branches are not uncommon. The cause is unknown. Like the analogous knots on Pelargoniums, they probably arise from some anomalous development of a leaf-bud. It does not appear that they are always injurious, as healthy branches are sometimes developed beyond them. *M. J. B.*

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*** Correspondents are specially requested to address, post-paid, all communications intended for publication to the "Editors," and not to any member of the staff personally. The Editors would also be obliged by such communications being posted as early in the week as possible. *Letters relating to Advertisements, or to the supply of the Paper, should be addressed to the Publisher,* and not *to the Editors.*

CATALOGUES RECEIVED.—William Rollisson & Sons (Tooting), General Seed Catalogue, comprising also a List of Seeds of Subtropical Plants.—William Drummond & Sons (Stirling), Catalogue of Vegetable and Flower Seeds.—Alfred Legerton (5, Aldgate, London, E.), Special Trade Catalogue of Garden, Agricultural, and Flower Seeds.—J. Berger, Spence & Co. (75, Mark Lane, E.C.), Weekly Chemical, Mineral, and Metal Report.—Dicksons & Co. (1, Waterloo Place, Edinburgh), Descriptive Catalogue of Select Fruit Trees, &c.—The Pine Apple Nursery Company (Maida Vale, Edgware Road, London, W.), Catalogue of Kitchen Garden, Farm, and Flower Seeds, Tools, &c. —The Lawson Seed and Nursery Company (1, George IV. Bridge, Edinburgh, and 106, Southwark Street, London, S.E.), Descriptive Catalogue and Order Sheet for 1875.—Downie & Laird (17, South Frederick Street, Edinburgh), Descriptive Catalogue of Garden, Flower, and Agricultural Seeds, Implements, &c.—James Dickson & Sons (108, Eastgate Street, Chester), Catalogue of Vegetable and Flower Seeds, Tools, Implements, &c. — Wenzel Brothers Quedlinburg, Prussia), Extract from their Trade Catalogue of Choice Flower Seeds, &c. — Masters & Kinmont (Exotic and Vauxhall Nurseries, Canterbury), Catalogue of Kitchen Garden and Flower Seeds. — John Cattell (Westerham, Kent), Spring Catalogue of Kitchen Garden, Floricultural, and Agricultural Seeds.—V. Lemoine (Rue de l'Etang, à Nancy, Meurthe-et-Moselle, France), Catalogue of New Florists' Flowers.

COMMUNICATIONS RECEIVED. — Mrs. Homan.—E. S. D.—A. B.—J. H.—H. H.—W. S.—E. S. (we are unable to judge without a knowledge of the locality).—J. M. (4½*d.* or 3*d.* per rod).—J. P. G. S.—F. D.—T. K.—R. B.—G. W.—W. H.—A. C. (thanks).—J. W. M.—A. F.—G. E.

DEATH.—ARCHIBALD TURNBULL, Esq., of the firm of Messrs. Dickson & Turnbull, Nurserymen and Seedsmen, Perth, died here this morning at 2.20. *Belhvood, Perth, January* 19.

Markets.

COVENT GARDEN, January 21.

There is scarcely any change worth notice, the open weather enabling the growers to load up the outdoor produce sufficiently for the demands of the trade. Retail orders and business generally is dull; none but the best samples of English-grown Pines now command any price, in consequence of those from St. Michael's coming very good. Inferior Apples are scarcely saleable. *Thos. Taylor, Wholesale Apple Market.*

—— The choicest descriptions of fruit and vegetables in the retail markets may be quoted as follows:—Seakale, 2*s.* 6*d.* per punnet; Asparagus, 10*s.* per bundle; Mushrooms, 1*s.* to 1*s.* 6*d.* per basket; Pomeloes and Shaddocks, 6*r.* to 12*s.* per dozen; Bananas, 3*s.* to 4*s.* per dozen; Easter Beurré Pears, 8*s.* to 12*s.* per dozen; and Pines, 6*s.* to 8*s.* per pound.

FRUIT.

	s. d. s. d.		s. d. s. d.
Apples, per ½-sieve	1 0– 1 6	Melons, each	.. 1 0– 3 0
Chestnuts, per bush.	10 0–20 0	Nuts, Cob, p. lb.	.. 1 6– 2 0
Grapes, English, p. lb.	4 0– 8 0	Oranges, p. 100	.. 8 0–12 0
— Muscats, do.	.. 4 0– 8 0	Pears, p. doz.	.. 3 0– 6 0
Lemons, per 100	.. 8 0–12 0	Pine-apples, p. lb.	.. 3 0– 6 0
Medlars, per doz.	.. .. ..	Walnuts, p. bush.	..16 0– ..

VEGETABLES.

	s. d. s. d.		s. d. s. d.
Artichokes, Fr., each	0 8– ..	Horse Radish, p. bun.	3 0– 5 0
Asparagus, English, per bundle	.. 8 0–10 0	Leeks, per bunch	.. 0 2– 0 4
— French, p. bund.	2 0– ..	Lettuces, per doz.	.. 1 6– ..
Beans, French, p. 100	6 0– ..	Mushrooms, per pott.	1 0– 2 6
Beet, per doz.	.. 1 0– 2 0	Onions, young, bun.	0 4– 0 6
Broccoli, p. bundle	.. 0 9– 1 6	Parsley, per bunch	.. 0 4– 0 6
Brus. Sprts., p. bush.	6 0– ..	Parsnips, p. doz.	.. 0 9– 1 0
Cabbages, per doz.	.. 1 0– 2 0	Radishes, per bunch.	0 2– 0 4
Carrots, p. bundle	.. 0 6– 0 9	— black, Turnip, do.	.. – 0 6
Cauliflowers, per doz.	2 0– 6 0	Seakale, per bundle	1 6– 2 0
Celery, per bundle	.. 1 6– 2 0	Shallots, per lb.	.. 0 3– ..
Cucumbers, each	.. 2 0– 4 0	Salsify, per bundle	.. 1 6– ..
Endive, per doz.	.. 1 0– 2 0	Tomatos, per doz.	.. 1 0– 3 0
Herbs, per bunch	.. 0 2– 0 4	Turnips, per bundle.	0 6– 0 9

Potatos:—Early Shaws, 110*s.*; Early Myatt's, 140*s.*; Early Regents, 120*s.*; and Early Dons, 120*s.* per ton.

CUT FLOWERS.

	s. d. s. d.		s. d. s. d.
Azaleas, p. 12 sprays	1 6– 3 0	Pelargoniums, 12 spr.	1 6– 3 0
Camellias, 12 blooms	2 0– 6 0	— Zonal, 12 spr.	0 9– 1 6
Carnations, 12 blooms	2 0– 4 0	Roman Hyacinths, per 12 spikes	2 0– 4 0
Cyclamen, 12 blooms	0 3– 0 6	Roses, indoor, p. doz.	2 0– 6 0
Epiphyllums, 12 bl.	1 0– 2 0	— French, do.	2 0– 3 6
Eucharis, per doz.	6 0–12 0	Stephanotis, 12 sprays	9 0–15 0
French Lilac, p. bun.	8 0–12 0	Tuberoses, p. doz.	2 0– 4 0
Heliotropes, 12 sprays	0 6– 1 0	Violets, per 12 bun.	3 0– 6 0
Mignonette, 12 bun.	4 0– 6 0		

PLANTS IN POTS.

	s. d. s. d.		s. d. s. d.
Begonias, per doz.	6 0–12 0	Heaths, in var., doz.	12 0–30 0
Bouvardias, do.	9 0–18 0	Mignonette, do.	4 0– 6 0
Chrysanthemums, do.	4 0– 9 0	Myrtles do.	3 0– 9 0
Cyperus, do.	6 0–12 0	Pelargoniums, dble., per doz.	6 0–12 0
Dracæna terminalis	12 0–30 0	— Scarlet, do.	6 0– 9 0
— viridis, per doz.	12 0–24 0	Primula sinensis, do.	4 0– 8 0
Epiphyllums, each	1 6– 3 6	Solanums, do.	6 0–18 0
Ficus elastica	1 6– 7 6		
Fuchsia, per doz.	6 0–12 0		

SEEDS.

LONDON: *Jan.* 21.—The seed trade now exhibits a marked increase of activity. In all descriptions of red Clover seed a good business is now doing at improving rates. Telegrams from New York speak of an advance there of 1*s.* to 2*s.* per cwt. Similar firmness characterises the French and German markets. Of home-grown red the quantity as yet offered is inconsiderable. White Clovers and Alsikes are also held for more money. Some quantity of Trefoil seed has lately changed hands at full rates. For extra fine samples as much as 31*s.* to 32*s.* per cwt. is asked on our market. Orders now come to hand for French Italian. A little more has been doing in perennial Rye-grasses. Spring Tares are in strong request, and being exceedingly scarce, find buyers at 2*s.* to 3*s.* per quarter more money. Large Scotch Gores realise long prices. In Mustard seed there is no alteration. Rape seed continues scarce and is dearer, still higher rates are paid for Canary seed: to-day's currencies are nearly quadruple those ruling two years since. White Millet is selling on moderate terms. In Linseed the tendency of values is upwards. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C.*

CORN.

At Mark Lane on Monday the supply of English Wheat was not large, and the condition bad. The best samples met a dull sale at 1*s.* to 2*s.* per quarter decline from the rates of this day week. Inferior and badly conditioned samples were unsaleable. For foreign Wheat quotations were reduced 1*s.* per quarter on old and 1*s.* to 2*s.* on new. The flour trade was dull, and prices lower. Malting as well as grinding sorts of Barley were depressed. English Beans and Peas were rather cheaper. Maize was lower, and Oats 1*s.* dearer on the week.—On Wednesday trade was destitute of life. There was only a moderate supply of Wheat, and its condition had somewhat improved, but dealings were not more numerous, nor were the rates obtained any higher than on Monday. Barley was as dear, so also was Oats, but Maize, Beans, Peas, and flour were weaker, if not actually lower.

CATTLE.

The general aspect of trade on Monday at the Metrolitan Market was very quiet. Of English-fed cattle the proportion of really prime was short. For a few exceptionally choice beasts of handy weight, 6*s.* 6*d.* was "said" to be paid, but many prime beasts were sold 2*d.* to 4*d.* per stone under that figure. For sheep, excepting choice qualities, prices were lower. Calves were scarce and dearer. Pigs met little inquiry. Quotations:—Beasts, 3*s.* 8*d.* to 5*s.*, and 5*s.* 8*d.* to 6*s.* 4*d.*; calves, 4*s.* 4*d.* to 6*s.* 4*d.*; pigs, 4*s.* 4*d.* to 5*s.* 4*d.*; sheep, 5*s.* to 5*s.* 6*d.*, and 5*s.* 8*d.* to 6*s.* 8*d.*—Trade in beasts was slow on Thursday, and little alteration was noted in prices. For sheep, prices were not higher. High rates continued for choice calves; but for milch cows trade was unaltered.

HAY.

Supplies of fodder continue large at Whitechapel, at the following quotations:—Clover, best, 115*s.* to 120*s.*; inferior, 80*s.* to 90*s.*; hay, best, 105*s.* to 112*s.*; inferior, 60*s.* to 70*s.*; straw, 33*s.* to 40*s.* per load. Cumberland Market quotations:—Superior meadow hay, 108*s.* to 116*s.*; inferior, 90*s.* to 98*s.*; superior Clover, 118*s.* to 126*s.*; inferior, 98*s.* to 108*s.*; and straw, 38*s.* to 43*s.* per load.

POTATOS.

The Borough and Spitalfields markets report moderate arrivals of Potatos, and that trade is slow at about late rates. Regents, 90*s.* to 110*s.* per ton; Victorias, 105*s.* to 115*s.*; flukes, 125*s.* to 145*s.*; rocks, 60*s.* to 75*s.*—Last week's imports into London amounted to 1160 tons and 3691 bags from Dunkirk, 12,617 bags from Antwerp, 576 bags from Ghent, 169 tons from St. Brieux, 992 sacks from Boulogne, 171 tons from Calais, 3 bags from Hamburg, and 10 bags from Rotterdam.

COALS.

There was no alteration in prices at market on Monday. Business was steady. On Wednesday trade continued steady, at previous rates.

WANTED, by a Clergyman, a GARDENER who thoroughly understands his work; small Conservatory and Vinery. Wages £1 per week. Highest character required.—Apply to Rev. M. A., King's Langley Vicarage, Watford, Herts.

WANTED, a GARDENER, at a Gentleman's Residence (6 miles from London), principally to attend to the Vines, Greenhouse, and Flower Garden; a young single Man preferred—if married, Wife must be useful in Laundry. Wages according to qualifications and results; use of a cottage.—Apply, personally, between 10 and 12 o'clock; or send full particulars to CHEMIST, 47, Old Broad Street, E.C.

WANTED, a good WORKING GARDENER to Manage Flower and Kitchen Garden single-handed. Wages 21s. per week, without residence.—Apply by letter, with full particulars, to H. E. P., Post Office, Chertsey, Surrey.

WANTED, a SECOND GARDENER, principally to attend to the Houses. He must thoroughly understand Flowers and Conservatory-work, and have filled a similar situation before. Wages 24s.—Apply, personally, before 11 o'clock, or, by letter, to R. B., 42, Lee Terrace, Blackheath, Kent, S.E.

WANTED, as UNDER GARDENER, a strong, useful young Man (about 24 years of age), with a good knowledge of gardening. Wages 14s., to rise to 15s., per week.—Mr. SMITH, The Gardens, Fairfield Court, Henley-on-Thames, Oxon.

WANTED, as UNDER GARDENER, an active, industrious young Man, chiefly for Kitchen Garden and Pleasure Grounds. Wages 18s. per week.—Apply, with particulars as to reference, &c., to J. ANDERSON, The Gardens, Streatham Grove, Norwood, S.E.

WANTED, as GARDENER, and to take Charge of a small Farm (pasture), an industrious, sober, and trustworthy Man. Must be able to milk, and understand cattle. Wages 20s. per week, with house and coals.—G. E. S., Messrs. Francis & Arthur Dickson & Sons, Chester.

WANTED, as FOREMAN, in a Gentleman's Garden, an active, industrious, single Man. He must be a good Plant Grower, and understand Forcing-houses. A JOURNEYMAN is also WANTED.—For terms apply to Mr. AYSON, Oxton House, Exeter.

WANTED IMMEDIATELY, a WORKING FOREMAN and PROPAGATOR, married. Must be a good Plantsman, and used to Growing Soft-wooded Plants, Mushrooms, and Cucumbers for Market. Liberal wages to a competent Man.—G. STRUTTON, Baker's Farm, Harlesden Green, Willesden, N.W.

Foreman of Glass Department.

WANTED, a Person well qualified for the above situation; must be a man of first-class character, well up in Plant-growing and Propagation, energetic, and a first-class Salesman. Salary, £100 per annum.—Apply to Mr. JOHN SHAW, 29, Oxford Street, Manchester.

OSBORN AND SONS are in WANT of a first-class GENERAL PROPAGATOR, and for the services of a thoroughly energetic, capable Man they are prepared to give a liberal salary. Communications, in the first instance, to be made by letter addressed to The Nursery, Fulham, S.W.

WANTED, a young MAN to take Charge of a Plant Stove and Conservatory, to Superintend Dinner-table and other Plant Decorations, to Make Bouquets, &c. A steady person of good taste indispensable. Also an IMPROVER.—EDWARD BENNETT, Hatfield House, Herts.

WANTED, a MAN, to Grow Stove and Greenhouse Plants, Ferns, and Vines in pots.—E. COOLING, Mile Ash Nurseries, Derby.

WANTED, a MAN who can Propagate and Grow Clematis for Exhibition—he would have the charge of a unique collection. The position would be permanent. He would have the honour of bringing out a valuable lot of new ones, and he would be required in about three weeks.—State, at once, wages, age, and references, to CHARLES NOBLE, Bagshot, Surrey.

WANTED, a young MAN, for Garden and Pleasure-ground Work. Wages 16s. per week; to live in bothy with other young Men.—Apply, stating age and references, to JAMES BATLEY, The Gardens, Wentworth Castle, Barnsley, Yorkshire.

WANTED, a steady, trustworthy MAN, experienced in Grafting, Budding, Planting, and General Nursery-work. Wages 24s.—R. THORNHILL, Bowdon Nurseries, Bowdon, Cheshire.

WANTED, as IMPROVER, in an establishment where the usual work of a large garden is carried on, a respectable young Man. A Premium expected.—GARDENER, Mr. Turner, Royal Nursery, Slough, Bucks.

To Florist's Assistants.

WANTED, an active young MAN, about eighteen or twenty, who has some knowledge of the business.—Apply by letter, stating age, reference, and salary expected, to W. HOOPER, Florist and Seedsman, 88, Oxford Street, W.

WANTED, a CLERK, and to assist in the Seedshop when required.—Address, stating experience and wages expected, to THOS. DAVIES AND CO., Wavertree Nursery, near Liverpool.

WANTED, as ASSISTANT SHOPMAN, a young Man, of strict integrity and perseverance.—Apply, stating age, wages required, with references, to THOMAS PERKINS, 42 Drapery, Northampton.

WANTED, an ASSISTANT SHOPMAN. Good references required.—Address, stating age, abilities, and salary asked, to EDMUND PHILIP DIXON, 57, Queen Street, Hull.

WANT PLACES.

To Gardeners in Want of Situations,

WHOSE CHARACTERS WILL BEAR STRICT INVESTIGATION.

THE PINE-APPLE NURSERY COMPANY devote special attention to this important matter—proper Men to suitable Situations. For a GARDENER, or for a SITUATION, please send full particulars to Mr. JOHN BESTER, the Pine-Apple Nursery Company, Maida Vale, London, W.

GARDENER (HEAD), where two or more are kept.—A young Man. Can be highly recommended.—H. H., 10, Grove Road, Forest Hill, S.E.

GARDENER (HEAD), where two or three are kept.—Married; well up in all its branches. Good reference.—B. D., Post Office, Reigate, Surrey.

GARDENER (HEAD).—Age 28, married, no family; thoroughly practical. Two years' good character from last employers.—X. Y. Z., McRonald's Nursery, Chichester, Sussex.

GARDENER (HEAD).—J. W. LAURENCE, Gardener to the late Right Rev. Dr. Sumner, Bishop of Winchester, is at liberty to engage with any Nobleman or Gentleman requiring an experienced Man.—Farnham Castle, Surrey.

GARDENER (HEAD).—The Advertiser will give £2 to any person who can help him to obtain a situation as above. Has first-class testimonials.—F. G. H., Mr. Bird's, Boreham Road, Warminster, Wilts.

GARDENER (HEAD).—S. GARLAND is at liberty to engage with any Lady or Gentleman requiring the services of a practical and trustworthy Gardener, or as Gardener and Bailiff on a moderate-sized Farm. References good.—S. GARLAND, Hammerwood, East Grinstead.

GARDENER (HEAD).—Age 29, married, no incumbrance; thoroughly understands Stove and Greenhouse Forcing, and General Gardening. Highest recommendations. Wife could act as Cook.—W. P., 1, Providence Place, Rusthall, Tunbridge Wells.

GARDENER (HEAD).—Age 31, married; thoroughly practical in all branches, also in the Laying-out of New Grounds, and the Management of Land and Stock. Ten years' unexceptionable reference.—G. D., Post Office, Bromley, Kent, S.E.

GARDENER (HEAD), to any Lady or Gentleman requiring the services of a thoroughly practical Man.—Age 38, no incumbrance. First-class character from present employer.—ALPHA, Mr. Pullinger, Seedsman, High Street, Shirley, Southampton.

GARDENER (HEAD).—Age 30; thoroughly understands the Early and Late Forcing of Fruits, Flowers, and Vegetables, Stove and Greenhouse Plants, and Flower and Kitchen Gardening. Good references.—W. SEDGLEY, The Gardens, Charlecote Park, Warwick.

GARDENER (HEAD), age 38, married.—J. SPAVEN, four and a half years Manager at the Royal Kitchen Gardens, Hampton Court, offers his services to any Nobleman or Gentleman requiring a trustworthy and efficient servant.—8, Queen's Road, Teddington, Middlesex, S.W.

GARDENER (HEAD).—Age 37, married; has a thorough practical knowledge of the profession, can take the Management of Grass and Arable Land, Stock, &c., if required. Fifteen years' good character from present employer. No objections to abroad.—T. W., Mr. G. Cooper, Nurseryman, Derby.

GARDENER (HEAD).—Age 32, married; understands the culture of Pines, Vines, Strawberries, Cucumbers, Melons, &c., also Stove and Greenhouse Plants, Flower and Kitchen Gardening, and the Management of Land if required. First-class references.—F. D., Post Office, Chingford, Essex.

GARDENER (HEAD).—A thoroughly energetic practical Man; fully understands the profession, including all kinds of Fruit and Plant-houses, Flower and Kitchen Gardening, Forcing, &c. Eighteen years' experience. Good testimonials. No objection to any part of England or Ireland.—H. J., Post Office, Torre, Torquay.

GARDENER (HEAD).—Age 33. Seventeen years' experience, acquired in first-class Establishments. Would not object to a place where choice Fruits, &c., are extensively cultivated for Market purposes. Nearly three years' character.—G. HAMOND, Oak Hill Nursery, Surbiton, S.W.

GARDENER (HEAD, or SINGLE-HANDED).—Age 45, married; thoroughly understands the profession in all branches. Seven years' personal character.—W. R., 14, Bolton Row, Curzon Street, Mayfair, W.

GARDENER (HEAD, WORKING).—Age 35, married; understands the profession in its various branches. Good references.—C. B. J. VENABLE, Post Office, Waltham Cross, Herts.

GARDENER (HEAD, WORKING).—Has a thorough knowledge of the profession, including all kinds of Fruit and Plant Houses, Flower and Kitchen Gardening, and Early and Late Forcing. Seventeen years' practice. With highest testimonials.—J. HANKINS, 1, Wilton Cottage, Grove Road, Acton, W.

GARDENER.—Middle-aged, married, no family; understands Forcing and Kitchen Gardening in all its branches.—W. HENWOOD, Cothill Pits, Abingdon.

GARDENER.—Age 23; understands Vinery, Greenhouse, and Flower and Kitchen Gardening.—Please state wages, &c., to T. BUDD, Post Office, Chislehurst, Kent.

GARDENER.—Married; well up in the Management of Vines, Peaches, Melons, Cucumbers, Stove and Greenhouse Plants, and Flower and Kitchen Gardening. Good reference.—J. R., Paddock Wood, Brenchley, Kent

GARDENER (good SINGLE-HANDED), or PROPAGATOR and GROWER in a Nursery.—Practical experience with Hard and Soft-wooded Plants.—B. T., T. H. Lyon, Lichfield Road, Aston, Birmingham.

GARDENER (WORKING).—Age 40, married no incumbrance; thoroughly understands the profession. Excellent character. Wife as Cook or Laundress.—THOMAS ADAMS, Griffins Hill House, Selby Oak, Birmingham.

GARDENER (SECOND).—Age 22, single; accustomed to Houses, forcing Vines, Melons, &c. Good practice with Bedding and General work. Good character.—G. G., Mr. Cooper's, Birkhead's Road, Reigate, Surrey.

GARDENER (UNDER), in a good place, where Forcing is carried on.—Age 19; has had experience. Good reference.—W. M. D., Spriging's Nurseries, St. Albans.

FOREMAN, to any Nobleman or Gentleman.—Age 24; has a thorough practical knowledge of the cultivation of Vines, Pines, Peaches and Melons, Stove and Greenhouse Plants; is well versed in the forcing department, and thoroughly understands the management of Flower and Kitchen Gardens. Four and a half years' experience. Good testimonials can be had from present and previous employers as to character and ability.—R. J. INGRAM, The Gardens, Thornes House, near Wakefield.

FOREMAN.—Age 27; has a thorough knowledge of Stove and Greenhouse Plants, Orchids, and Forcing in General. Good references.—A. B., Mr. McKane, Upton, Chester.

FOREMAN, or SECOND, in a large Establishment where Forcing and Plant Growing are carried on with spirit.—Age 23; has been Foreman for two years in present situation. Highest references.—State wages to F. HILL, Uffington, Stamford, Lincolnshire.

To Nurserymen, &c.

GENERAL FOREMAN, PROPAGATOR, &c.—Age 30, married.—JOHN KELLETT, Malton, Yorkshire.

TO NURSERYMEN and GENTLEMEN.—The Advertiser, age 40, is desirous of an engagement. Is competent to Prepare Designs and Estimates for Landscape Gardening, Horticultural Buildings, Planting, Road Making, Draining, and Ground Work in General, and Superintend the same. Great experience.—ALMA, Mr. Abbott's, 46, East-cheap, London, E.C.

SHOPMAN, or SHOPMAN and CLERK.—Eleven years' experience. Good references.—W., 32, Welbeck Street, Nottingham.

To the Seed Trade.

SHOPMAN.—Young. Many years' experience. Good references.—O., Post Office, York.

Seed Trade.

SHOPMAN, or ASSISTANT SHOPMAN.—Age 22; seven years' experience. First-class references.—D. G. L., *Gardeners' Chronicle* Office, W.C.

TRAVELLER, or NURSERY MANAGER. Mr. T. Fox, who has represented the Messrs. Rollisson & Sons throughout the United Kingdom for nearly six years, and who is thoroughly well acquainted with both the Wholesale and Retail Customers throughout such, begs to inform the Trade that he will be open to a similar engagement (or as above) after March 25 next. No objection to any part. First-class references from the Messrs. Rollisson.—The Nurseries, Tooting, London, S.W.

SALESMAN and TRAVELLER.—Has had many years' experience in the Seed Trade.—H. G. H., 4, Livingstone Terrace, Dalyell Road, Brixton, S.E.

GARDEN LABOURER.—Middle-aged, married, without family. Good character.—Please state wages, &c., to J. WEBB, Post Office, Chislehurst, Kent.

ASSISTANT (TEMPORARY), for Overtime or Nightwork.—Advertiser, who has two days weekly and a few hours daily, would be glad of engagement. Fifteen years' experience.—J. J., *Gardeners' Chronicle* Office, W.C.

BAILIFF (WORKING).—Married, without incumbrance; has had great experience in the Breeding and Rearing of First-class Shorthorned Cattle, &c. Good references.—T. M., 24, Union Street, Burtoo-on-Trent.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C. Printed by WILLIAM RICHARDS, at the Office of Messrs. BRADBURY, AGNEW, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the County of Middlesex, and Published by the said WILLIAM RICHARDS, at the Office, 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, January 23, 1875.
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CONTENTS.

SALES BY AUCTION.

Coniferous Tree Seeds and Lilies.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, February 1, at half-past 12.o'Clock precisely, a great variety of CONIFEROUS TREE SEEDS, 120 CYCAS REVOLUTA, 3000 Bulbs of LILIUM AURATUM in good condition, and a great variety of other LILIES from Japan.
On view the morning of Sale, and Catalogues had.

Plants and Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, February 3, at half-past 12 o'Clock precisely, Standard and Dwarf ROSES, FRUIT TREES, Hardy and Ornamental TREES and SHRUBS, LILIUMS, GLADIOLI, ANEMONES, RANUNCULI, &c.
On view the morning of Sale, and Catalogues had.

Hanwell, Middlesex.

To NURSERYMEN, FLORISTS, and OTHERS.
MR. J. DOMONEY has received instructions to OFFER for SALE by AUCTION (in consequence of the death of the late Proprietor), at the Mart, Tokenhouse Yard, E.C., on THURSDAY, February 18, at 1 o'Clock punctually, a valuable FREEHOLD PROPERTY, consisting of a Dwelling-house, known as Floral Villa, with Nursery, Garden, Hothouses, Greenhouses, Lights, Grape Vines, &c. Three-fourths of the Purchase Money may remain on Mortgage at 5 per cent.
Particulars and conditions of Sale to be had of Mrs. OATES, on the Premises; of Mr. REGINALD VINING, 16, Furnival's Inn, E.C.; at the Mart, and the Auctioneer, 16, Furnival's Inn.

Preliminary Notice of

FORTHCOMING SALES, by PROTHEROE AND MORRIS.
FEBRUARY 17.—BURY STREET, Edmonton, N. By order of Messrs. Jaffa & Co. Clearance Sale of Greenhouse Plants and Trade Utensils.
FEBRUARY 18 and 19.—PARK NURSERY, Richmond Road, Kingston-on-Thames. By order of the Executors of the late Mr. Bruce. The whole of the Nursery Stock, Greenhouse Plants, several Greenhouses, Pits, and Fittings thereto, together with the Utensils-in-Trade.
FEBRUARY 23.—EXOTIC NURSERY, Tooting, S.W. By order of Mr. R. Parker. A large quantity of thriving Nursery Stock, in fine condition for removal.
FEBRUARY 25.—FRIMLEY PARK NURSERY, Frimley, Surrey. By order of Mr. J. Holder, a portion of the land being required for building purposes. A quantity of General Nursery Stock, consisting of a fine assortment of Evergreens and Conifers, Ornamental Forest and Fruit Trees.
Full particulars of the above Sales may be had of the Auctioneers and Valuers, 98, Gracechurch Street, London, E.C.

PROTHEROE AND MORRIS, HORTICULTURAL and MARKET GARDEN AUCTIONEERS and VALUERS, 98, Gracechurch Street, City, and at Leytonstone, E. Monthly Horticultural Register had on application.

SIMPSON'S RED SPIDER and THRIPS, &c., ANTIDOTE.—*Bond fide.* See former advertisements. Prepared by JOHN KILNER, Wortley, Sheffield.

RODERICK NICHOLSON, ADVERTISING AGENT and GENERAL COMMISSION AGENT, 112, Fleet Street, E.C.

Window Glass, Sheet Lead, Paints, &c.

THOMAS MILLINGTON AND CO., IMPORTERS and MANUFACTURERS, New LIST of PRICES, very much reduced, on application.
87, Bishopsgate Street Without, E.C.

Government Emigration.

SYDNEY, NEW SOUTH WALES.—Assisted Passages are provided for Married Couples not exceeding forty years of age, with or without children, and Single Men and Women not exceeding thirty-five years of age, being FARMERS, MECHANICS, MINERS, LABOURERS, and FEMALE DOMESTIC SERVANTS, on payment of the following rates:—Twelve years and not exceeding forty, £5 10s.; one year and under twelve, £2 15s.
For further information apply to the Office of the Agent-General, 3, Westminster Chambers, Victoria Street, S.W.

Persons having Houses, Businesses, Estates, and other Property to be LET or SOLD, will find the MIDDLESEX REGISTER an excellent Medium for obtaining Customers for the same. Property is inserted in the "Register" free of charge, on forwarding full particulars to the Offices of
E. P. NEWMAN, Auctioneer, Valuer, House and Estate Agent, 41, High Street, Uxbridge, Middlesex.

TO BE LET, about 30 Acres of FREEHOLD LAND, in the Parish of Streatham, annually or upon Lease, if preferred, situated about six miles from London, and particularly adapted for a Market Garden, having many breaks and a small stream running through the centre.
A. B., 5, Regency Square, Brighton.

Victoria Colony, Kaneas, U.S.—To Farmers and OTHERS.
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SATURDAY, JANUARY 30, 1875.

A HOLIDAY IN NORWAY.

(*Continued from p.* 74.)

IN the descent from the fjelds, the roads generally pass a succession of lakes, and run by the side of rivers that sweep grandly along, becoming torrents when the valleys narrow, and dashing down over broken rocks, when such impediments intervene, forming cascades of great beauty. The rush and roar of these tumultuous waters scarcely leave the ears of the traveller for days together. Going from Nystnen to the next station, Skogstad, on the southern descent from the Fille Fjeld, the scenery is superbly grand; majestic rocks rise on each side of the road, many of them torn and rent, and showing in their dislocated and precipitous heights that the forces Time brings to bear on the hardest rock are mightier than even the strength of hills of gneiss or granite. One very striking and picturesque waterfall occurs between the two stations; it is not remarkable for its height or the volume of water it precipitates, but it presents a series of broken and tumultuous falls that are more pleasing to the eye than others of more Niagarian proportions. Seen from one part of the road a black mass of rock forms a background, that throws out the broken masses of stone amidst its sparkling waters most effectively.

Advancing southward the country becomes more thickly wooded, the hill-sides being covered with Firs. There is an extensive natural forest of Spruce approaching Vongs from the north; the finest specimens are on the lower sweeps of the mountains, and where there are accumulations of detrital matter. The trees have a naked and drawn-up appearance, the branches are shorter and more rigid, and the branchlets have not that graceful pendulous sweep that characterises the growth of the same tree in English woods. Many trees were thickly hung with cones, but the starved and stunted specimens were generally the most prolific cone bearers.

Approaching Vongs the road is carried along the shores of a large lake. The enormous masses of rock that cover a considerable space of ground between the mountain heights to the right, and the lake through which the road has been made, seem to indicate, by their dislocation and extensive distribution, a more sudden and violent disturbing cause than atmospheric action. They form a feature of great interest and beauty associated with the lake; delicate Ferns grow amongst them, choosing the moist and shady spots. Saxifraga oppositifolia occurs in great abundance, growing in the shale and on the rocky ledges. The spot altogether seemed a most promising one for the botanical explorer.

Several valleys converge in the large, open, cultivated space in which the scattered hamlets of Vongs and Tune are situated, the lake occupying the lower portion of the valley. The very small stockingless lad who was my *skydsgut* from the last station, left me at the parsonage to return to his home. The wind was cuttingly cold, and I could not but think that it was hard for both boy and horses—the former to face the long, dark, difficult road alone, ill clad and probably hungry; the poor little fellow clutched my hand gratefully when I gave him, in addition to his fee of six skillings, a little cake of chocolate.

Installed in the guest chamber of Vongs Præstigard, and privileged to enjoy the society and hospitality of the excellent rector of the place, the Rev. Otto Konow—whose perfect English made one forget his nationality, when not recalled to it by his truly Norwegian observance of the laws in force amongst a noble people, that make a stranger guest the honoured person of the house—I enjoyed many opportunities of obtaining glimpses of the domestic life of the people, which as a mere passing tourist I could not otherwise have possessed.

The wind, passing over the great fields of snow to the north of this place and rushing down the valley over its very cold waters, is of a peculiarly penetrating character, and a plaid, my constant companion, was an insufficient covering. A fall of snow took place one night during my stay, a warning of the gradual and near approach of the long, dreary winter. Much chilled in the day by the keen mountain air, I was glad, to go for warmth into the priest's kitchen, and while there I saw preparations going on for the farm-servants' supper. A large saucepan, partly filled with water, simmered on the fire, into this a buxom maiden ladled barley meal, vigorously stirring the mess after each addition; when sufficiently thickened it was carried to the table, and each person, with a wooden bowl of sour milk before him, helps himself, dipping each spoonful into the bowl of milk before carrying it to his mouth. This is the favourite food of the people—they prefer barley meal, for its staying and satisfying qualities.

Asking for the localities most likely to afford rare plants, I was directed to the Syndes Fjeld, and on the morning following my arrival at Vongs, mounted on a fine old mare, I started on an excursion to a mountain within this district, called Helestrandberg. The first part of the way led up the hill south of the place. The track was rugged and abrupt, and through an extended thicket of Alder, Birch, and dwarf Willow; portions of this belong to different farms. The boughs, of Birch principally, are cut and thrown into the yards in the winter, and with the sweepings of the stable, form the sole food of the store cattle. Several streams had to be crossed, but the mare picked her way warily, feeling for secure stones on which she might place her feet, and landing me always in safety. Her foal, which accompanied us the whole way, trotted along, sometimes before, sometimes behind, occasionally scrambling into the wood, always having to pick its way amongst stones. Such a training, begun so young, tends to make the Norwegian horses what they are—unrivalled for rough mountain roads. The frequent passage of horses along this track had worn away the soil, and the great stones which everywhere encumbered the ground made constant watchfulness necessary on the part of the faithful beast I rode. Most of the masses of rock stood from 1 to 2 feet above the ground, and the passage through them was often narrow, and the way wound round about to avoid blocks of unusual size. A few flat boggy spots occurred, and through these the mare floundered uneasily. Crossing the summit of the mountain the descent was still amongst stones, and most perilous. Presently we came to an open space of grass and amongst haymakers. The road then led along the steep side of a hill that rose from a calm, clear, mountain lake. Sometimes the path narrowed to a sheep track, and touched the verge of declivities where a single false step would have been certain destruction. Open spaces of grass occur all along this mountain side, near which are sheds or *seatirs*, in which hay is stored and the dairy people lodge.

Our destination gained—the mare hobbled with twisted Birch, which is used everywhere instead of rope—the foal fraternising with another of the same age—I started with a boy to guide me in my quest for plants. The mountain side, up which we commenced the ascent, was

steep, some portions loose shale, others covered with a compact growth of Juniper, which here is flat and smooth, as if pressure by a weight of snow had given it the form it grows in. Little streamlets in several places trickled down the channels the water had worn in the hard shaly rock, and then in drier places large areas appeared covered with Bilberries, Vaccinium Myrtillus, so evenly that we could glide down over the thickly grown masses: the refreshing berries could be gathered by handfuls, and very pleasant it was to sit surrounded by grand mountain scenery in this rarely trodden spot, and feast on fruits that ever-provident Nature has given in such profusion even to such wilds. We were able also to add the fruit of Rubus Chamæmorus and that of the wild Strawberries to our dessert. When the rock cropped out, forming little cliffs, I found Saxifraga Cotyledon; in moist spots Sedum purpureum; amongst broken rocks Saxifraga oppositifolia occurred abundantly. On various parts of the mountain slope I collected specimens of Astragalus alpinus, Papaver nudicaule, Gentiana purpurea and campestris, Trifolium procumbens, Viola biflora, Arabis petræa, and several Drabas and Arenarias. Alchemilla alpina and vulgaris fringed the little streamlet, and the graceful Equisetum clustered in damp spots; masses of Euphrasia appeared again and again, and the graceful Harebell, so large and striking as to invite frequent notice. In peaty spots Empetrum nigrum and Calluna vulgaris gave variety to this beautiful garden of Nature, and various handsome dwarf Salices afforded a little cover, from which the fieldfare flew noisily as we invaded its haunt.

The fieldfare seems pretty generally distributed over Norway, certainly no bird is more commonly met with; and its cry recals English scenes and early winter, of which these migrating birds are the harbingers to us: the first heavy fall of snow depriving them of the berries they subsist upon on their native hills they take their flight across the North Sea, and on their arrival clear our Hollies, Hawthorns, and hedges of berries. Securing the mare I started on my homeward journey, not caring to be benighted on the mountain tract, the difficulties of which seemed sufficiently perplexing in daylight. I was glad again to reach the Rectory, and to please the rector by assuring him that my excursion had been eminently satisfactory. Corn mills enclosed in small square wooden sheds are frequently seen, one succeeding another, by the side of mountain streams; these little mills, so primitive in construction, and pertaining to each household, really seem to be the next step from the quern hand mill of our forefathers. A scattered population without the advantage of roads may find it convenient, with water-power so closely at hand, to possess separate mills for each farm or household, and it is in accordance with the principles of independence and self-helpfulness that this system is pursued, but in a village or scattered hamlet, one good mill, under the supervision of a professed miller, would do the work better, and would be a great saving of time and material.

The independence of action and position enjoyed by the peasant proprietors is still further confirmed in them by the possession of home resources, which, developed by their own industry and skill, render them as little dependent on the outer world for the necessaries and even luxuries of life as any men living in a civilised or uncivilised country can be. The food they require is produced on their farms, in the shape of beef, mutton, bacon, with milk, cheese, and butter. Barley, Rye, and Oats afford them meal. The wool of their sheep is spun and woven by themselves into a coarse but serviceable cloth, the dyer alone being called in to give the tint of colour required. The skins of their slaughtered animals are variously employed: those of the sheep form the covering for their beds, and of the calves and oxen are converted into leather for boots, in the making of which many are expert. Flax is grown on some farms, and affords the material for linen. Hops are cultivated, and used in making their beer. Fish they can often catch, or buy at a cheap rate; game they can shoot. The Potato, which is very generally grown, affords them, by distillation, a raw, coarse spirit. They shoe their own horses, and in this they have much to learn. Wood is at hand, and adapted for furniture, which they make during the long months of winter, so that the world may fight, commerce be prostrated in luxurious capitals, navies abolished—the Norwegian bonder can still afford to be indifferent. The seasons each in turn give him work and give him food, and he is blessed with health, strength, and content, and a love of Gamle Norge.

There is one drawback to this picture. The possession of all these advantages, while it encourages independence, tends, I fear, to narrow the sympathies, and isolate men from that community of interest and feeling which is beginning to draw together in amicable relations the widely-scattered nations of the world. Those farmers who have a majority in the Legislative Assembly represent the non-progressive or obstructive element in the national councils, and they are impatient of any measures that tend to alter a state of things they find sufficiently satisfactory. Great and enlightened measures, that embrace the whole community in prospective benefits, often fail to meet with the support that men more highly educated would more readily appreciate and sanction. *William Ingram, Belvoir.*

(*To be continued.*)

New Garden Plants.

STAPELIA (TRIDENTEA ?) OLIVACEA, *n. sp.** Fig. 24.

The plant here described and figured, like nearly all its congeners, is a native of the Cape of Good Hope, whence it was sent to Kew and to myself in April, 1874, by Dr. J. Shaw. It flowered at Kew in September last, and seems to be identical with a plant known to Stapelia cultivators by the garden name of S. eruciformis, but which has not hitherto been described. It differs from all the other described Stapeliæ in its slender, almost entire-angled (*i.e.*, neither toothed nor tubercled) smooth looking stems and olive-brown flowers. The following is a description of the plant.

Stems erect, branching at the base, minutely puberulous, 3—5 inches high, $\frac{3}{8}$—$\frac{1}{6}$ inch thick, tetragonal, angles obtusely rounded, with an impressed transverse line at the base of the minute erect adpressed puberulous teeth, greyish green, the impressed lines and the spaces between the angles darker; when fully exposed to the sun and allowed plenty of air the plant becomes blotched with rich purple. Flowers in pairs, from the base of the younger branches. Peduncles short, 2—3 lines long, puberulous, green; calyxt 5-partite, puberulous, lobes 2—2½ lines long, subulate. Corolla rotate, very fœtid, about 1½ inch in diameter, deeply 5-fid, without puberulous, dull green; within glabrous, deeply and closely rugose, dark olive-green, the rugosities brown; lobes ovate acute recurved, 5-nerved, fringed with white hairs. Ligulæ somewhat spreading, narrow, deltoid, subulate, 1½ lines long, dark purple-brown, with a smooth polished central stripe extending from the base to the middle. Alae and rostra dark purple-brown, the former falcate-subulate erect, 1½ lines long, the latter acerose erect, 2½ lines long. *N. E. Brown, Herbarium, Kew.*

MASDEVALLIA MELANOPUS, *Rchb. f.*

This little gem has just flowered at Donaueschingen in the garden of the Prince Carl Egon von Fürstenberg, under the excellent management of Herr Hofgärtner Kirchhoff. The tails of sepals are yellow, the sepals white with purplish dots, in the way of those of M. polysticta. The lip has three longitudinal keels, and is far more blunt than it appeared to be in the dry specimens. *H. G. Rchb. f.*

BRASSIA BRACHYPUS.*

A very interesting novelty, introduced by Messrs. Backhouse from Ecuador. It is in the way of Brassia glumacea, but is very distinct both in the lip and the very short ovary. The flowers are yellowish, with brown spots. The lip is whitish, with brownish cinnamon bars and blotches, and the callus is yellow. *H. G. Rchb. f.*

ECHITES PELTATA.

IN the last part published of the *Adansonia* Mr. Saldanha furnishes some notes on the useful plants of Brazil, among others Echites peltata. This plant, according to his account, possesses medicinal properties of a very powerful and extraordinary nature, and is in great repute with the inhabitants of the province of St. Paul. It belongs to the Apocyneæ, and abounds in tannic acid, which renders it exceedingly astringent. An infusion of the leaves, or even the whole plant, is employed to reduce swellings in different parts of the human body, but more particularly in cases of excessive enlargement of the testicular glands. Its action is said to be so powerful that it occasionally causes these organs to disappear altogether. This singular property being so rare, Mr. Saldanha thinks it his duty to call the attention of botanists to it; and this interesting fact, he says, explains the origin of the common name by which it is known in St. Paul, where it is called *Cipo capador*—literally, emasculating climber. Though the writer of the notes in question does not appear to have been aware of it, this plant is not unknown in our gardens; but we have not succeeded in finding any allusion to its medicinal properties, either in books or on the labels accompanying the dried specimens in the herbarium at Kew. Mr. Bentham refers it to Mandevilla, and in habit and the form of the flowers it resembles the more familar M. suaveolens, but the nearly orbicular, unilaterally peltate leaves are from 4 to 6 inches in diameter, and the flowers are yellow. It was figured in 1848, in the *Flore des Serres*, vol. iv., plate 390; and there is a specimen at Kew from Gay's herbarium, labelled "*Jardin des Plantes, serres chaudes*, Paris, 1854."

A very slender climbing plant, bearing a name similar in signification, grows in the Tijuca Mountains, near Rio de Janeiro, and possesses similar properties, as Mr. Saldanha has himself been able to verify. This is a species of Eupatorium, closely allied to, if not actually the same as, E. ayapana, says Mr. Saldanha; but in this he is doubtless mistaken, for Mr. Baker, who is elaborating the Compositæ for the *Flora Brasiliensis*, has seen no specimen of this species from the region in question, and there are no native specimens of it in the herbarium at Kew. The only habitat known is on the Rio Negro, one of the tributaries of the Amazon. The history of the true E. ayapana is rather interesting, and we will briefly relate it here. It was introduced by the French into the Island of Mauritius as long ago as 1797, on account of the high repute of its medicinal properties. The only specimen in the herbarium at Kew is from Bojer's Mauritian collection, but there is an original letter from Puerari of Copenhagen to Gouan of Montpellier respecting this plant, a few of the leaves of which were sent with the letter, but do not appear to have been preserved. In this letter Puerari says he has identified E. ayapana with E. triplinerve, and he was quite correct. Puerari's letter is without date, but it was in cultivation in Europe at the beginning of the present century. Ventenat, in his illustrated work entitled *Jardin de la Malmaison*, 1803, gives a good figure of it, and a long account of its virtues. The natives of the right bank of the Amazon, he says, have long regarded it as an excellent sudorific and a powerful alexipharmic, and Mr. Alibert made some experiments with it and found it highly antiscorbutic. Respecting its powers as an antidote in cases of bites of venomous reptiles, we are told by Descourtilz, in his *Flore Pittoresque et Medicale des Antilles*, vol. iii., plate 203, that, although its powers had been greatly exaggerated, it was really an efficacious remedy. He says that the fresh juice, applied in cases of bites of venomous animals shortly

* *Stapelia olivacea, N. E. Br.* Ramis erectis gracilibus, minute puberulis, 3—5 poll. longis, cinereo-virentibus purpureo-maculatis, tetragonis, angulis obtusis sub-integris, ad dentorum insertiones lineolis transversis impressis notatis, dentibus minutis erectis appressis; pedunculis exparte inferiore ramorum juniorum, binatis 2—3 lin. longis, puberulis, viridibus; calycis puberuli segmentis subulatis 2—2½ lin. longis; corolla fœtidissima diametro 1½ poll., profunde quinquifida, extus sordide viridi puberula; intus glabra, rugosissima, tenebrosa olivaceo-brunnea; lobis ovatis acutis recurvis, 5-nerviis, albo-ciliatis; ligulis subulatis acutis purpureo-brunneis cum zona verticali centrali polita; alis falcato-subulatis acutis erectis 1½ lin. longis; rostris acerosis erectis 2½ lin. longis, omnibus purpureo-brunneis.

* *Brassia brachypus, Rchb. f.* Pseudobulbis oblongis ancipitibus parvis; foliis oblongo-lanceolatis bene acutis; pedunculo crasso densius florido; bracteis ligulatis acutis spathaceis ovaria pedicellata duplo superantibus; ovario incurvo; sepalis ligulato-caudatis; tepalis falcato caudatis brevioribus; labello ovali lobulato apice aristato; callis contiguis clavatis geminis a basi versus discum pilosis; callo parvo conico extrorso utrinque extus juxta apicem calli.

after the accident, effects a rapid cure, putting an end to all alarming symptoms at once. But, unfortunately, none of these vaunted remedies have hitherto borne the test of thorough investigation. As a sudorific and antiscorbutic it was formerly in great request in Mauritius, but whether still used there medicinally we have not been able to ascertain. *W. B. H.*

AT GHENT.

(*Concluded from p. 772, ii., 1874.*)

ON the outskirts of the town a long, straight, deep-cut canal is bordered with straight roads and rows of trees. The length and breadth of the whole are considerable, and it is called by courtesy the Allée Verte—the Green Alley—although, of all the tints of the rainbow, green is often the least prevalent. Each road, on the side furthest from the canal, is bounded by lines of houses, by public buildings and private dwellings, some of pretentious, some of modest, proportions, but all, or nearly so, encased in the prevalent coat of white paint. Along the line most distant from the town more than one horticultural establishment is to be found. We enter that of M. Frédéric de Coninck, Allée Verte, No. 222, and find the same practical mode of doing business, although on a larger scale than the compressed and narrow nurseries of the really small growers, and the same willing and unceremonious reception. At the season for lifting and transplanting stock, housing pot plants, and sending off orders, a commercial garden cannot be very trim; but we suspect that in this, as in the other Ghent establishments, the grand object is utility rather than show—multiplication and growth instead of display. The propagator's business is necessarily confined to the raising, rearing, and disposing of as many promising young subjects as he can. The horticulturist proper, who receives them, has then to take up and continue the task, and, if he fulfils his office efficiently, it is he who reaps the fruit, in the shape of exhibition prizes, friends' admiration, and private personal enjoyment. Ghent gardeners are like the rearers of animal live stock; they bring their produce up to a certain point, and then, in most instances, hand over what they have raised to others to fatten, finish off, and bring to its full completeness.

In most instances, not in all; in some cases they are obliged to do it themselves through long years of untiring patience—witness the standard Bay and Laurustinus trees already mentioned, so much sought after and so highly prized by great people for their great places throughout the eastern half of Europe. Whether round-headed or pyramidal (*en couronne* or *en pyramides*), they are not formed without long time and untiring care. "How old may that Laurier tree be?" we inquired. "Really I cannot tell you," was the reply. "Perhaps it is as old as you are." "Certainly older; my father began to train it before I was born." We cannot, therefore, wonder if prices, even at first hand, range high. At the end of a long railway journey, with packing and other incidental expenses, and land carriage, perhaps, at the end of that, such standards necessarily become expensive ornaments, only to be indulged in by the rich, especially as they require roomy house accommodation to protect them from the frost of those regions during winter.

De Coninck's establishment professes to have always in hand—and is sure to be able to hunt up and supply any forms and sizes it may not have in hand—a rich collection of Bays (Laurus nobilis), grown with heads and as pyramids. Details are communicated to inquiring customers. Handsome specimens may be had from 40 to 300 francs the couple. A nice pair of Laurustinus, with good heads, ranges from 40 to 75 francs. But these works of art and objects of connoisseurship (exactly like pictures, statuary, and gems), bear completely fancy prices, dependent on the peculiar merits of each individual specimen. Some few are perfect; many are deteriorated by flaws and faulty weak places. In accordance with the trite expression, they must be seen to be appreciated in respect to their money value. Not a few old specimen evergreens in boxes have a history of their own, which would stand them in good stead at a sale, not to mention the circumstance of unusual age. The Ghent Botanical Garden some years ago possessed (certain of them may be still surviving) a number of very old trained small-leaved Myrtles, which were really only lumber and an incumbrance there. They would readily have fetched money if offered for sale, and have been snapped up by the lovers (or the furnishers and providers of the lovers) of standard Bays and such like. But the statutes or constitution of the garden absolutely forbade their being sold. So they were stuck about, poor aged things, anywhere and anyhow, to pine away neglected in their helpless decrepitude—the Director preferring their room to their company, their place being wanted for things more serviceable in botanical instruction. And yet the age and singularity of those Myrtles invested them with great interest. If by any possibility the old historical Orange and Pomegranate trees which decorate in summer the Tuileries Garden were put up for sale by public auction, who can guess what prices they would fetch? Certainly something more than an inconsiderable trifle.

FIG. 24.—STAPELIA OLIVACEA.

It is useless to criticise taste, when it is supported by long-established fashion. Demand will create supply, which people who have their living to gain by trade furnish, as a matter of course. The love of standard evergreens in boxes is extending, amongst the same class of customers, to other things besides Bays and Laurustinus, and now calls for standard Rhododendrons. To meet this, and gratify his Russian and German friends, M. de Coninck makes Rhododendrons *sur tige*, by grafting choice varieties on clean straight stems of R. ponticum 3 or 4 feet high, which form exceedingly floribund heads, that are kept in symmetry and shape by being stretched on frames, or merely attached to rings of wire. These plants are found to flower better than dwarfs; they are less liable to injury by frost, and cleaner, being out of the reach of bespatterings of dirt from heavy rains. Again, the Ghent nurseryman furnishes the young subject; time, and the gardener's care must do the rest. But we can imagine the beauty, on a terrace, of a long line of old, thick-stemmed, large-headed, many-hued Rhododendrons in full bloom, alternating with or faced by well-grown respectable-sized Myrtles, Laurustinus, or Bays.

Of course at De Coninck's there are houses, full to overflowing. Room is made for a few illustrative plants in a more advanced stage of growth, kept at home in the midst of the general commercial turn-out, the exodus of emigrants into foreign lands and gardens, to show what the youngsters will be like when they come of age. Besides, it would be hard indeed if a nurseryman could not keep a few favourites for his own pleasure and satisfaction. There are a Tree Fern or two, a variegated Phormium tenax or two from 50 to 100 francs apiece (more than they are worth, as far as beauty is concerned), Magnolia purpurea, var. Lenné; but the majority are small things, vegetable babes just beginning to feed themselves and go alone. Here is a lot of weaned Dracæna congesta stuck upright on shelves (to save space) so immediately one above the other that they are more like a book-case than a stage for plants to stand on. Then we step into a warmer nook, where Dracæna terminalis versicolor is bred by dozens and scores. The Egyptians hatched chickens in ovens—the Ghentese propagate plants in stoves. Thus whole shelves are edged with very presentable seedlings or sporelings of Blechnum brasiliense in little pots plunged in the fibrous material with which those shelves are covered. "What is the price of those?" we ask. "Twenty-five centimes each." Twenty-five centimes! Who could resist the opportunity of treating oneself to a couple of Tree Ferns at 2½*d.* a piece? I could not. But other pretty small things are not wanting, such as Anthurium Scherzerianum, an Aroid with a bright red spathe, and many others whose beauties are still only possible and potential. Out-of-doors the nursery grounds contain useful stock—Erythrinas two years old, Roses, and a multitude of hardy plants, which M. de Coninck enumerates in a catalogue — French, with a few explanations in English.

The name of M. Emile de Coninck, the son, is honourably connected with a literary enterprise—the *Journal d'Horticulture Pratique, publié par la jeunesse horticole*, which, as long as it existed, may be pronounced a success, even if not commercially remunerative. It was a creditable endeavour, on the part of the young Ghent gardeners, to ventilate questions and communicate information connected with their profession, something after the manner of the Home Correspondence of this Journal. I find in it a pretty popular synonym, though a little too long, for our "Forget-me-not" Myosotis, namely, "The more I see you the more I love you." Towards the close of its career it changed from a quarto to an octavo or pamphlet form, and offered to subscribers for a year the privilege of two advertisements gratis of ten lines each. But the world is wide, Ghent is limited, if not small, and the horticultural youth had to leave their homes to seek their fortune or complete their education. One after the other the contributors were dispersed—some in one hemisphere and some in another, but almost all, like Scotchmen, "going South," to brighter regions, whither unknown flowers and Ferns, future ornaments of our plant-houses, invited them. Contributors, however willing, cannot conveniently post "copy" from Amazonian forests or Himalayan hillsides, and so M. de Coninck, left alone to bear both the editorship and the authorship, was obliged to let the journal drop, his time being fully occupied by horticulture in its various branches.

A sight to see, of quite different interest to the establishments where plants are on sale, is the garden of the Burgomaster, the Count de Kerchove, and especially his winter garden—a vast glass structure, mainly filled with admirable specimens of Palms and Tree Ferns. Here is Phœnix reclinata aurea, which the gardener boasts to be worth 5000 francs, or

£200; Alsophila elegantissima, truly most elegant; A. excelsa, looking quite at home, on account of the little seedling Ferns growing on its stem. Abutilon marmoratum gives variety. Amongst smaller things a tuft of Adiantum cuneatum, the pride of the gardener, growing in a pot or tub, measures not less than 5 or 6 feet in diameter. But this gardener has set his heart on his work and on his employer's horticultural reputation. His French vocabulary is somewhat limited, but he is well up in the botanical names of all his charges. It is delightful to note how he lays stress on and shows off all the fine points of a plant, raising it in his arms, when not too heavy to be lifted, turning it in all directions in every favourable light, and evidently loving and admiring it himself, at least as much as any of his visitors possibly can.

A Todea superba, bearing eighty-five fronds (if green were mourning, what a fine bunch of hearse-plumes this would make!), is taken out of the atmospheric vapour-bath contained in its case, set on the ground to be approvingly inspected, raised aloft, made to revolve slowly on its axis, and then carefully restored to its case again, to join its companion, Todea Wilkesiana. It is a pleasure to be shown things by so sincere an enthusiast. But to the Count himself the thanks of strangers are due for the liberal permission to visit his garden on no harder condition than signing an album.

The winter garden is a costly structure (164 feet long, 65 broad, and 46 high, in round numbers), and expense is not spared in procuring valuable novelties. Its entrance (when you are once inside the glass) is original, simulating the mouth of a natural grotto, on each side of which are stairs of rough stone conducting to a picturesque look-out above, the whole now draped with Ferns and drooping plants, and improved by time and the loss of its newly-constructed rawness. This is only the portal or introduction to a tropical grove containing winding walks and pools of water. A spiral staircase leads to a gallery encircling the whole, from which you look down upon a striking mass of exotic vegetation.

Besides this, there are smaller structures for small things, pleasant to behold, such as Amaryllis crispa, with its pretty pink flowers, and Actinioptcris radiata, a singular Fern, of which seedlings have been obtained. There is what is called an infirmary for sick Palm trees, in which the patients seemed to us in quite a consolatory state of health. Glass walls show that fruit is not disregarded, and a bed of Lily of the Valley in the kitchen garden indicates that sweets are mixed up with usefuls. *E. S. D.* [We hope shortly to publish some illustrations with a full description of this noble winter garden, which has been more than once incidentally mentioned in our columns, but which amply merits the more detailed description we shall shortly give. EDS.]

TRANSMITTING FERNS.

AT a recent meeting of the Agri-Horticultural Society of Madras, Captain Henderson communicated the following account of his method of transmitting Ferns from India to England:—

The most natural, reliable and successful of all modes is probably the Wardian case, with which we are all familiar; but the expense is so great as to deter all but the very wealthy from resorting to it, to say nothing of the risk and trouble entailed upon sending a large case of plants through the Suez Canal. Another mode which has been recommended, and in some cases tried with success, is that of selecting tolerably young hardy roots, then partially drying them, and sending them home packed in dry moss or cocoa-nut fibre. On reaching England they are (speaking generally) subjected for a short time to a high degree of temperature, with subdued light and copious moisture, with the result of resuscitating a large number of them. This plan I have more than once adopted, but the measure of success has not been such as to satisfy me, for though a certain number of the hardier kinds, with vigorous succulent root-stocks, usually survived the journey and made handsome plants, the greater number were too delicate or capricious for the experiment, and these were not unfrequently the most rare and desirable. It therefore occurred to me that the pattern post could be made available for the transmission of all but the most bulky specimens, and I was the more induced to give it a trial in consequence of the following fact. In the autumn of 1870, when residing at Ootacamund, I undertook to supply to the gardens of the Agri-Horticultural Society at Madras some hundred varieties of Ferns, and with that object in view proceeded to the Wynaad and down the Carcoor Ghaut, whence I sent three large tin boxes full. The Ferns were carefully uprooted, with a little earth adhering to the roots, and made up separately in moss, and immediately before despatch copiously watered; the boxes were sparingly perforated with air holes. The first two boxes reached Dr. Bidie without mishap on the fifth or sixth day, and succeeded as well as could be expected in that climate. Through some unfortunate mistake, however, the third and most valuable box was detained at the Pothanore Railway Station for upwards of a fortnight, and finally reached Dr. Bidie on the twenty-sixth day after despatch. The contents were, however, found to be in fairly good order, and Mr. Henry succeeded in growing a good number of them. Now, be it observed, that these plants were packed for only a journey of a week at the most, and also that another week would have sufficed to take them to England. Acting on the experience thus obtained, I transmitted from Darjeeling, in the Himalayas, both to England and to Ootacamund, a considerable number of valuable Ferns through the pattern post, and with almost uniform success, the failures being in nearly every case due to some fault of my own and not attributable to the system. My *modus operandi* is as follows:—I select young but healthy roots, and removing them with great care from the soil, I leave only a very small portion indeed adhering to them. I then envelope each in fresh long-stapled moss, tightly bound round, and then cutting off all the fronds, I pack them "heads and tails" in a tin box, such as oatmeal, mustard, &c., come out from home in, and perforate a number of holes for the admission of air. For transmission to Bombay an outer covering is required, which is there removed, and the parcel is conveyed to England by the P. and O. steamers within a month. Dr. Moore, the Curator of the Royal Botanic Garden at Dublin, reports that the experiment was a great success.

ELEMENTARY LESSONS IN BOTANICAL GEOGRAPHY.

(*Continued from p. 78.*)

III.—ON HEAT AS INFLUENCED BY HEIGHT ABOVE SEA LEVEL.

THE ocean of air in which we live covers sea and land alike, and reaches over the top of the highest mountains. In our latitude at sea level it balances a column of mercury 30 inches in height. The weight of the column of atmosphere that presses on each square inch of the earth's surface is calculated at between 14 lb. and 15 lb. avoirdupois. A cubic foot of dry air weighs 1¼ oz., so that were the atmosphere of equal density throughout, its top would be reached in about 5 miles, a height which is exceeded by the Andes and Himalayas. Such, however, is not its real constitution. Each stratum of air, as we ascend from the earth's surface at sea level, bears only the weight of the column above it, and being less and less pressed, occupies therefore more and more room in proportion to its weight. This gives us a ready means of measuring heights by the barometer. It is found in round numbers that the column of mercury falls an inch when we climb a hill of the height of 900 feet, and we may easily see by means of the clock-like faces of our ordinary barometers that there is a change in the level of the column of mercury equal to the twentieth part of an inch when we carry the instrument from the ground-floor to the top storey of a house 50 feet in height. With the decrease in the density of the air there is also a regular fall in its temperature. Upon first consideration it would seem likely that the nearer we got to the sun the hotter we should be, and that the tops of the equatorial mountains ought to be the hottest places in the world. But in quitting the earth's surface we are quitting the neighbourhood of a heated body which is fast diffusing its heat by radiation, and are interposing more and more of a medium obstructive of heat between ourselves and the heated surface. It is probable that the temperature of the inter-planetary spaces reaches a degree of cold far beyond what our utmost conceptions can enable us to realise. We have already seen that in the equatorial zone in clear weather twice as much of the heat of the sun's rays is received by the earth as by the atmosphere. A large proportion of this is diffused near the great mass of the earth and there absorbed. By a great number of observations which have been made to settle the question, we learn that the rate of decrease in temperature as we ascend mountains may be fairly stated at one degree of Fahrenheit's thermometer for every 300 feet of elevation. So that in the middle of the north temperate zone an elevation above sea level of 300 feet makes a place as much colder as if it were 70 miles further north. A hill in Surrey 1000 feet high has the same temperature as a place at sea level in Northumberland. A hill in the Mediterranean basin 10,000 feet high, like Etna, has the same average temperature as a place near sea level on the arctic circle. This circumstance is well illustrated by the fact that even within the tropics when we climb a mountain that is high enough we reach a zone of perpetual snow and ice. This circumstance modifies extremely the heat which different parts of the world possess in virtue of latitude, and makes the distribution of heat, in its relation to the spread of plants, not a matter that is complicated in its principles, and therefore hard to understand, but one in the application of which it is needful to learn and bear in mind a crowd of details.

In regions, therefore, which are equatorial by latitude, we pass through zones of climate corresponding to the warm-temperate, cool-temperate, and arctic in latitude before the snow-line is reached, and in this way sometimes get in a limited tract of country all the variations in average annual temperature which there are in the whole world, each zone inhabited by the plants that are fitted for that particular climate.

The zones of heat, therefore, as they really apply to the earth's surface, may be sketched out and characterised as follows, beginning with the warmest and proceeding outwards and upwards towards the poles and the mountain-tops:—

1. *A Torrid or Intertropical Zone*, including all the land within the two tropics up to about 5000 feet in height, with an average annual temperature of 75° to 82°, and summer rising but little above, and winter falling but little below the annual average.

2. *A Warm-temperate, or Subtropical Zone*, including all the country at sea level to where snow and ice come to the extent of making a winter which is really appreciable in the sense of a check to all vegetation. In the southern hemisphere this includes Natal and all Cape Colony except the hills, all extra-tropical Australia and Van Diemen's Land except the hills, the whole of New Zealand except the hills, and in America, La Plata, Buenos Ayres, the southern provinces of Brazil, and the whole of Chili, except the Andes. In the northern hemisphere it extends in Europe to about the 45th parallel of latitude, but in Asia and America scarcely beyond 35°, reaching up to about 5000 feet in the eastern, and 3000 feet in the western Himalayas, but not beyond them to the Tibetan plateau. So that north of the tropic of Cancer it includes the southern half of California, North Mexico, Texas, the Southern United States, Barbary, Egypt, and the rest of the Mediterranean basin, Asia Minor, Persia, the northern half of Arabia, the southern half of China, and India except the Peninsula. In tropical Africa the hills of the head of the Nile, Guinea, and Abyssinia reach into it and beyond it; in tropical America the mountains of Brazil and Guiana reach into it, and the Andes far overtop it; in Asia the Neilgherries and hills of Ceylon reach into it, and those of Java and Sumatra overtop it; and in Polynesia those of the Sandwich Islands far overtop it. The average annual temperature may be said to vary in round numbers from 75° to 60°, or even 55°, with the warmest month rising in the continental climates of the northern hemisphere (Barbary, Arabia, Gangetic plain) to nearly or quite as high as in the torrid zone, and the coldest month (January or July, as the case may be) not sinking below an average of 45° or 40°.

3. *A Cool-temperate Zone*, with an average annual temperature of from 60° to 40°, a winter low enough at sea-level to give a decided check to all vegetation, and a summer rising at least high enough to ripen the common cereal grains, Wheat, Oats, Rye, and Barley. In the northern hemisphere it stretches at sea-level from about the 45th parallel of latitude in Europe, and the 35th parallel in Asia and America, up to the arctic circle. So that it includes Iceland, the British islands, the Scandinavian peninsula, Denmark, the northern half of France, all Central Europe north of the Alps and Carpathians, the whole of the great Russian empire, except a narrow arctic belt, the great central plateau of Asia, the northern half of China, Japan, in America a large part of California, the Northern United States, Canada, and the British possessions up to the arctic circle. In the southern hemisphere it includes at sea-level only Patagonia, Terra del Fuego, and a few small islands, such as the Falklands, Marion Island, and Kerguelen's Land. In the zone warm temperate by latitude a great many mountain ranges rise into it; in Europe the Pyrenees, Sierra Nevada, Apennines and the hills of Corsica and Greece; in Africa, the Atlas and peaks of the Canaries; in Asia, the Himalayas up to 10,000—12,000 feet; in America, the Andes of Mexico and their northern continuation in the Rocky Mountains; in the southern hemisphere, the Andes of Chili and mountains of Cape Colony, New South Wales, Victoria and Van Diemen's Land; and in the intertropical zone, the Andes, Camaroons, mountains of Abyssinia, and the head of the Nile, and some of the Malayan and Polynesian peaks.

4. *An Arctic-alpine or Frigid Zone*, extending at sea-level from the arctic circle to the region of perpetual snow, with an average annual temperature of from 40° down to 32° or 30°, with its upper limit upon the mountains the line of perpetual snow, and its lower the line where cereal cultivation commences. In arctic latitudes this zone has a very short period of vegetation, but this character does not apply so fully where it forms a belt upon mountain ranges rising out of the warmer zones. In Lapland there is a little corn cultivation within the arctic circle; but here the

heat is raised by the same exceptional circumstances that make the climate of Britain 10° warmer than corresponding latitudes in America. In the Himalayas and tropical mountains the snow line is 15,000—17,000 feet above sea level; on the Alps, Caucasus, Apennines and Pyrenees, 9000—10,000 feet; in the south of Norway 5000 feet, and in Iceland and Lapland, 2000—3000 feet. In the Andes cereal cultivation ceases at 12,000—13,000 feet, in the Himalayas at 10,000—12,000 feet, in the Alps and Pyrenees at 5000—6000 feet, and in Britain at 1500—1800 feet.

5. *A Zone of Perpetual Snow and Ice*, into which no vegetation reaches, extending at sea-level round the two poles, and into which stretch a long sweep of the Andes, Himalayas, Alps, Rocky Mountains, Dovrefeld, and the peaks of Mount Kilimanjaro, the Sierra Nevada, Pyrenees, Balkan, Caucasus, Altai, Lebanon, Ararat, and many more northern ranges.

The following list of heights and diagrams are intended to help the mind to realise the details of the area and distribution through the world of these zones of heat:—

Approximate Heights of Mountain Ranges, &c., in English Feet.

Europe and North Africa.—Alps, 15,739; Pyrenees, 11,168; Auvergne, 6188; Sierra Nevada, 11,483; Apennines, 9521; Corsica, 8767; Etna, 10,874; Greece, 8538; Carpathians, 9912; Schnehatten, Norway, 8120; Ben Nevis, 4380; Snowdon, 3557; Iceland, 5115; Pass of St. Bernard, 8110; Atlas, 11,400; Peak of Teneriffe, 12,172; Pico, Azores, 7613.

Temperate Asia. — Kinchinjunga, Sikkim, 28,178; Mount Everest, Nepaul, 29,000; peak north of Cabul, 20,232; plateau of Tibet, 11,500; great plateau of Central Asia, 4000; Caucasus, 18,493; Ararat, 17,112; Altai, 11,062; Horeb, 9517; Sinai, 7498; Ural, 5397; Ladak town, Tibet, 9915; Darjeeling, 7165; highest villages in Kumaon, 13,000; Aleutian Isles, 8593.

Temperate North America.—Mount St. Elias, Russian America, 17,850; Fremont's Peak, Rocky Mountains, 13,570; Mount Jefferson, Rocky Mountains, 15,000; Mount Whitney, California, 15,000; great plateau of California, 6000; Alleghanies, 6476; White Mountains, New Hampshire, 6428.

Temperate South America.—Aconcagua, Chilian Andes, 23,910; Mount Stokes, Patagonia, 6400; Mount Sarmiento, Terra del Fuego, 6900; Mount Erebus, antarctic continent, 12,400.

Australia and New Zealand.—Mount Edgecumbe, New Zealand, 9630; Mount Egmont, New Zealand, 8840; Victorian Alps, 6500; Mount Kosciusko, New South Wales, 7176; Mount Lindsay, Queensland, 5700.

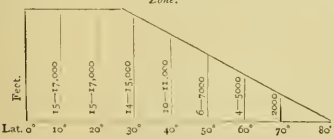
South Africa.—Table Mountain, 3816; Winterberg, 7000; Sneewbergen, Graaf Reinet, 7000—8000.

Tropical Africa. — Mount Kilimanjaro, 20,068; Abyssinia, 15,008; Madagascar, 11,506; Bourbon, 8340; Camaroons, 13,760; Fogo, Cape Verdes, 9154; Fernando Po, 9469.

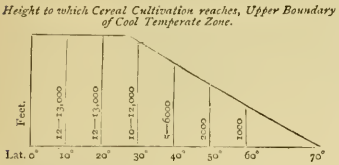
Tropical Asia and Polynesia.—Adam's Peak, Ceylon, 6152; Mount Slamat, Java, 11,930; Mount Ophir, Sumatra, 13,840; Mouna Roa, Sandwich Isles, 13,953; Neilgherries, 9000; Pulnies, 8000.

Tropical America.—Popocatepl, 17,717; Orizaba, 17,374; Volcan de Fuego, Guatemala, 13,160; Roraima, Guiana, 7450; Chimborazo, 21,424; Illimani, Bolivia, 21,140; Sahama, Peruvian Andes, 22,350; Titicaca plateau and lake, 12,847; Quito plateau and city, 9543; Mexico plateau and city, 7570; Santa Fé de Bogota city, 8730; Central Brazil, 7800; Blue Mountains, Jamaica, 7277; post station of Rumihuasi, Peruvian Andes.

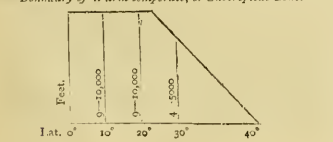
Height of Snow Line in feet, Upper Boundary of Arctic-Alpine Zone.



Height to which Cereal Cultivation reaches, Upper Boundary of Cool Temperate Zone.



Height up to which Vegetation is not checked by Winter, Upper Boundary of Warm-temperate, or Subtropical Zone.



—*J. G. B.*

GREENHOUSE PLANTS.—XX.

THEIR CULTURE AND MANAGEMENT.

Roella ciliata.—This is a native of the Cape; it has been long grown in a few collections of hard-wooded plants, but from its very distinct general habit, and the uncommon colour of its flowers, it seems strange that it has not been more frequently met with, especially as used for general decoration—its flowers, from their very unusual colour, associating well with almost any other plants. It is a free grower, but requires to be carefully looked after in respect to mildew, to which it is very subject, especially in the winter season, if kept in too low a temperature; in fact, to attempt to winter it in a chilly damp atmosphere is to court almost certain destruction. There is one peculiarity natural to this plant that some persons object to, its very small leaves are produced in tufts upon the weak thread-like shoots, and to each little bunch is one, a sort of guard-leaf, much longer than the rest, which whilst still young, and a full year or more before the others decay, turns brown, but is still retained upon the plant—giving it a rusty appearance; and if the plant is ill-grown, or kept too cold through the winter, this rusty appearance is increased. When, however, a well-flowered example is met with, its remarkable white purple-tipped blossoms, covering the surface almost so as to touch each other, effectually hide any brown appearance the foliage may have.

The plant never attains a size such as to render it unfit for growing, even where the room at command is limited. It requires good fibrous peat to grow it well, with one-sixth of sand added. It is a free-rooting subject, much more so than its general appearance would lead to suppose. Those commencing its culture should select healthy plants in 6-inch pots; at the end of February or beginning of March, move them into pots 2 inches larger, give 2 inches of drainage, and pot firmly, placing to them at the same time sufficient sticks for their support, running the sticks as far as possible into the new soil so as not to injure the roots.

The plant will flower in even the smallest state, but whilst young the flowers should be removed as soon as formed. This is generally all that is required in the shape of stopping, as it is a very even grower, not often making any over-strong shoots, but if such should appear they must be shortened back. Admit no side air for two or three weeks, and keep the stage on which they stand damped during sunny weather, shading a little when very bright, but do not syringe overhead. The plants, if all goes well, will quickly take to the new soil. Attend to them properly with water, but on no account give it before it is required, as this, in common with most plants indigenous to the Cape, is impatient of too much moisture at the roots. Keep in a good airy house or pit near the glass, for it is especially a light-loving subject, that will not do well if crowded or shaded by other plants. Close the house early in the afternoon whilst the sun is on the glass through the spring months; through the summer admit plenty of air during the daytime, continuing to damp the stages and sides of the pots when the house is closed, but do not wet the plants overhead, for they are in no way benefited thereby, and the effects of water on the young growth renders it more liable to mildew.

By the end of July some of the strongest plants may probably have so far filled the pots with roots as to warrant a second potting; but in the case of any but the strongest it will not be required, and had better not be attempted, for if the roots do not exist in sufficient numbers, so as to enter this new soil in quantity before winter, it is apt to get sour, thereby inducing an unhealthy condition from which few plants will after recover. Give the most vigorous a 2-inch shift, using, as before, good peat, with a similar proportion of sand, as advised for the early potting. By August, most likely, they will set flowers upon the points of all the shoots; these, as soon as formed, should be picked off. By the middle of August discontinue early closing, and leave air on in the night during the succeeding month to ripen up the growth. Keep them quite cool through October, after which the house must be closed during the night, or the plants may get chilled. Most likely they will again show bloom, which must be picked off, or it would come in at a time when of little use, and seriously interfere with the next season's growth. They must be wintered at the warmest end of the hard-wooded house, if there is not other accommodation for them; but they will do much better if they can be placed where they can receive from 40° to 45° in the night, until the temperature is brought up to that by solar heat, as this subject cannot bear without injury so low a temperature as many plants indigenous to the same country. Tie them nicely, so as to keep their branches in the required position, for it is naturally procumbent in growth, and if not tied up it will lie over the pot in a way calculated to both receive injury and have an unsightly appearance. Again, about the beginning of March, repot; the strongest will bear moving into pots 3 inches larger; to such as are weaker do not give more than a couple of inches more room. Now, as the plants get stronger, use the soil a little more lumpy—it will do broken about the size of Walnuts. As before, tie the branches out to the rim of the pot; after potting treat as in the preceding season as to moisture, and keeping the house for a few weeks a little closer, until the roots have begun to take to the soil, as also in closing with sun-heat and moisture.

It is now time to decide what is to be done with the plants in regard to allowing all or a portion to flower. If the whole are grown simply for decorative purposes, then it is best to allow them to bloom, which they will do freely from the points of every shoot. If some are required to be grown on larger, these should without delay again have their flowers removed as soon as they are formed. Those that are allowed to flower may, when in bloom, be removed to the conservatory, placing them where they will receive plenty of light and not be overcrowded; as soon as they have done flowering remove them back to the hard-wooded house, and pick all the old flowers off. This is a matter of the greatest importance with this plant at all times, but more especially if they are allowed to open any during the autumn or winter; for if not immediately removed after they have decayed, they begin to mould, and will kill almost every shoot right back as far as the season's growth, and very often destroy the plant. This is a singular peculiarity to which this Roella is subject under cultivation; no doubt owing to the natural condition of the wood not being calculated to resist the effects produced by the confined atmosphere of a plant-house, which causes the flowers after they have closed to become mouldy.

After blooming, grow them on with the others that have not been allowed to flower, treating them as in the preceding season in every way, except that none will this second season require another pot. As autumn approaches, give them again more air day and night, so as to mature the wood; but not even when they get large must they be fully exposed to the open air, as the plant does not well bear such treatment, the exposure only aggravating the rusty appearance of the leaves, without in any way benefiting it.

A full crop of flowers will no doubt be again formed this autumn, which should be removed, wintering the plants in a temperature similar to such as recommended the previous season, near the glass in a light house. In the spring, about the same time as heretofore, repot again, giving them a pot, as before, 3 inches larger, which is as large a shift as this plant ever requires. After they are moved, give them the same treatment as advised for the preceding seasons; they will this year make nice young flowering specimens, and may be allowed to bloom either for conservatory decoration or for exhibition if required, where the plants, from their uncommon colour, are always effective. If wanted for showing later in the season, say about August, by taking all the flowers off in the spring they will set a second crop later on, which will come in about the time indicated. Through the autumn and winter keep as in the past years, tying them nicely into shape; pot as before, and at similar time in the spring. This season, if all has gone well with them, they will be large enough to exhibit in any collection of plants, if they are required for such purpose; and for the time to come let the general routine of their culture be similar to what has been advised through the early stages of their existence.

In the cultivation of this plant one of the principal things to be guarded against is mildew. Whenever this makes its appearance sulphur should at once be applied. The plant is little subject to the attacks of insects. If it stands so as to touch others that are affected with brown scale, or under a plant upon which this insect exists, it will get upon it, but does not increase fast, and it can be easily kept down by going over the plant with a small brush at times. This is the only insect I have ever seen it troubled with. *T. Baines, Southgate.*

CHARLES DOWNING.

AMERICA is not supposed to be so far advanced in horticultural taste as England is. This, if true, is not owing to any lack of love for it, but to the continually changing circumstances of Americans, which indicate the imprudence of large investments in gardening establishments that would fail to protect one in a rainy day. This may be remedied in time; in the meanwhile the pomological branch of horticulture has progressed amazingly, and it is doubtful whether a knowledge of fruits, or of fruit culture, is so widely and so intelligently extended in any part of the world as in America to-day.

Much of this state of things has been brought about by the public-spirited efforts of men who have laboured continually, with no thought of adequate

remuneration, but from a desire to be useful in this particular field, and to do what they can to make others work as they do. They have local pomological and fruit growers' societies in almost every State, and often several in a State, to the meetings of which in the depth of winter large numbers of people go often hundreds of miles, at a cost of from perhaps twenty-five to over a hundred dollars, simply to communicate to one another what they have learned in fruit culture. Besides this there is a national society, which meets every two years, and to which numerous members go, often coming from over 2000 miles to the meetings at their own expense, and with nothing to give or gain but a knowledge of fruits and their culture. Foremost among these men, and especially foremost in the generous disinterestedness with which he pursues the subject is Charles Downing, whose portrait we give to-day. From some of his American friends we gather that he was born at Newburgh, Orange Co., New York, on July 9, 1802, where he was educated primarily in the common school, and finally at the Academy. His brother, the elegant writer, A. J. Downing, tells us in one of his charming works that he was born in a garden amidst fruits and flowers on the banks of the Hudson, and it is presumable the same may be said of the subject of this sketch. His father had a nursery at Newburgh, and at the early age of thirteen he was taken from school to work in the nursery; although he continued to attend the school a certain portion of each year till he was eighteen years of age—a method of combining useful practical knowledge of life with literary attainments common with Americans. In 1822 he started the nursery business in Newburgh on his own account, paying especial attention to fruits and hardy wild flowers. In 1834 he took his younger brother, A. G. Downing, into partnership with him, which was continued till 1839, when the latter retired in order to devote his whole energy to landscape gardening, which, under his enthusiasm and enlightened teachings, took a tremendous start in the United States. His tragic death in 1852 will long be remembered in America as a great blow to this delightful art, while to all lovers of beautiful flowers Torrey's tribute of the pretty Lobeliaceous genus, Downingia, will be always a grateful recollection. A few years before this sad event, however, he sold out his nursery interest to Mr. Saul, and devoted himself wholly—say, about 1850—to collecting trees and grafts of all the fruits of America, for the purpose of testing their qualities and correcting their nomenclature—a monstrous work for one man to undertake. In 1869 the "march of improvement," very rapid in America, put a street through this grand specimen orchard, but not before he had been able to test 1800 varieties of Apples, over 1000 Pears, and an army of Plums, Cherries, Peaches, and other fruits. He still resides with his good wife, but no family, on a small property near the scene of his former labours.

His literary labours have been confined to fruits. In 1857 he revised his late brother's work, the *Fruits and Fruit Trees of America*; and in 1859 was issued another edition, with so much new that it may be considered an original work. The book embraces over 1000 pages. In 1872 another extensive supplement was issued. This is all that he has published in book form, but American horticultural and agricultural literature abounds with articles on pomological subjects with the familiar initials "C. D.," most of which—indeed, probably all—is freely contributed.

Personally Mr. Downing is retiring in disposition; and though his friends—all the world—can easily get all the information he has from him, he can never be prevailed on to make any public remarks. Yet there is not a man in America more welcome at horticultural meetings or gatherings, his entrance being often marked by enthusiastic applause.

CHARLES DOWNING.

A BEURRÉ CLAIRGEAU PEAR TREE.

I SEND you a photograph (see fig. 26) of a Beurré Clairgeau Pear tree growing at my place here, which is considered by every one who has seen it to be a most remarkable tree, even for Jersey, where most of the varieties of Pears come to a greater perfection than in England. It was planted eight years ago against my fruit room, and the second season produced one fruit weighing 1½ lb. Since then it has continued bearing magnificent Pears each season, and I have never picked one from it weighing less than 1 lb. in weight.

Last year I had the surface earth carefully removed and replaced with good turfy loam from a meadow, and this season [1874] the tree was allowed to bear 35 Pears, which, when gathered, turned the scale at 56½ lb. I may add that the tree is grafted on the Quince, and that the soil is a good sandy loam. At our show in October last all the leading varieties of Pears were exhibited in a manner worthy of notice. Indeed, some of the Pears quite ran out of character as regards size, and astonished our best judges. Fifty Chaumontelles were shown weighing more than 60 lb. (English weight), and the 100 containing this fifty were sold for £7 10*s*. I picked myself from five small pyramidal trees of General Todtleben eighty fruits, weighing 85 lb.; and the other varieties, such as Duchesse d'Angoulême, Beurré Bachelier, Doyenné du Comice, and Triomphe de Jodoigne, were equally large. *James Pond, The Vineries, St. Lawrence, Jersey, November*, 1874.

HALF-HOURS AT KEW.—I.

WITHOUT preface or apology, we will at once make our way to the grand Tropical Conservatory, immediately on the right as we enter the gardens from Kew Green. This house differs so entirely from the structures usually devoted to shrubs, that ever existed in Europe; hence the term greenhouse, which, as understood by gardeners, signifies a temperate conservatory. Now it is filled with plants from tropical climes, and, in the somewhat inelegant language of the garden, would be termed a stove,—a name we intend to eschew. This being our favourite among the numerous conservatories at Kew, young gardeners obtain their technical knowledge; and as the stay of the majority of them is limited to one, or at the outside two years, changes in the staff are continually taking place, consequently the difficulties in the way of attaining perfection in the cultivation of plants. Under more favourable circumstances—more permanent skilled men—we believe

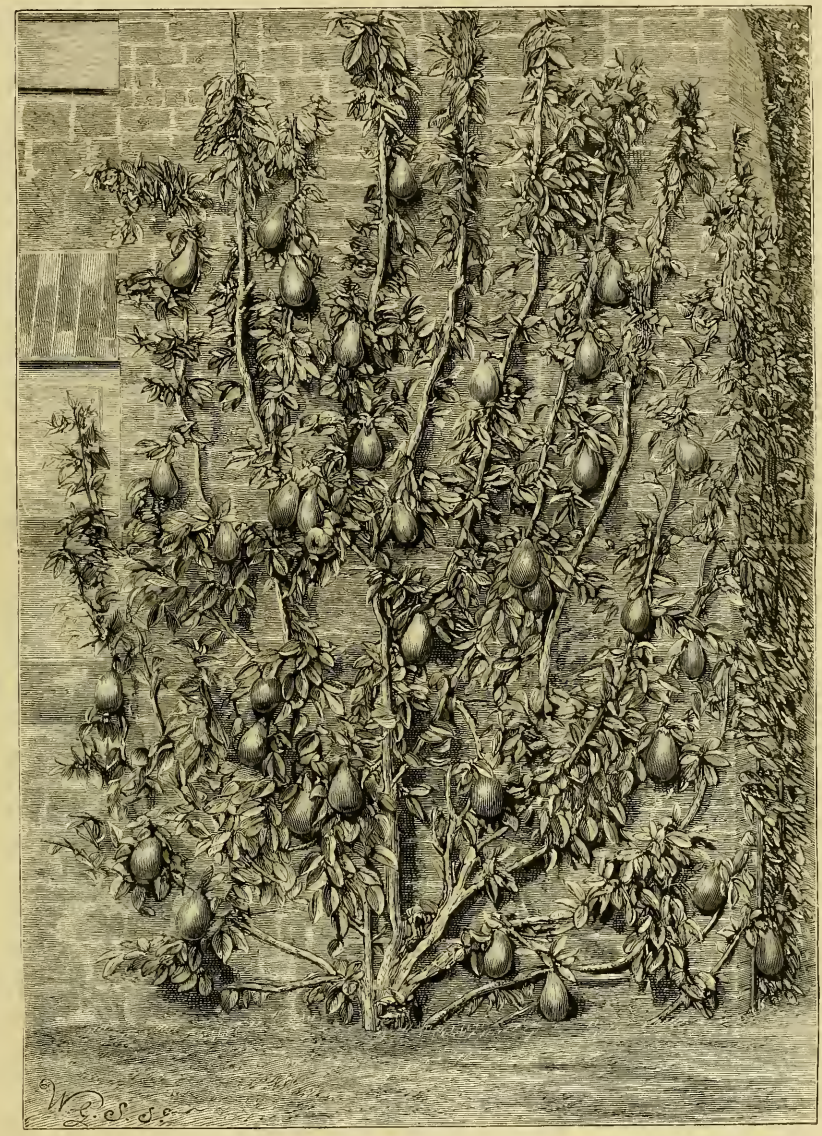


FIG. 26.—A BEURRÉ CLAIRGEAU PEAR TREE AT THE VINERIES, ST. LAWRENCE, JERSEY.

the shelter of exotic plants, that we may be pardoned for pausing a moment to admire it. In the earlier editions of the *Guide* it was called "the architectural greenhouse,"—a name appropriate enough, for, though plain in style, it has an imposing effect. It is one of three that formerly stood in the gardens of Buckingham Palace, and was removed to Kew in 1836. Formerly it was the home of perhaps the finest collection of Proteaceæ, and other Australian we ought to be able to say something to justify this preference, especially as many gardeners condemn it, and say that it is not suitable for plant growing. True it is not adapted for plants of dwarf habit, or such as need all the light we can possibly give them; but look at the health and luxuriance of many of its present occupants, and say whether it is not admirably suited for a certain class of plants. It should be remembered that Kew is a kind of school, in which that this and other collections in the establishment could be greatly improved. In support of our statement respecting the suitability of this building for plants, we may recall the world-wide fame of the Australian collection it formerly sheltered.

But to come to the consideration of the principal types of the vegetable world it now contains. The greater part of the plants before us represent three families, namely, the Aroideæ, Palmeæ, and Filices. The first of these families is represented in England

and Ireland by the familiar Lords and Ladies, or Cuckoo-fruit; and a common window plant of the same family is the Trumpet Lily, or Lily of the Nile, as it is sometimes incorrectly termed. We mention these examples to familiarise our readers with what may be termed the Aroid type; even the uninitiated in botany will at once perceive the striking resemblance the inflorescence (not flowers, as popularly termed) of many of the plants bears to that of the two species above named. This kind of inflorescence we shall shortly explain. There is also a general character about the foliage of these plants not easily mistaken, though not so evident as the form of inflorescence.

The Palmeæ, or Palms, are here represented chiefly by one genus of miniature species and young plants of others, which have scarcely assumed their characteristic features. Of Palms in general we shall speak more fully on some future occasion, when we invite our readers to accompany us through the magnificent groves of these majestic plants in the conservatory devoted more especially to their culture.

Filices, or Ferns, are present only in the arborescent form. Tree Ferns exhibit the same characters of fructification as our native species of humbler growth, the numerous genera being distinguished by curious and elegant modifications of an almost homogenous structure.

In addition to the families named, various others are represented by one or more forms, but we have directed attention at starting more particularly to those three groups, because they constitute the prominent features and the bulk of the vegetation of this tropical garden.

We may now examine some of the details of the scene before us. To do this profitably we must set about it systematically, but this does not preclude us from enjoying the general effect. On entering and casting our eyes above and around to take in a general view, we are struck with the elegant foliage pendent on either side from the girder supporting the somewhat lofty roof. Tracing the cable-like slender stem of one of them downwards to a very small pot we find it labelled Chamædorea elatior. Chamædorea constitutes an exclusively tropical American genus of Palms. About fifty species are known, many of them, however, only imperfectly, as they are usually diœcious—that is, with the male and female flowers borne on distinct plants. Taking this genus in its widest sense, the size and habits of its species are sufficiently characteristic to enable us to distinguish them. They have exceedingly slender, reed-like, annular stems, rarely attaining the length of C. elatior, and frequently not more than 5 to 10 feet, bearing a plumed head of pinnate or entire leaves. The name Chamædorea is from χαμαι (chamai), on the ground or dwarf, and δωρεα (dorea) a gift, said to be given to these Palms because their nuts are easily reached; but we have not the book at hand in which it was first published to confirm this. M. Wendland, who has probably a more extensive knowledge of Palms than any botanist of our day, refers the species usually considered as belonging to this genus to several different genera. Dr. Hooker, *Botanical Magazine*, plate 6088, under C. geonomæformis, revives the name Nunnezharia, which was given to this genus a few years earlier, and, according to the rule of priority, must take the place of the familiar and more euphonious Chamædorea. Dr. Hooker mentions, in the same place, that the plant figured is said to have borne alternately male and female flowers. This statement is worth noting, as it is by no means improbable, for within the last few years several instances of the same phenomenon have been reported from the South of Europe, where many Palms flourish in the open air. About a dozen species of these charming little Palms will be found in various parts of the house we are in. One of the handsomest, and one that has long been known in gardens, is C. Ernesti-Augusti. It rarely exceeds 6 feet in height, and its slender, flexible stem is surmounted by a crown of broad wedge-shaped leaves, about 2 feet long, and more or less deeply divided into two lobes. The branches of the inflorescence remain on the plant long after the small red flowers have fallen, and ultimately change to a beautiful bright red, giving the plant a highly ornamental appearance. C. elegans has pinnate leaves, and is of a lighter and more graceful habit. It is needless, and it would tire our readers, to mention all the species by name, but many of them are equal in beauty and grace to those described.

There is, however, one more to which we cannot forbear directing attention, though, possibly, it may not be a true Chamædorea. It is named C. glaucifolia, and is remarkable for its long, slender, finely-divided, pinnate leaves, of a glaucous green colour.

Now a word by way of recommendation of this attractive genus of miniature Palms. It will be seen that they love shade, and a moderate degree of heat is sufficient for most of them. Another advantage they possess for an ordinary conservatory is their small size; so many of the Palms have very large spreading leaves, and grow to a considerable height, and soon become too large even for the largest conservatories usually found in private establishments. It is only within the last decade or two that Palms have received the attention in this country they deserve, and, unfortunately, many of those sent out by our nurserymen are fast-growing species of large stature. We would recommend amateurs to consider this point when purchasing.

As we shall have to speak more in detail of Palms when we visit the large Palm-house, we will content ourselves now with naming a few other genera, present here as young plants. Phytelephas macrocarpa, the vegetable ivory Palm, from New Grenada, whose dense white hard seeds are used in making toys, &c.; Pritchardia pacifica, a handsome fan-leaved Palm, from the Pacific Islands; Diplothemium cœrulescens, from Brazil (observe the elegant manner in which the segments of the unfolding leaves are disposed); Hyophorbe Verschaffeltii, Seychelles; Stevensonia (Phœnicophorium) grandifolia, Seychelles; and Cocos flexnosa, an exceedingly elegant species of the Cocoa-nut genus.

There is another family so closely resembling the Palms in the foliage of some of its members, that they might easily be mistaken for true Palms. We allude to the Cyclantheæ, a small group sometimes associated with the Pandaneæ or Screw Pines. We have here two genera of this group—Carludovica and Cyclanthus. The flowers of these plants are arranged in very dense cylindrical spikes, which, when young, are enveloped in large leafy bracts—not a single spathe, as in the Palmeæ. Carludovica palmata and C. rotundifolia will be found facing the door by which we entered. The young leaves of the former species are used to make the celebrated Panama hats, further details of which will be found in the *Guide*, and specimens in No. 2 museum. This is an almost stemless species, but some of them are lofty climbers. The genus was dedicated to Charles IV., King of Spain, and Louisa his queen. Cyclanthus, from κυκλος (cyclos), a ring or circle, and ἄνθος (anthos), a flower, in allusion to the arrangement of the flowers, is remarkable as showing the transition from undivided to divided leaves. C. cristatus, at the opposite end to which we entered, on the bench to the right hand, has simple leaves, traversed longitudinally by two prominent lateral ribs instead of a central midrib, as we usually find. In some other species of this genus the leaves are divided down to the leaf-stalk or petiole into two segments.

We will conclude our visit with a view of the magnificent Tree Ferns which occupy the centre of this house. First of all let us go to the west end and admire an incomparably beautiful and healthy specimen of Cyathea insignis, a native of Jamaica, with fronds 10 or 12 feet in length, the stipes or stalks of which are clothed with long, silky, shining, silvery grey scales. This splendid Fern is alone worth a journey from London to Kew. But here are also fine examples of C. arborea and C. serra, from the same region. C. arborea is a very handsome species, sometimes met with in gardens under the name of elegans. C. serra differs widely from the other two, in its much more slender stem and smaller fronds, besides other less evident characters. One or two specimens of this species have grown so tall, that even in this house it has been necessary to lower them below the level of the floor. An experiment is being tried with these specimens to induce them to produce roots from a certain part of the stem, in order that the part beneath might be removed, and the plant, as it were, renewed; but so far it does not appear to have succeeded. This genus is the most numerous in species of the genera of Tree Ferns, and the species are widely dispersed in the tropics, extending to the Pacific Islands and New Zealand. The name is from κυαθος (cyathos), a cup, from the form the involucre (which covers the sporecases on the under side of the frond) assumes in some species. Angiopteris evecta is an enormous stemless Fern, from tropical Asia. There are two varieties here, or, as they are considered by some botanists, species. Sir W. Hooker referred the numerous forms of this Fern to one species, whilst De Vriese, a Dutch botanist, made sixty species of the same! *W. B. H.*

Foreign Correspondence.

OCAÑA: *Nov.* 20, 1874.—Many scientific men and illustrious horticulturists know well the place called Ocaña, in the United States of Columbia, formerly known as New Grenada, about 80 leagues from Barranquilla, a town of about 18,000 inhabitants, and where about a dozen steamers have been established to carry on the import and export trades: the boat runs up the large River Magdalena, reaching Ocaña in about four days. At about half-an-hour's walk from the steamer you reach a small village called Puerto Nacional, where provision must be made for the journey to Ocaña, a distance of 18 leagues, which takes about two days' easy riding. This town was founded in the year 1572 by Francisco Hernandez, a Spaniard, who settled among the Carátes Indians, at a place called Santanade Hacari, about half-an-hour's ride from here. The Indians conspired together to kill him; he escaped, however, and shortly afterwards founded the town of Ocaña, which he named New Madrid. The town now contains about 8000 inhabitants, and the State of Santander, in which it stands, has in agriculture and other industries made far greater progress than any of the other States in this country.

Approaching the town, the aspect is somewhat dreary—all around are naked mountains and hills with little or no vegetation. The houses are built in the Spanish style — low and whitewashed, with small windows and large doors, under wide corridors.

The two small rivers, Rio Grande on the right, and the Cuebrada Seca on the left, come down from the mountains behind the town, supplying the town with water as clear as crystal. The town is situated at an elevation of about 5600 feet, and is surrounded by mountains, which reach to a height of 8000 feet. The mountains to the west are clothed with luxuriant vegetation and an almost impenetrable forest. To the east the forests are found less, beginning at about a day's journey from here.

Several of the earlier, and even more recent, botanists and naturalists, sent out either by some scientific society, botanic garden, well-known firms, or men who take great interest in the progress of scientific horticulture, know this place well; they have explored the deepest and thickest forests for many miles around here, and quantities of good plants, principally Orchids, have been sent from here for many years.

The people still remember many of those who have passed here, as Mr. J. Linden, L. Schlim, Warscewicz, F. Engel, H. Blunt, Brown, G. Wallis, "A. B.," B. Roezl, A. Wheeler, &c. Louis Schlim was one of the first to explore the mountains around here, and there are few places that I have visited where the people have not told me he had been there too. He passed his time most industriously, but was never recompensed for his labour, and the chagrin caused by this ingratitude brought him to the tomb at an early age.

The climate of Ocaña is very mild, fresh, and healthy; the medium temperature is from 15° to 18° Reaumur nearly the whole year round, being neither too hot nor too cold. The summer begins in the month of December, when the sky is of a deep blue; at night the stars shine so brightly that you can see your own shadow, and it never becomes so dark but that you can see. During this month everywhere is festivity and enjoyment, crackers and other fireworks being let off every night. The bells of the churches are ringing from early morning till late at night, and great processions, accompanied with fireworks, pass slowly through the streets; the people have such an aversion to work this month that it is difficult to get a boy to bring water for household purposes.

The principal exports are Coffee, about 100,000 sacks; medicinal plants, Onions, Aniseed, hides, &c. Peruvian bark has lately become an important item. The importations are gradually increasing, amounting at the present time to about 2,000,000 dols. worth of various European merchandise.

I do not think that for healthiness any other part of the world can be compared to Ocaña, it is, in fact, one continual spring. At present there are only five foreigners here. In my next letter I will give a few remarks on the culture of Coffee and other vegetable productions. *Albert Bruchmüller.*

THE CRANBERRY.—I think that the Cranberry plant might, as you remark in a leading article, be grown with great advantage in the bogs of England, Scotland, and Ireland, judging from my late investigation into the cause of Cranberry rot. Vines can be purchased in this country at 3 dols. per barrel (12*s.*), and if the bog land were properly prepared, would yield a handsome profit to the cultivator, and give considerable employment to the poor of the respective named countries. I am a native of Perth, Scotland, and, therefore, understand pretty well the character of the climate. The very high temperature here, up in the nineties, is what induces the great fermentation in the bog land, and causes rot by destroying the healthy growth of the plant. I intend following up the subject in another paper and more at length. *Thomas Taylor, Washington, U.S., Nov.* 1, 1874.

ST. PETERSBURG: *Jan.* 21.—For the last fortnight we have had the thermometer never above —20° Fahr. (52° of frost!) The windows of our rooms are covered with ice, although by means of our stoves we contrive to maintain an equable temperature of 66°, or even 68° F., in spite of which we suffer from the outer cold. We are not in much apprehension for our plants, as they are covered sufficiently thickly with snow to escape injury. *W.*

Forestry.

THE remarkable feature in the timber trade of the last year is the increase in the quantity of lower quality goods, and the small sizes that are now becoming so common, which some few years back would not have been worth the labour expended on them, if not absolutely valueless for building purposes. Waney and sappy as such dimensions must necessarily be, yet they are produced by some of the most extensive mills both in Norway and Sweden; indeed, they form a considerable proportion of the manufacture of the former, and manage to find buyers in this country, though for what such dimensions are really applicable it would be hard to determine. From the reports of our correspondents it appears that complaints are pretty rife as to the indifference displayed by some shippers in the way contracts made during the last season have been carried out; the departure from the clauses as to quality, sizes, and quantities, causing great dissatisfaction. The merchant here has little or no check on the importers beyond the character of the house with which he deals, but we are sorry to say that many large firms abroad are not so particular in carrying out their engagements now as formerly, considering that it is mainly the repute of the high classification of their goods that gains them the preference.

From advices we learn that the prices of stocks for F. O. W. shipments will be at least 30 per cent. lower than they were offering this time last year, but this seems a great come-down. We hear of goods actually disposed of for spring delivery at this reduction from a reliable source, but before we can adopt this as the general decline we shall await further corroboration.

From the sources whence we draw our supplies of timber we observe no diminution in the imports during the past twelve months, and the returns, with the exception of Sweden, compare favourably with those of the previous year. In the face of such an inactive season as that of 1874, the quantity of timber brought into the country, of all kinds (hewn, split, or sawn), reached the enormous total of 6,252,641 loads, or, in round numbers, six millions and a half, amounting in value to £20,265,956; as against 1873, 5,487,113 loads, valued at £17,206,876, showing an excess in favour of 1874 of 765,528 loads, and in value more than three millions of pounds sterling; and this is most remarkable when we take into consideration the apathy displayed by the merchants here from the opening of the season till its termination. Contradictory as this appears, yet it is easily accounted for when we reflect on the vast quantity of timber that has not gone into circulation, now stored at the various large depots—a supply without parallel.

The dock returns which we publish of the stocks now lying on the premises give a total quite amazing, and this at the present time, there is very little doubt, represents so much dead capital, which under ordinary circumstances would not be lying dormant. At this time of the year it usually happens that the docks and timber yards are pretty full, and rightly so, as during the winter, while the consumption goes on, the supply from abroad ceases during an interregnum of some months, and on the home stocks we generally rely to keep us going until such time as fresh cargoes can come forward; but the quantity now is far more than sufficient for any possible demand that can be created during the period named. And it is not only to London, but to the whole of the United Kingdom that this applies; and this fact must seriously affect the spring prices, as in many instances the holders of the goods in London and elsewhere, if not obliged to realise to meet their engagements, will rather sink their profits and interest than hold over while such uncertainty about future prices prevails both here and abroad.

The quantity of wood exported from Sweden and Norway into this country during the year just expired shows a decrease from that imported in 1873, of hewn timber, 80,000; manufactured, 14,000. The difference, it can be seen at a glance, is mainly on the square timber, and not so much on deals; thus it leads us to the inference that the stocks out there were not so heavy as the year before, especially of hewn logs. The next year we may expect still less square wood from thence, as the law affecting the cutting of wood under 9 inches will be in full operation: hence it is pretty certain to react on the supply of the larger, as the quantity of undersized balks have been very considerable, and when out of the market the value of the bigger trees will be proportionately enhanced.

The supply from Germany for 1874 shows an increase of 36,616 loads or thereabouts, while from Russia we get the largest difference in favour of the past year of all the other countries, viz., 156,000 loads hewn, and of manufactured 183,000, or in round numbers 339,000 loads, without taking into account staves, which show even a greater difference. British North America, which in 1873 imported not much more than half the quantity of manufactured wood as that from Sweden and Norway, last year sent us 1,076,188 loads, as against 1,530,526 from the Scandinavian ports. The difference in favour of 1874 over 1873 may be briefly summed up thus:—

Russia	339,000 loads.
British North America	232,332 ,,
Germany	36,616 ,,
Total	607,948 ,,

607,948—very nearly the surplus 1873 showed over 1872, with the exception that Sweden in 1873 nearly doubled what she supplied the previous season, and was by far the largest contributor; while from the above summary she is entirely omitted, importing, as we before observed, less last season by about 90,000 loads. Although still holding the pride of place, Sweden is very nearly this time equalled by our American supplies, while in monetary value the approximation is not so marked—the total value of the wood imported from Sweden and Norway being £5,982,720, while that from British North America is £5,497,104, for a greater proportion of wood in comparison than the previous year. This, no doubt, is owing to the production on a large scale in Sweden and Norway of prepared flooring boards, the demand for which was pretty well maintained throughout last year.

The total value of all wood imported into Great Britain amounted to £20,265,956. *Timber Trades Journal.*

Notices of Books.

On British Wild Flowers considered in Relation to Insects. By Sir John Lubbock, Bart., M.P., F.R.S. (Nature Series.) Macmillan & Co., 1875.

Thanks to Mr. Darwin's writings, and to the lecture delivered by Sir John Lubbock at the Belfast meeting of the British Association, the fertilisation of flowers by the agency of insects can now be included within the domain of popular science; and we have here a very pleasant and readable survey of the present state of our knowledge as far as relates to British wild flowers. Without claiming any important original observations of his own, Sir John Lubbock sums up the results arrived at by other workers in the field, especially Sprengel, Axell, Darwin, Hildebrand, Delpino, and the two Müllers; a specially interesting portion of the volume, and one which the author's scientific knowledge well enables him to popularise, being the description, illustrated with numerous drawings, of the arrangement of the hairs on the thighs and bodies of various classes of insects, by which they are enabled to carry the pollen from flower to flower.

With reference to the historical part of the subject, we may remark that, while ample justice is now done to the acuteness and accuracy of Sprengel's observations in his *Befruchtung der Blumen durch Insekten, und die gegenseitigen anpassungen beider*, published in 1793, the greater number of writers have almost altogether lost sight of the still earlier researches in the same field of Kölreuter, who published his *Vorläufige Nachricht von einigen das Geschlecht der Pflanzen betreffenden Versuchen und Beobachtungen*, in 1761. In this little treatise Kölreuter records his observation that the pollination of the castor-oil plant is largely due to insects; and further that, especially in the case of Irideæ, in which he first detected the true stigmatic surface, the structure of the various parts of the flower clearly shows that the pollen can reach the stigma neither spontaneously nor by the action of the wind. Again, we find but little recognition of the light held up during the "dark ages" that intervened between Sprengel and Darwin, by Andrew Knight, who clearly propounded, in 1799, the doctrine that "no plant self-fertilises itself for a perpetuity of generations"—a theorem which, although Darwin fully credits it to Knight, is attributed, even by Hildebrand, to Darwin.

On the volume before us we have only one slight remark to make in the way of criticism, and that is a regret that Sir John has introduced the terms "proterandrous" and "proterogynous" instead of "protandrous" and "protogynous." A philologist might possibly prefer the former, but we are not purists in the matter of scientific terms; and the latter have become so generally accepted in both English and German literature, besides being less cumbrous, that we think they may fairly be allowed to stand. A few slight *errata* would naturally disappear in a second edition, and a very critical reader might demur to the statement that Plumbago europæa is "allied" to Plantago major. The little volume is one for which the reputation of the author will doubtless secure for it as large a circulation as it deserves; and we trust it may be the means of awakening in many a family circle an intelligent interest in this interesting branch of natural history.

The Civil Laws of France to the Present Time; *supplemented by Notes illustrative of the Analogy between the Rules of the Code Napoléon and the Leading Principles of the Roman Law.* By David Mitchell Aird, Esq., Barrister-at-Law, of the Middle Temple. London: Longmans.

This handy volume, dedicated by permission to the Lord Chief Justice of England, is a translation of the famous Code Napoléon, so far as it relates to civil law. It is not within our province to criticise it from the legal point of view, but a code which is so clear and comprehensive as to have been very widely adopted by other nations, and which embodies in a form adapted to modern civilisation the principles of the Roman law, has an interest about it which all intelligent readers may turn to practical account. Mr. Aird's volume is divided into three books—1. Of Persons, containing eleven chapters; 2. Of Property, containing five chapters; 3. Of the Different Modes of Acquiring Property, containing twenty-nine chapters. The analogy existing between the Roman and French law is shown by explanatory notes at the foot of the page. We quote a portion of the section relating to "Party Walls and Ditches" as being a topic of interest to our readers, and also as furnishing an illustration of the style of the book, which we commend to the general reader as giving an insight into the principles upon which right and wrong are governed.

"All ditches that separate two estates are presumed to belong to both owners, if there is no deed or sign to the contrary. It is a proof that the ditch is not in common when the bank or earth is thrown up on one side only, and then the ditch is deemed to belong to him on whose side the earth is thrown up. A party-ditch is kept up at the expense of both parties. Every hedge that separates two estates is deemed in common unless only one of the estates is enclosed, or a deed or prescriptive right proves the contrary.

"Trees of large growth cannot be planted except at given distance from each estate prescribed by rules relating to them, or by usual and well-known customs; and in the absence of rules and customs, large trees must not be planted nearer than 6 feet from the line separating two estates, and half the distance for other trees and live hedges. When planted nearer, the adjoining owner may order them to be pulled up. An owner whose property is overhung by the branches of his neighbour's trees may compel him to cut off such branches; and if the roots encroach upon his property he has a right to remove them.

"Trees growing in a party-hedge are, like the hedge, deemed in common, and either of the owners may insist on their being cut down."

THE FADING FLOWER.

(FROM THE JAPANESE.)

I wandered where the sweetness of summer made completeness,
And all the woods were blushing with the fiery glow of flowers,
When softest winds were blowing, and songful streams were flowing,
And sped, alas! too swiftly the honey-laden hours.

I found amid the splendour a little bud so tender
I trembled with a thrill of joy I ne'er had known before;
Like one in a sad story who turns a page of glory,
Or shipwrecked sailor nearing a smooth Palm-planted shore.

With pride beyond all telling I bore it to my dwelling,
And placed it where it shone like star in night's engulphing gloom,
And there through years of gladness, or weariness and sadness,
It filled with Heaven's own lustre the lonely little room.

Now, though its leaves grow crisper, and cruel voices whisper
The flower has lost its beauty and groweth dim and old,
To me it beams as brightly as when first it quivered lightly
In morning's dewy freshness, when the distant hills were gold.

Kajin, in "Japan Mail."

HORTICULTURAL EXHIBITIONS, 1875.

FEBRUARY.

17.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.

MARCH.

3.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.
10 and 11.—Leeds Horticultural Gardens Company. Spring Flower Show. Sec. and Manager, James Birbeck, 103, Hyde Park Road, Leeds.
16.—Manchester Botanical and Horticultural Society's Floral Meeting in the Town Hall. Manager, Bruce Findlay.
17.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees. Hyacinth Show.
24.—Glasgow and West of Scotland Horticultural Society. Spring Exhibition. Sec., F. G. Dougall, 167, Canning Street, Glasgow.
31.—Royal Botanic Society, Regent's Park. Spring Show. Sec., W. Sowerby.

APRIL.

7.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.
21.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees. Early Rhododendron Show.
22.—Royal Horticultural Society of Ireland. Spring Exhibition. Sec., A. Balfe, 28, Westland Row, Dublin.
17.—Manchester Botanical and Horticultural Society. Exhibition of Auriculas, &c., in the Town Hall. Manager, Bruce Findlay.
28.—Royal Botanic Society, Regent's Park. Spring Show. Sec., W. Sowerby.

MAY.

1 to 24.—Royal Botanic Society, Regent's Park. Special Exhibition of Clematis, by Mr. G. Jackman.
12.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees. Pot Rose Show.
20.—Royal Horticultural Society of Ireland. Early Summer Exhibition. Sec., A. Balfe, 28, Westland Row, Dublin.
14 to 21.—Manchester Botanical and Horticultural Society's Annual National Exhibition, at the Garden, Old Trafford. Manager, Bruce Findlay.
22.—Crystal Palace Great Flower Show. Sec., F. W. Wilson.
26.—Royal Botanic Society, Regent's Park. Summer Exhibition. Sec., W. Sowerby.
26.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.

THE
Gardeners' Chronicle.
SATURDAY, JANUARY 30, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Feb. 1	Meeting of the Entomological Society, at 7 P.M. Sale of Lilies, Seeds, Ferns, Cycads, &c., at Stevens' Rooms.
TUESDAY,	Feb. 2	Sale of 300 Pens of Poultry and Pigeons, at Stevens' Rooms.
WEDNESDAY,	Feb. 3	Royal Horticultural Society: Lecture at 8 P.M. Sale of Trees and Shrubs, Fruit Trees, Roses, Bulbs, &c., at Stevens' Rooms.
THURSDAY,	Feb. 4	Meeting of the Linnean Society, at 8 P.M.
SATURDAY,	Feb. 6	Sale of Roses, Conifers, Shrubs, Bulbs, &c., at Stevens' Rooms.

FOLLOWING the example of the German Government, that of Belgium has enacted a decree forbidding the IMPORTATION OF AMERICAN POTATOS. This is so serious and important a matter that we trust our entomologists will be enabled to tell us definitely whether or no such precautions are necessary. The presumed necessity arises from the scourge occasioned in many of the States of the American Union by the ravages of the so-called "Colorado bug." This insect, which was described in our columns, p. 55, vol. i., 1874, was apparently first introduced from the southern districts of the Rocky Mountains, where it feeds on a prickly-leaved species of Solanum. From this starting point it has gradually spread over the American continent from west to east and from south to north. In such profusion does it occur that at the last Scientific Committee meeting Mr. ANDREW MURRAY stated that from one haulm in Canada he could have collected two handfuls of the beetle. Neither the dry heat of the south-western States, nor the intense cold of a Canadian winter checks its progress. Brood after brood is produced during one and the same season. The eggs of the insect are deposited on the under-surface of the leaves, where, in the course of five or six days, the larvæ are hatched, and commence their work of destruction. After some seventeen days the grub disappears below the soil, there to become a chrysalis or pupa, which, in its turn, developes into the perfect insect.

When once a field of Potatos has been attacked, all hope of a harvest must be given up; in a few days it is changed into an arid waste—a mere mass of dried up stalks. Against the ravages of this destructive pest, Paris-green—an arsenite of copper and highly poisonous—is employed. It is dusted over the haulm and destroys the insect, but is too dangerous a remedy to be safely used. Handpicking is the sole resource yet known, and this must not only be inadequate, but is stated to produce serious inflammation on the hands.

Now comes the question, Are we in this country likely to make the acquaintance of this most undesirable visitor? We cannot but fear that we are, nevertheless we do not think the case is one for panic—even if that be ever admissible.

When our Board of Trade was memorialised on the subject, they returned for answer that as the larvæ or eggs of the Colorado beetle are not deposited on the tubers, there was no reason to forbid the importation of American seed Potatos. The pupæ might, however, be introduced with soil adhering to the tubers, and in other ways, so that an immersion of all American tubers in a solution of sulphate of copper, and thorough washing, might at least be used as a matter of precaution. There is but little fear of the insect being introduced with the haulm, as that so speedily rots and decays that it is rarely, if ever, sent over even as package.

For most of what we know definitely about the beetle and its habits, we are indebted to Mr. C. V. RILEY, the State Entomologist of Missouri, and we cannot do better than repeat what this eminent entomologist has published on the subject. It will be seen from Mr. RILEY's remarks that there is little fear of importing the insect with the tubers, though other sources of infection are, unhappily, abundant.

"That there will be danger," says Mr. RILEY, "of the insect finding its way to Europe when once it reaches the Atlantic seaboard, no one can doubt, for the impregnated female will live for weeks, and even months, without food, especially in the spring and autumn, when they also take most readily to wing. Such females, alighting on outward bound vessels, may easily be given free passage to European ports, and, as they will be apt to land without passports, it would be well for the authorities to look out for and prevent such unwelcome incursions. I do not think that there is danger of the insect being carried across the ocean in any other way, for Potato plants on which the eggs or larvæ might be carried are not articles of commercial exchange, and seed Potatos do not, as a rule, harbour the beetles. Let our European friends profit by our sad experience with this insect, and, taking time by the forelock, endeavour to prevent its introduction into their Potato fields. The end will best be accomplished through the agricultural and horticultural societies, which should make provision for the dissemination of correct information concerning the pest. A small card, giving a coloured figure of the beetle, or of all stages of the insect, setting forth the disasters which would follow its introduction, and appealing to the reader to assist in preventing such a calamity, would do good service, if posted in the cabins of vessels plying between the two countries, in the warehouses and seed-stores of seaport towns, and in the meeting-rooms of agricultural societies." Some such simple means of familiarising the public with a possible enemy should be adopted in a country like Ireland, which will perhaps be the first to receive the pest, and would suffer most from it.

—— WE learn that in addition to the Silver Medal forwarded through the Italian Embassy by the Royal Tuscan Horticultural Society, Dr. MOORE, of Glasnevin, has also received two very handsome gold medals, one of which is, we believe, intended to be in recognition of raising his famous hybrid Sarracenia—the first successful attempt of the kind, and the other to mark their sense of Dr. MOORE's kindness as well as ingenuity in transporting safely from Dublin to Florence the fine specimen of the Lattice plant of Madagascar—Ouvirandra fenestralis, which was quite a novelty in Italy, and an object of much interest at the Congress.

—— The illustration we give this week (fig. 27) represents a view, taken in early spring, in the grounds of the veteran botanist, M. THURET, of Antibes, on the shores of the Mediterranean, near Nice. Neither photography nor the art of wood engraving can adequately represent the gorgeous glow of this mass of ANEMONES. If green turf, in our English sense of the term, be wanting, or nearly so, in the delicious Mediterranean regions, the residents have at least no slight compensation in the Anemones, the Squills, the Gladioli, the Irises, the Ornithogalums, the Tulips, and the many splendid plants which in succession occupy what would with us be the lawns. Lest our artist may be credited, by those who have never seen Anemones growing wild in this profusion, with exaggeration, we may add that the engraving is an accurate transcript from an exquisite photograph taken by M. BORNET, who is as skilful with the camera as with the microscope, and for which we are indebted to the kindness of M. THURET.

—— The twentieth annual session of the Western New York Horticultural Society was opened on the 6th inst., under the presidency of Mr. P. BARRY. The practical nature of the discussions may be gathered from the following list, which we extract from a Rochester paper:—

1. How can the fertility of large orchards be most economically maintained?
2. What variety of Apples, according to the latest experience, can be recommended for extensive market orchards in Western New York, for shipping?
3. Will the experience in Pear culture thus far in Western New York justify the Society in recommending the planting of large orchards for profit? Can dwarf Pear trees, or Pear trees on Quince stock be recommended for profitable culture? What varieties can be recommended to be grown as standards, for profit, and what as dwarf?
4. Would it be advisable for societies or individuals interested in Pear culture to combine in offering a large reward for the discovery of the cause of the disease known as "fire blight," and a practical remedy for the same?
5. What is the best kind of package for shipment of Pears to distant markets?
6. Can this Society so far influence coopers as to have all fruit barrels made of legal size?
7. Can any action be taken by this Society to induce railroad companies to transport fruit on the same terms as any other farm product?
8. Can unity of action be secured among fruit growers for the destruction of the Codlin moth? What remedies for that and other insects injurious to Apples have been tried, and with what results?
9. Can the Blackberry be recommended for extensive cultivation as a market fruit, and if so, what variety?
10. Has the introduction of new varieties of fruit within the past twenty years been productive of any real advantage to the public?
11. What new varieties of fruit have given promise of superior merit in 1874—Apple, Pear, Peach, Plum, Cherry, Grapes, and small fruits?
12. Planting country roads, streets, boulevards, &c., what are the most suitable trees? What the proper distance apart? Should the trees be planted in single or double rows, and be all of one sort, or mixed up, to produce the best effect? What the best time for planting?
13. Plantations for shelter—What trees most suitable, and what the most judicious arrangements as regards shelter and picturesque effect?
14. What are the best Magnolias for general planting in Western New York, and what the most favourable time for transplanting them? Does it increase the hardiness of the Chinese Magnolia to work them on the native species—acuminata.
15. What varieties of the Clematis have proved hardy and otherwise desirable for planting in Western New York?
16. As an average in years, which is most profitable—raising fruit for market, or raising farm crops and domestic animals?
17. What general selection of fruits, and proportions of each, would be best to keep up a yearly family supply?
18. What method should be adopted to secure improved varieties of fruits and vegetables?

—— The rare and chaste CATTLEYA BOGOTENSIS is now in flower in Mr. MICHAIL's collection at Cholmeley Park, Highgate. The flower measures fully 6 inches in diameter, with petals and sepals crisped, and of the purest translucent white, the latter being 3 inches long by 2 broad. The lip is also white, and beautifully stained in the interior with lemon-yellow.

—— The committee of the METROPOLITAN FLORAL SOCIETY have made arrangements for holding an autumn exhibition of flowers at the Alexandra Palace, on Tuesday and Wednesday, August 24 and 25, 1875, and "although, owing to the disastrous fire which destroyed the building, they have

been unable to hold an autumn exhibition for the past two years, as they had arranged to do, they hope that the very liberal schedule now presented will bring together as fine, if not a finer, collection of cut flowers than they have ever had. In order to induce exhibitors to come forward they have determined to abolish all entrance fees, trusting to the liberality of all growers of florists' flowers to help them by subscribing to their general funds. The committee have also determined to increase the value of their prizes for Auriculas and Carnations, which will be competed for at the Royal Botanic Society on April 28, and the Royal Horticultural Society on July 21.

—— We have to thank Mr. EYLES for the following particulars relating to REMARKABLE TREES observed in the course of his professional visits to country seats as a landscape gardener. At Cowdray Park, Midhurst, the seat of the Earl EGMONT, there are three very remarkable OAK TREES, having straight stems about 20 feet high, and of the following dimensions:—No. 1, girth at the base, 28 feet 10 inches; at 4 feet from the ground, 19 feet 4 inches. No. 2, at 4 feet from the ground, 17 feet 7 inches. No. 3, at the same height, 20 feet. These trees are planted in the park at about 100 yards apart, and so that their positions form a triangle. Their heads are very symmetrical, each with a spread of about 100 feet in diameter. In one of the deer paddocks adjoining the park is a twin Oak, one of the stems of which girths 18 feet, the other 17 feet 8 inches; the two together measuring at the base 32 feet 10 inches. They appear to be from one root, the heads forming a symmetrical whole, with a spread of branches quite 100 feet in diameter. There are also two remarkable Cedars of Lebanon, growing on the lawn in front of the mansion, measuring 16 feet 3 inches in diameter at 3 feet from the ground; and a Silver Fir in close proximity, measuring 12 feet 4 inches at 3 feet from the ground. This tree cannot be less than from 100 to 120 feet high, and perfectly straight. A similar tree, which was blown down in the deer paddock, measured 11 feet 9 inches in girth, and was quite 100 feet long; the middle portion was quite decayed, leaving only about 1½ inch sound wood on the outside—this made a clean sweep of everything in its way in falling. There is an avenue of Spanish Chestnuts just inside the park, containing many specimens of remarkable size, and some with very curiously twisted stems; also another avenue of Planes and Limes, specimens of the former exhibiting the most grotesque forms of growth, and many of the latter being of large size, and covered with tufts of Mistleto. A lover of arboriculture would find these trees well worth inspection.

—— During the severe frost we (*Irish Farmers' Gazette*) saw the fine mass of SARRACENIA PURPUREA which has now been growing out-of-doors for some years in the bit of artificial bog in the Glasnevin Botanic Gardens, with its toes (roots) literally in an ice-pail, the water surrounding it being completely frozen, and skaters disporting themselves alongside it.

FIG. 27.—SCARLET ANEMONES ON THE MEDITERRANEAN COAST. (SEE P. 144.)

We have seen it since nearly submerged, apparently enjoying its cold bath, and looking quite hale and happy, refusing alike to be either frozen or drowned. In fact, it is evidently one of the hardiest of hardy plants.

—— The hardiness of LAPAGERIA ROSEA ALBA has been put to a severe test at Gunnersbury, during the severe wintry weather that characterised the opening year. A vigorous shoot from a plant growing along the roof of a small span-roofed house thrust itself through an opening in the woodwork, and was nailed on the outside of the house on an open north aspect. Not a trace of injury appears to have been received: the shoot appears to be as fresh and healthy as any inside the house, notwithstanding the exposure during such inclement weather.

—— We learn from Mr. GREEN, of Holmesdale Road, Reigate, late gardener to W. W. SAUNDERS, Esq., that some of the species of XEROTES have been uninjured in the open air, though exposed to 20° of frost. At Kew, X. longifolia has also remained uninjured, though, curiously enough, it has succumbed at Reigate.

—— We are requested to state that the Rev. H. H. DOMBRAIN, Westwell Vicarage, Ashford, Kent, is the secretary to the fund for providing assistance for the family of the late Mr. C. N. THOMPSON—late sub-editor of the *Journal of Horticulture*. We trust that for the sake of the memory of the THOMPSONS (father and son), and for the sake of the sore-stricken family of the latter, Mr. DOMBRAIN'S labours will not be light.

—— M. J. GIRARD-COL, of Clermont Ferrand, France, sends us a specimen of a very neat and inexpensive ZINC LABEL for plants, and which is highly spoken of for durability. They are in use in many of the principal establishments of France.

—— We understand that Mr. SMYTHE, who for for the last nineteen years has had the management of the gardens at Elmham Hall, Norfolk, will shortly retire from that post, in consequence of the death of his late employer, Lord SONDES. Mr. SMYTHE has given great satisfaction while at Elmham, and we trust he will soon meet with an engagement worthy of his abilities.

—— A handsome silver epergne or centrepiece has recently been presented to Mr. ALEXANDER JONES, for five years hon. secretary to the EALING, ACTON, and HANWELL HORTICULTURAL SOCIETY, by the subscribers to the same, in recognition of his great services to the Society during that period. The presentation was made by the President of the Society, the Right Hon. S. H. WALPOLE, M.P., on the occasion of a complimentary dinner to Mr. JONES at the Criterion Restaurant, Piccadilly. The table decorations, which were of an extremely elegant and appropriate character, were kindly supplied by Mr. JOHN WILLS, who also furnished some fine exotic flowers with which to embellish the epergne.

—— According to M. CLOS, the cultivation of the Potato was begun in France at Arras in 1588, by CH. DE L'ECLUSE (Clusius). In some districts of France it was not till after 1832 that their cultivation became general, a landlord of Sorèze having had to compel his tenants to grow Potatos on pain of eviction.

—— A fine NEW and undescribed SPECIES OF DRACÆNA is flowering in the Palm-house at Kew, and will doubtless shortly be published. This specimen is about 12 feet high, a single stem supporting a fine crown of leaves, from among which spring several axillary panicles. The leaves are more than a yard long, linear-lanceolate, and spread with a gentle curve, showing on the under-side an ornamental pale yellow quill-like midrib. The panicles are erect, with spicate branches, either single or in twos or threes, from the same point, bearing small flowers in dense fascicles. They are pale yellow, and have a peculiar but not agreeable smell. It is most likely an African species: a plant sent by Mr. G. MANN, in 1862, is apparently the same. The nearest relative is D. fragrans, native of Guinea and Sierra Leone, of which a fine specimen near at hand is coming into flower. Of this the panicles are all terminal, with few branches, and reddish heads of flower-buds. The leaves are about 2 feet in length, and are without a coloured midrib. It may be worth remark that D. latifolia is frequently cultivated for D. fragrans.

—— The subject of the next evening lecture at the Royal Horticultural Society, to be given on February 3, is announced to be FUNGI AS CAUSES OF DISEASE, REAL OR SUPPOSED, by the Rev. M. J. BERKELEY.

—— At a general meeting of the Highland and Agricultural Society, held on January 20, it was announced, in connection with the forestry department, that the premiums awarded in 1874 were a medium gold medal to each of the following:—1, L. Bayne, forester, Kinmel Park, Abergele, North Wales, for a Report on Planting Exposed Land; 2, R. Hutchinson, of Carlowrie, Kirkliston, for a Report on the Cedrus Deodara; 3, A. Gilchrist, forester, Urie, Stonehaven, for a Report on Natural Coppice Wood of other species than Oak; 4, J. Nisbet, Probationer for H.M. Indian Forest Service, Hanover, for a Report on the Soils and Subsoils suited for the various Species of Forest Trees; 5, W. Gilchrist, forester, Cluny Castle, Aberdeen, for a report on the same subject. The premiums to be offered during the present year are:—On Extensive Planting by Proprietors, £10; on the General Management of Plantations by Practical Foresters, £10; on Planting on Peat Bog, £5; on Forest Trees of Recent Introduction, £5; on the Value for Economical Purposes of Corsican Fir, £5; on the Pinus Pinaster, or Cluster Pine, £5; on the Effects Produced on the Various Species of Forest Trees by Smoke from Public Works, £5; on Charcoal-producing Plants, £5; on Perthshire Woods, Forests, and Forestry, £10; on Ross-shire Woods, Forests, and Forestry, £10; on the Utilisation of Waste Produce of Forests and Woodlands as Matter for Making, either Separately or in Combination with other Substances, an Artificial Fuel, £10.

—— An amusing but very natural mistake is made in a recent number of a French scientific journal, when speaking of Owen's College, Manchester, which is gallicised into the "Collége de Saint-Ouen." What will our go-a-head Manchester friends say to this speedy canonisation of the founder of their new university?

—— From Messrs. VEITCH we have received (January 23) flowers of the pretty and singular HAMAMELIS ARBOREA, figured in our vol. i., 1874, p. 187. That it should flower so early is an additional recommendation.

Home Correspondence.

The Royal Horticultural Society. — The present Council of the Royal Horticultural Society came into office with the belief that their predecessors had exaggerated the difficulties of the Society, and that they were sacrificing the Society's interest in arranging with Her Majesty's Commissioners, in consideration of relief from rent and debenture interest, and something for horticulture, estimated to amount in all to about £5400 a year, to admit exhibition visitors free. They then adopted the opposite theory, that the difficulties of the Society had not been fully shown to them. My object now is not to "cry over spilt milk," but—as the Council and all connected with the Society must feel, after the late sweeping retrenchments both at South Kensington and at Chiswick, that, especially as far as horticulture is concerned, the prospects of the Society are melancholy—to urge a change which I believe would conciliate country horticulturists, and make them join and support the Society, and which would not injure the recreation ground of the resident Fellows. This is to let the resident Fellows and those wanting the use of the gardens pay their present subscription, but to admit country and other horticultural Fellows to Chiswick at all times, but at South Kensington to shows and meetings only, charging them a guinea subscription. I believe that if this plan was properly worked by country committees, thousands of new Fellows would join, and then the Society would be a national one. Unless some means are taken to bring about this result, immensely valuable land, bought with the people's money, cannot long be allowed by those who are responsible for its use for public objects to continue of the very small public use the South Kensington gardens now are. *George F. Wilson, Heatherbank, Weybridge Heath.* [We believe that some such proposal as this will be made by the Council to the ensuing general meeting, but till we have more definite information, we forbear from comment. EDS.]

Guernsey Pears.—It will, no doubt, interest growers of English fruit to hear that the six Pears exhibited by me at Kensington, which weighed together nearly 20 lb., and one single Pear of which reached, when fresh, up to 5 lb. with a girth of 20 inches, the whole grown on one small cordon tree, have been pronounced by the best Continental judges to be "very remarkable specimens." In the words of the Editor of the *Revue Horticole*, "It is a fact unparalleled," with other flattering commendations as to culture which I need not repeat. In addition to this many letters from English growers express their convictions that a single Pear of the size mentioned has never yet been seen, and, as a judge at the three largest shows ever held, and acquainted with most novelties in fruit culture for many years, such is my own opinion. What, however, I value most is the fact of these Pears having been grown on a diagonal cordon, a system I have advocated for many years—having, in fact, given it the name "diagonal" as more determinate than the French "oblique," which is too vague—and being convinced that the diagonal is far more suited for our climate than the horizontal, which last some style "toy cultivation." Be that as it may, no doubt, as Professor Decaisne said to me when reporter at the Paris Exhibition of 1867, "What, have you, too, gone into the 'corkscrew' culture? Good as it is in its place, it will never do for national use." No doubt this great authority was right, and possibly, in time, we shall get to abolish pruning altogether. At any rate we all agree that some considerable change is at hand. Neither the huge fan-trained trees of our grandfathers, nor the thin cordon alone, will fill our future expensive walls, that is to say, if these then exist, and be not superseded by cheap glass. Nor will our cultivation of standard trees be the same; for my part I have generally given it up, except for Apples. But more of this at another time. What I feel bound to add here I do with some regret, but, as it concerns exhibitors of fruit it should be said, names being suppressed. Against the recommendations of the dealer at Covent Garden, and at a sacrifice by loss of sale, I was induced to forward the Pears to a provincial show. There was no class for them, as I knew (a strange omission), but I trusted to their merit being recognised by the judges—well known men too. It would excite wonder abroad, and will now to others here, to know that not the slightest notice was taken of my Pears! The largest Pear was slightly specked near the stem, and is now ruined by the journey, the others are not much better. This is discouraging to exhibitors, and I mention it as a caution to them. Of what use is it to send to long distances objects so precious, if, for this or that reason, all the risk is useless? There is this great advantage in a central society, like the Royal Horticultural, that its decisions are uniformly fairer and more liberal, and that they are accepted with greater confidence, not only here, but abroad. And, truly, as my departed friend Hoyle used to say, "Judges require cultivation quite as much as flowers or fruits." *Liberavi animam meam! Thomas Bréhaut.*

Variegated Bedding Tropæolum Minnie Warren.—I am quite at a loss to understand why the extremely beautiful, easily cultivated, and in every way most thoroughly satisfactory foliage bedding plant, whose name I have placed at the head of this paragraph, is hardly ever seen in our gardens, where, were its beauty and great merits but once known, I cannot but think it would soon become a general and universal favourite. This charming plant was raised as far back as 1869 by Mr. Cattell, of Westerham, and when shown the next year at South Kensington was most deservedly awarded a First-class Certificate by the Floral Committee of the Royal Horticultural Society. It is accurately figured in the ninth volume of the *Floral Magazine*, plate 506, and is there described in the following terms:—"It is, as will be seen in our plate, exceedingly dwarf in character, in fact of a regular Tom Thumb habit of growth; the ground colour is green, blotched and broadly edged with pale cream, which bleaches out to pure white as the leaves reach maturity. It is perfectly constant in its variegation, and very seldom produces blossoms—another great merit in a foliage bedding plant." When, however, it does bloom and is allowed to seed, the seedlings come quite true to the beautifully variegated character of the parent plant. When bedded out with a line of Iresine Lindeni on either side, the contrast produced between the two has a most pleasing effect. *W. E. G.*

Buds on Roots of Peach Tree.—In your notice of the Scientific Committee in last Saturday's *Gardeners' Chronicle* it is stated that a letter was read "from Mr. Andrew Murray, enclosing a specimen of the roots of a Peach tree with adventitious buds proceeding from it." It was not stated if the tree in question was on its own roots, or had been budded on a Plum stock. If the latter, there is nothing extraordinary in the fact, Plum roots being ordinarily planted for the production of young stocks. *C. L., Hounslow.*

Clematis Stocks.—It may not be generally known that the root of the Clematis Vitalba (the Traveller's Joy), so common in many of our hedges, affords the best stock for grafting our garden species of Clematis on. As the season is fast approaching for the operation, a line or two may be useful. The

root, which is about as thick as a finger, and devoid of fibres, runs some yards into the bank. Unearthing it is not easy, but this done it only requires to be placed in bottom-heat for some ten days to quicken it. Lengths of 3 inches answer best; and it is somewhat singular that after the graft has taken the root changes its habit, and throws out a profusion of fibres, after which the graft makes a very rapid growth. April seems the most suitable month for the operation. I have a specimen of C. montana, grafted last year at that time, which has made 3 yards of hard wood. *B. Piffard, Hemel Hempstead.*

Covering of Walls.—The time is fast approaching when wall covering will be required. After an experience of seventeen years, I find that nothing is so well adapted (expense and efficiency considered) as Hessian. I have had to renew it twice in that time, and now it wants a third. During all these years I never missed a crop of wall fruit, excepting two seasons, owing to the covering being left off while I was absent only one night each season. Last year there was a fine "set" of standard fruit, but the destroying breath of April 29 made a clean sweep—not a Plum was left, and but a sprinkling of small fruit; whereas Nectarines, Peaches, Pears, and Plums were not only abundant, but of fine quality. I remember I sympathised with the writer of the "Notes from a Lancashire Garden." If he had only used as much Hessian as would cover his walls, he would not have had to lament a lost crop. I have often thought how improvident it is to take the trouble and spend money on walls about ten months of the twelve, and take a great deal of care to get the branches straight, &c., for against John Frost there is no protection—helpless, they are left to his merciless power. *D. Buchanan, Dyrham Park.*

The Late Severe Frost.—I have been anxiously waiting to find some account of the doings of the last new boilers during the late severe frost. Some six years since I put up a large conservatory, a plant stove, and a Fern stove, and I thought, having new houses, I would have one of the newly-invented boilers, which I did—a tubular. It began to work about October, and worked very well till the last week in November. We had a very sharp frost at the time, and I must tell you that this boiler had 2500 feet of 4-inch pipe to work—700 feet as mains before entering the houses. One night one of my men came, and called me in the middle of the night to say the boiler was leaking, which I found was the case, and all had to come out for new bars. Still, I had my fancy for the new boiler, and thought I would try it again. I had the new bars put in, and the boiler went all right for a time, when it leaked again. I still could not but think that this new system was better than the one, and I had another put in. The next winter came on, and it burst again just before the end of the year, with sharp frost at the time. Then I began to think I had ridden the hobby long enough, and decided to go back to the father of tubulars. I then had a duplex boiler put in, three winters ago, and it has done its work first-rate through the late severe frost. It takes much less fuel, and gives me plenty of heat; so no more new inventions for me. *Henry Hepburn, Scarisbrick Hall, Ormskirk.*

Paraffin Lamps.—"J. J.," in your issue of the 2d inst., inquires how I am getting on with coloured Pelargoniums. Well, there is not much the matter in respect to frost, although on the night of the 30th ult. the thermometer had been down to 10°. I cannot say so much about damp, but as my plants—that is, the pots—stand on the common garden soil with, as it were, only a glass roof over them, it is not very surprising that some few should succumb. Another season I shall make an attempt to lessen this. I enclose two or three leaves to show you that I have some colour still. *W. H. T.* [In very good colour for the season. EDS.]

Echinocystis lobata.—No family offers greater beauty and variety in its seed-vessel and seed than the Cucurbitaceæ. One of the most elegantly shaped water-bottles we possess was doubtless modelled from one of the numerous forms of fruit of Lagenaria vulgaris. And in the way of mimicry, what is there more perfect than the Orange Gourd? The seed-vessel of many Cucurbitaceæ does not open in any way to free the seeds, but in such cases it is usually very fleshy and decays rapidly after it is ripe. Others open in various ways. Thus the fibrous fruited Luffas open at the top in as many pores as there are cells, and the Squirting Cucumber, Ecballium agreste, parts from the peduncle at the base when ripe, and ejects the pulp and seeds with considerable force. Hanburia mexicana has a large prickly fruit, which bursts in a similar manner to the last. The seeds are large, and we are told that the Mexican squirrels are very fond of them, but owing to the fruit being armed with prickles they cannot open it, and therefore wait in the morning for the sun to burst the ripe ones. Zanonia has a very curious mode of dehiscence, the top of the fruit splitting into three triangular lobes, which are finally turned inwards into the cavity of the fruit. The fruit of which I send a sketch (fig. 28) belongs to Echinocystis lobata, a native of North America, where it bears the name of Wild Balsam Apple. Like Luffa this has a fibrous endocarp of very beautiful structure, which opens at the top by two pores; but here the outer coating or epicarp parts at the top into five equal segments, which are gradually rolled back, allowing the seeds

FIG. 28.—FRUIT OF ECHINOCYSTIS LOBATA.

to fall out through the opening in the top of the cells, the fruit being pendent. The fruit is 2-celled, and each cell is 2-seeded, the seeds being attached at the base of the cells. On removing the epicarp and a layer of network-like fibrous tissue, the fibrous framework of the two cells parts of itself to the base. The fruit is described as bursting open with elasticity and irregularly, that is, in different species; and it is possible that the mode of opening shown in the above sketch is not normal. Mr. Jackson of the Kew Museum has kindly examined fruits of the same species preserved in glycerine, from which it appears probable that normally an operculum or lid is thrown off, but the seeds are not expelled. My fruit was taken from the wall at Kew before quite ripe, and placed in a cardboard box, where a few days afterwards I was surprised to find that it had opened in the manner I have tried to show. *H.*

Growth of Timber.—Having recently topped some branches from a group of Elms here, I was much struck with the fact that in each case almost all the expansion of growth in the stem of the branch was on the lower side. I send with this samples of this growth cut from two branches, each about 6 inches in diameter near the stem, the portions sent having been cut off about a yard from the base of the branch. The branches grew out from the main stem nearly at right angles, and on the south side of the group. The trees are vigorous and healthy, and fully exposed to both sun and wind. The nature of this growth may not be peculiar, but although I have done much topping in my time I do not remember to have noticed it before. The heart-wood of the branch is about one-fourth of the diameter from the upper side of the branch, and round it is each year's successive growth of new wood clearly defined; but whilst at the upper side the layers are crowded into an inch in thickness, on the lower side they expand, and are in some cases a quarter of an inch in breadth.

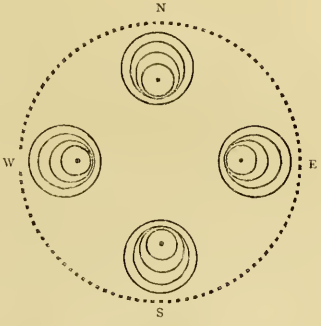


FIG. 29.—GROWTH OF WOOD.

Then again the bark, whilst fairly even all round, is smooth at top and very rough and uneven on the underside. Is this the usual growth of the Elm, or not? And, if the latter, what has produced it? *Alexander Dean, Bedfont.* [This phenomenon was explained in an article in our volume for 1858, from which we take the following extract, which will explain all that Mr. Dean wishes to know:—"A tree grows near the north wall of a high house. On the side next the house—namely, the south side of the tree—there is least timber, while on the opposite or north side there is most. The figure (29) represents a circular wood, with four trees standing on its circumference at the cardinal points, the interior of the wood being crowded. At N. the principal formation of timber will be on the north side of the tree, at W. on its west side, and at E. on its east side. If a tree grows singly, without any hindrance to its regular development, it will have the same quantity of foliage on each side, and the production of timber will be as uniformly concentrical as could be represented by successive circles drawn by a pair of compasses. In all these cases the excess of timber on the south side does not take place. No doubt at the point S. on the circle, which represents the south, most timber will be formed on the south side, but without any greater difference than will be found at E., N., and W." EDS.]

New Gladioli for 1875.—Having lately become possessed of a well known florist's catalogue, I find in it a list of new Gladioli for 1875, and from the high prices some of the varieties are charged at, that gorgeous flower must now be very much improved. On reckoning up the cost of twenty-four of the highest priced sorts in the list, I find it comes to the astounding amount of £33 1*s.*; and with the disease still rampant which attacks this bulb, I should like to see these new varieties exhibited before adding any of them to my collection. On analysing the names of the highest priced sorts, bulbs of the Duke and Duchess of Edinburgh are charged £3 and £1 each respectively; but it would have been more loyal and graceful to have made the Duchess the highest priced one of the two, unless a set-off is intended by there being a Grand Duchess in the list at £1 10*s.* There are two saints, male and female, namely St. Jerome and St. Marguerite, priced at £1 5*s.* and £1 10*s.* each respectively. Don Carlos figures at £1 10*s.*, and Marshal Serrano at the modest sum of 2*s.* 6*d.* each; but no doubt Don Alphonso will be in the list next year. The Duke of Brittany, Duc and Duchesse de Magenta, Madame Danget, Dr. Proudham and De Tristrary, Lescar, Gosson, and Ambo, all range from £2 10*s.* to £1 5*s.* each bulb. After reading the prices of the above varieties it is refreshing to turn to our old raiser of novelties, Souchet, who when he ventured to charge 15*s.* for a bulb of Michel Ange, was regarded as taking the advantage of British growers of the plant. *Argus.*

The New Japan Pear.—Believing your drawings of this Pyrus at pp. 106 and 107 of your last impression to be correct, as you have made it from Dr. Thurber's specimens, I have little doubt that you are correct in dissenting from Mr. Thomas Hogg's opinion, that the new Japan Pear and Pyrus sinensis are identical. But does he mean that they are simply varieties of one species? In comparing a specimen of P. sinensis I now enclose to you with your drawing of the new Japan Pear, it will be seen that the two are dissimilar in almost every respect. [Yes.] P. sinensis is not so robust in the wood; the buds are more slender and pointed; the leaf-stalk is shorter; the leaves are more obtuse or cordate, smaller, and the edges not so deeply serrated. The leaves do not turn red in autumn, but retain their bright glossy green till the end of January, and in mild winters till spring. The young leaves and shoots are, however, of a delicate rosy brown tint when first developed in spring. It is a very bad bearer, no trees having fruited in our nursery during the last ten years, although some have attained a height of 15 feet. In the Bristol nurseries it never fruited while our foreman was employed there; it cannot, therefore, deserve the character of an abundant bearer. Loudon describes it as having "almost evergreen leaves," "bearing insipid, apple-shaped, warted, very gritty fruit." Let us hope that the "new Japan Pear" will be a welcome addition to our collections. *C. Lee, Hounslow.*

The Eucalyptus and the Late Frost.—I observe your correspondent, Mr. Sheppard, of Woolverstone, states that Eucalptus globulus were all killed by the late frost. This is not the case here. I raised three in heat last spring, and planted them out in a shrubbery sloping to the south. They have grown fast, making from 3 to 5 feet, and though the young shoots or tips are injured, yet the main and side stems do not appear to be hurt, and the trees appear to me as if they would quite revive later on. Mine were wholly unprotected. With reference to the hardiness of the Loquat, which your correspondent, A. Dean, of Bedfont, mentions, I have had a Mespilus japonica (which I believe to be the Loquat [?]) planted here against a south wall for several years, and it has never suffered. True, it has not as yet flowered, though I wish it would, for the flowers in the South of France have a marvellous fragrance. Can any of your correspondents tell me whether the Pepper tree will live in our climate? It is a wonderfully pretty tree, with its graceful foliage and coral berries hanging like Currants in bunches. It is to be seen in every garden in

the South of France, and is well worthy of cultivation. I have some seeds just pushing through, in heat of course. *John W. Malleson, The Hermitage, Trigham, near Rochester.*

Do Varieties Wear Out?—It would, I believe, interest many of your readers if some one well acquainted with tropical botany would inform them through your columns what they know of the Banana in reference to this subject. The late Canon Kingsley, in his *Letters from the Tropics*, says: — "The Banana is wild nowhere now on earth. It has distant cousins, but no brother kinds. It has been cultivated so long that, though it flowers and fruits, it seldom or never seeds, and is propagated entirely from cuttings. It has been cultivated so widely, that it girdles the whole earth, and has girdled it as long as records go back." Do the Musas show any signs of deterioration? If not, it would seem that, in this case, the ordinary mode of propagation can be dispensed with without ill effects. *Richard Binns, Ulverston.*

Rare Conifers.—I am so sorry, after reading in your issue of the 23d inst. Mr. Murray's notes on "Rare Conifers," and particularly his missing "offspring," Picea magnifica, that I am compassionately moved, with your permission, to describe it to him, that he may, without much difficulty, be enabled to take it from among the nobilis, to which he, on his own confession, long ago assigned it. Of course I do not mean to gainsay what Mr. Murray has written in connection with the up-grown plants which he long ago described, when they were yet in their infancy so to speak, namely, that "we acknowledge ourselves unable to tell from the trees without the cone which are nobilis and which magnifica;" but this much I can state, without fear of being contradicted, that within the last few years thousands of seedlings have been raised in Britain and Continental Europe from seeds grown in cones identical in size and other botanical peculiarities with the one described by Mr. Murray in the Royal Horticultural Society's *Proceedings* of 1862 as P. magnifica. Mr. Barron, of this nursery, is in possession of just such a cone, which he received, along with 100 seeds of P. amabilis, falsely so-called, from the hands of the late Mr. Hugh Low, of Clapton, in January, 1857. From those seeds he managed to raise a goodly number of seedlings, also about thirty young plants from seeds which he extracted from the cone which was presented to him. The seedlings of both lots were specifically the same, but entirely different from seedling nobilis. The seeds were identical with those which we sow from year to year as P. amabilis, but which invariably turn out to be P. magnifica. They are somewhat longer than the seeds of P. nobilis, in about the same proportion, perhaps, that the cone is longer than that of P. nobilis. We have in this nursery plants of P. magnifica, varying in heights from 1½ inch to 9 feet; but the one species' relationship is easily recognised in all the stages of development, from the smallest to the largest, and I find that the same species of plant was known to me fifteen years ago, in the Messrs. Dickson & Turnbull's nursery, Perth, Scotland, as P. nobilis, var. robusta, and a year or two subsequently as P. magnifica; but why it was called robusta I never could see, for it has not proved itself so robust as P. nobilis. The following comparison of the two species, in both their young and mature or aged states, may possibly help Mr. Murray to recognise his missing "offspring," and at the same time assist others, who may have a greater practical and even moneyed interest in them, in determining the difference existing between the two much-confounded species:—

P. magnifica, one year old.—Seed leaves from seven to nine in number, and from 1 inch to 1½ inch long, thin, rather sharp pointed, bluntly ridged, and entirely covered with a glaucous bloom on the upper face; flat, and of a dull green colour on the under face. Mature leaves from ½ inch to 1 inch long, narrow, and tapering from about the middle to a rather sharp point, flat, or more properly slightly convex, never channelled, and covered with faint stomata along the middle of the upper face; convex and entirely covered with very faint stomata on the under face.

Picea magnifica, mature. — Leaves slightly falcate, incurved, blunt pointed, never emarginate, and somewhat four-sided, from ¾ inch to 1½ inch long, by $\frac{1}{16}$ inch broad, slightly adpressed to the stem, and turned upward; ridged and covered with faint glaucous stomata on the upper face; ridged with two pale but rather broad bands on the under-face.

P. nobilis, one year old.—Seed leaves from five to six in number and from 1 inch to 1½ inch long, rather broad and flat, convex and covered with a faint whitish bloom on the upper face; flat and of a glossy-grass green colour on the under face. Mature leaves from ½ inch to 1 inch long, rather blunt pointed, flat, and distinctly channelled from base to point, with faint tracings of stomata on the upper face; slightly convex and overspread with clear white stomata on the under face.

Picea nobilis, mature or aged.—Leaves linear, falcate, incurved, blunt pointed, often slightly notched, from ¾ inch to 1¾ inch long, by nearly ⅛ inch broad, compressed, so much so as almost to hide the bark from view except on the underside of the branches; channelled for about three-quarters of their length, and of a rich bluish-green above; slightly keeled and with two and sometimes four distinct silvery bands below.

Further comparison of the two species here is unnecessary, as the differences in the buds, colour of the bark, and the habits of the two trees are very slight. And after all that has been said about them, it will be seen that the distinguishing character of the leaves is their relative shape, those of P. magnifica being four-sided, while those of P. nobilis are rather flat, and invariably grooved for three-fourths their length on the upper face—a character, by the way, which Mr. Gordon in his *Pinetum* and its supplement entirely overlooks. I herewith send a photograph of P. magnifica and P. nobilis, which, if you see fit, you can make use of. Mr. Barron sent a cone similar to the one named magnifica on the *carte* to Dr. Hooker, who, I understand, named it P. magnifica. *George Syme, Elvaston Nurseries, Borrowash.* [The photograph corresponds with that of P. magnifica sent by Messrs. Sander. EDS.]

Proliferous Pear.—I have sent you a curiosity that was cut from a pyramid Pear tree here to-day during the process of pruning. I should like to know what you think of it. Do you think that the one bud was part fruit and part wood bud, and formed that monstrosity of a fruit and the shoot at the same time? Or do you think that it is an excrescence of the wood? It is evidently fruit, as

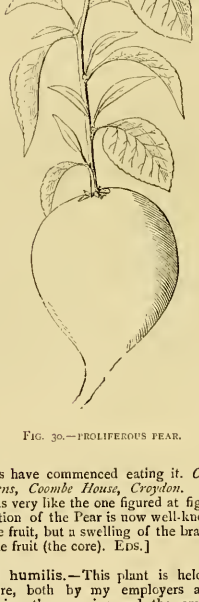


FIG. 30.—PROLIFEROUS PEAR.

the tomtits have commenced eating it. *C. Orchard, The Gardens, Coombe House, Croydon.* [The specimen sent is very like the one figured at fig. 30. The edible portion of the Pear is now well-known not to be the true fruit, but a swelling of the branch enclosing the true fruit (the core). EDS.]

Rivina humilis.—This plant is held in great esteem here, both by my employers and myself, for furnishing the mansion and the embellishment of the stove and conservatory, the bright berries harmonising with any other colour they may be put against. If for a single specimen what is more lovely than a plant in a 5 or 6-inch pot, furnished to the bottom with berries and leaves, or for a group to make the Rivinas predominant, mixing a few white Primulas, Poinsettias, Calanthe Veitchii and vestita kinds, a Dracæna in the centre, a Fern, Isolepis gracilis, and a few Adiantums? In a group like this it tells gloriously. For the dinner-table I think it unsurpassed, the light above bringing the pendulous racemes out so well—if a little Panicum variegatum or Selaginella be placed under the plant, so much the better. The treatment I give them to obtain plants to answer this purpose is to pot seedlings, which may be taken in abundance from the pot of the old plant in early spring. I prefer seedlings to cuttings, as you can make a more compact plant of them. Pot them in light soil, in 3-inch pots, grow them on quick in a moist heat, and when 4 or 5 inches long take the top off them, repot in a stronger compost, and grow on quick, pinching all the flowers off, shading a little, syringing freely, and generally affording the generous treatment, which all decorative plants are subjected to, especially in the dull and cold part of the year. *A. Bradshaw, Culwich Abbey Gardens.*

Vegetation in Merionethshire, North Wales: *Jan. 21.*—Snowdrops, Aconites, and yellow spring Crocus, in flower. Olea europæa has stood uninjured; Dicksonia antarctica, planted by a high rock, had the tips of the fronds browned; Primula suaveolens and P. Parryi coming away strong. The above at Tyn-y-coed, near Barmouth. Laurus Camphora, the tips of young shoots browned; Benthamia fragifera, a large plant, 8 feet high, quite green and uninjured; Grevillea juniperina, a large plant, in full flower: at Aberia, near Penrhyndendreath. *Thomas Shortt.*

Notes from South Shropshire.—The severe frost with the thick covering of snow that locked up the earth during the last days of December disappeared soon after the new year commenced, and no mischief seems so far to have been done to the shrubs which are the glory of this garden. Better situated and sheltered than many others the Deodaras, Taxodia, Araucaria, Cupressus Lawsoniana of several varieties, including the lovely viridis erecta, as well as the Arbutus, spread out their branches with a grace and luxuriance of growth that prove how well the soil and shelter suit them. The garden extends along the edge of the river for about 300 yards in length and receives the full benefit of the mid-day and afternoon sun, while the cruel north and easterly winds are shut out by high ground that ends in a bluff 300 feet or more above us crowned by thick woods and narrowing our space very picturesquely, especially where the red sandstone rock pushes forward towards the river, as if to show the cascade that leaps 70 feet down its face, almost covered with moss and Ivy, and forming a picture in its natural beauty, when the setting sun illuminates with its richest glow the rocks and foliage, that is hardly to be surpassed. The source of the cascade is but a few yards from the edge of the cliff over which it falls; the water, clear as crystal, contains so much lime and earthy matter that the moss which grows so freely in its spray is soon encrusted, and in course of time consolidated into stone, that becomes hard and durable and is sought after by builders of rockwork, who admire its peculiar structure. The supply is constant, and seems to vary very little, whether in summer or winter, in wet seasons or dry. Halfway down the cliff another spring fills a tank that lies embowered in Bamboo and other grasses, and might be a bath for a Naiad, and then both cascades meeting in a pool formed at the foot of the cliff, join in a stream that tumbles in a series of cascades to the river. Once upon a time a more prosaic occupier of the ground utilised this picturesque prodigality of water privileges, and erected a water-wheel, which the oldest inhabitants remember, and speak of with reverence and awe as "the biggest wheel that ever was made," and built a mill which no doubt did work in its way, but the wheel has long been rust, and the mill, like many more picturesque ruins, served as a quarry for the materials of a house; and now grassy terraces, planted with Roses and Rhododendrons, occupy the site, presenting a more agreeable though perhaps less profitable object to the eyes of those who stroll through the grounds. The front windows of the house look into a retired part of the garden, in which a fountain, supplied from one of the springs above, plashes lazily, and where the water-hens that breed here in safety search industriously for food, jerking their short tails with quaint coquettish airs. My people know that these birds here are as sacred as the Ibis was to the Egyptians, and they seem to be aware of the respect in which we hold them. In front of this part of the garden the river expands into a pool, about equal to 8 acres in area, and about 30 to 40 feet in depth, varying with the state of the weather. Here in the summer evenings we sit and watch for the salmon, which every now and then stir the waters in a way that excites the ardour of every fisherman who sees them, but I have never known any one who could persuade one of these giants of the river to take a fly in this pool. We are now looking forward with hope in our garden, mingled with fear that the present mild temperature will be followed by many pitiless frosts that will frustrate our work. Already the blackbirds and thrushes are making the whole neighbourhood full of song, the yellow Aconites are gay, and the Snowdrops beginning to whiten the borders. Primroses, which are self-sown in all the out-of-the-way spots, are opening here and there—the yellow leafless Jasmine in its full beauty, and the Pyrus japonica is opening its crimson flowers. In the greenhouse our Primulas and Cinerarias are in great beauty, the latter are rather more forward than we intended, and our Roses are already opening. Among these Safrano is a great favourite, because of the uninterrupted succession of gold brunette buds (I hope your lady readers will accept the new colour) which she furnishes throughout the year; and though last, not least, Souvenir de la Malmaison;

these I consider our true perpetuals. Our Vines are now dormant; to them we do not give any heat until quite the end of February. In the kitchen garden we planted some Potatos before Christmas, finding that so planted the year before produced better than what were set at the usual period. We shall see if the severer season lately experienced makes any difference. *S., Jan.* 20.

Reports of Societies.

Royal Horticultural: *Jan.* 27.—*Evening Lecture.*—Sir Alfred Slade, Bart., in the chair. The subject of the lecture on this occasion was, "The Fertilisation of Flowers by means of Insects," and the lecturer, Mr. Alfred W. Bennett, M.A., B.Sc., F.L.S., commenced by giving a historical sketch of our knowledge of the existence of sexes in plants. After a brief reference to the very slight indication of any recognition of the phenomenon in the writings of the ancients, he spoke of the first distinct acknowledgment of the part played by the pollen in fertilisation found in Nehemiah Grew's writings in 1682, closely followed by Camerarius in 1694, and Vaillant in 1717, the new doctrine being, however, strongly contested on philosophical grounds by Tournefort in 1700, and Pontedera in 1720. It may be said to have been firmly established beyond all question by the writings of Linnæus, commencing in 1729, especially by his *De Nuptiis et Sexu Plantarum*, and *Sponsalia Plantarum.* The first discovery of the fact that a certain number of hermaphrodite flowers are not self-fertilised must be attributed to Kölreuter in 1761, who distinctly asserts this to be the case with all Cucurbitaceæ, all Irideæ, and not a few species of Malvaceæ; and he correctly refers the agency in fertilisation, partly to the wind, partly to insects. This was followed in 1793 by the better-known and often-quoted work of Sprengel, who brought more accurate powers of observation to bear on the subject, and arrived at the general law that "Nature does not intend any hermaphrodite flower to be fertilised by its own pollen." From this time the subject appears to have slept for nearly half a century. Treviranus, Schultz-Schultzenstein, the elder De Candolle, and Caspary, all doubted the correctness of the conclusions at which Sprengel had arrived; while a few confirmatory observations were made by more accurate observers, as Andrew Knight in 1799, who propounded the theorem that "no plant self-fertilises itself for a perpetuity of generations"; and Robert Brown in 1833, in the case of Orchideæ and Asclepiadeæ. Attention was again first prominently called to the subject by Darwin's writings, especially in his work on the *Fertilisation of Orchids*, published in 1862, since which time an immense mass of facts has been collected, fully bearing out in the main the correctness of Kölreuter's and Sprengel's observations, and which is to be found in the writings of Darwin, Hildebrand, S. Axell, Delpino, Müller, and Lubbock.

The lecturer then proceeded to describe the various modes in which cross-fertilisation is secured in the vegetable kingdom, viz., diclinism, or the separation of the sexual organs into different flowers (monœcious or diœcious), giving as illustrations the Hazel, Aucuba japonica, and Vallisneria spiralis. Dichogamy, or maturing of the sexual organs in the same flower at different times, whether protogynous (Plantago, Scrophularia) or protandrous (Geranium, Caryophyllaceæ, Labiatæ, Campanulaceæ). Dimorphism and trimorphism (Linum, Primula, Oxalis, Lythrum). Special contrivances for preventing self-fertilisation (*e.g.*, Salvia, Marcgravia). He then concluded by a reference to the purpose of colour and scent in flowers, and especially to that of variegation as a guide to insects in searching for the nectary; a point to which attention was called so long ago by Sprengel, and well illustrated in the case of the Pansy.

Leeds Professional Gardeners' Friendly Benefit Society: *Jan.* 13.—The eighth annual dinner of this flourishing Society took place on the above date, about eighty members of the Society being present. Mr. George Hemming, the president of the Society, occupied the chair, and Mr. Henry Kilvington, the vice-president, the vice-chair. Letters of apology were read from the Mayor of Leeds (H. R. Marsden, Esq.), H. Oxley, Esq., J.P., and other gentlemen of influence. Amongst those present were the Vicar of Leeds (the Rev. Dr. Gott), Councillors Jackson and Stead, Mr. J. W. Jones, Mr. Curtis, and others. After the usual loyal toasts had been duly honoured, Mr. Councillor Jackson proposed, "The Bishop and Clergy of the Diocese." Dr. Gott, in responding, said it afforded him very great pleasure to meet so many of the gardeners of Leeds that evening at their annual gathering. All such objects as the Society aimed at always had his warmest approval. He was glad to know that, in addition to the advantages of a benefit society, much other good was being done by there being read at the Society's monthly meetings papers or essays on subjects relating to gardening, which he thought would tend to infuse a higher standard of education among gardeners than is generally to be found in any other body of tradesmen; indeed, gardening seemed to him to stand apart and above other trades, and to rank as a profession. The great responsibility thrown upon gardeners, the great variety of work they had to perform, the discoveries that were continually being made, must all tell immensely on the character of the gardener, and help to elevate him above the ordinary trades.

Mr. Councillor Stead, in proposing "The Town and Trade of Leeds," said the toast he had to propose, if not the toast of the evening, was at all events nearly allied to it, because on the prosperity of the town and trade of Leeds hung in some measure the condition of its gardening. As our business men prospered, so would they always long to devote a portion of their gains to the pleasing pursuit of gardening, and thereby contribute to improve the condition of its gardeners. He always had a strong love for gardening, and as he now held the position of Chairman of the Leeds Horticultural Gardens Company, he felt more than ever interested in the welfare of gardeners and gardening. Leeds, being fortunate in the position in which it is situated, is able to compete successfully in many important branches of industry, particularly in iron, woollens, and leather. In gardening matters there is also evidence of progress. This Society, he thought, was accomplishing a good mission. The Corporation had also done something towards encouraging gardening by purchasing the magnificent park at Roundhay. The Society of which he had the honour to be chairman was using its best endeavours towards carrying out a high class of gardening, and he begged to take that opportunity to thank the gardeners of Leeds for the valuable assistance they had already given the company. If they all co-operated they had good reasons for being hopeful that gardening, along with other branches of industry, would continue to advance on the road to prosperity.

Mr. William Rushforth, nurseryman and seedsman, Leeds, responded. The Secretary (Mr. William Sunley) read the report, from which we learn that the income of the Society for the past year is £144 18*s.* 2½*d.*, the expenditure during the same period is £116 9*s.* 6½*d.*, leaving a balance in favour of the Society for 1874 of £28 8*s.* 8*d.*, which, added to the savings of the seven previous years of £405 3*s.* 4½*d.*, makes a total placed to the credit of the Society of £433 12*s.* 0½*d.* During the past year seven honorary and eight ordinary members have been enrolled, making a total of thirty-one honorary and 136 ordinary members. During the same period the Society has lost by death two members and one member's wife; also three members, in consequence of very grievous affliction, are now receiving the stipulated allowances for continued illness. The committee gratefully acknowledge the very liberal support accorded to the Society by its honorary members, which in a great measure enables it to refer to the pleasing fact that, notwithstanding the Society having had to meet heavy claims of sickness, infirmity, and death, its prosperity continues. The committee has been much gratified in noting the good attendance of members at the Society's monthly meetings, the interest excited by the papers read thereat, and the discussion resulting therefrom, which must be the means of diffusing much useful information amongst all. To the younger members of the Society the committee gives its most earnest and pressing invitation to attend these meetings regularly, so that they may be able to contribute and receive their due share of the advantages to be derived by the readings of those papers, and of the discussion to which they give rise.

Mr. R. Featherstone, responding to the toast of "The Professional Gardeners' Friendly Benefit Society," stated that the report for the past year demonstrated some of the good accomplished by the Society. He was confident that all members who had the privilege of attending the monthly meetings would support him in testifying to the great pleasure and benefit they all derived from the reading of the papers alluded to. The Society, as the head of gardeners and gardening in that district, owned many members of distinguished abilities in their profession who were pledged to do their utmost to uphold the honour and welfare of the Society. There was, therefore, good reason to anticipate that the future course of this Society would continue to be as prosperous as the past had been.

Obituary.

DIED on January 15, aged 46 years, Mr. THOMAS BURNETT, gardener to Sir Sydney H. Waterlow, Fairside House, Highgate. Mr. Burnett commenced his gardening career at a very early age, leaving school at thirteen, and spending the early part of his time in different places in Devonshire, and a very important part of it with the late Mr. Veitch, of Exeter, grandfather of the present Messrs. Veitch of Chelsea. Possessing great aptitude for learning his business, he became head gardener at an earlier age than usual, commencing at Ashby Court, Tiverton. During the two years he was there he entirely remodelled the place, showing his ability as a landscape gardener and an artist. From thence he went to Lord Boston and Lady Molyneux, near Slough. The next six or seven years were spent at Baynard's Park, Surrey. Thence he removed to Downshire House, Rochampton, for three and a half years. These were places of great extent, and where gardeners of ordinary temperament would have rested; but Mr. Burnett had not yet realised his ambition, for although a great lover of gardening generally, his ambition was to be more amongst exhibiting. This he soon commenced after going to Peterborough House, Fulham (W. Terry, Esq.). Here he grew as fine a collection of Orchids as has been seen round London for many years, especially in a short time, as the Horticultural, Botanic, and Crystal Palace Shows testified, and those that had the pleasure of visiting Peterborough House at that time will not soon forget: the collection of Anæctochilus included perfect marvels of cultivation. But no doubt this proved to be to him a fatal mistake: confining his attention so much to the hothouse soon broke down his constitution, and after struggling for six years he was compelled to resign for some less exacting position. This he readily obtained at Fairside House, Highgate, where, although no more suitable position could have been selected for an enfeebled constitution, combined as it was with the utmost indulgence shown by his employer, he finally gave way, after struggling for two years. *B.*

—— Died suddenly, on Thursday afternoon last, Jan. 21, in his 72d year (shortly after leaving his home in St. Swithin Street, in good health and spirits), and in the garden he had tended with undeviating care and ability for upwards of forty years, Mr. THOMAS WEAVER, gr. to the Rev. The Warden, Winchester College. Mr. Weaver was thoroughly practical and most persevering in the attainment of general as well as professional knowledge. His services were highly valued by the late and present Wardens, both of whom he had the honour of serving, and by those residents who sought from him information upon the botany and entomology of the neighbourhood, he being at all times willing to impart his very accurate and extensive knowledge on these subjects to all enquirers. Nearly half a century ago he was with the late Mr. Baxter at the Oxford Botanic Garden, and it is probable that while there he acquired a taste for British botany, which to the end of his days was a source of great pleasure to him. It must not, however, be understood that his love for plants was confined to those of our own island, for in the Warden's garden at Winchester are many of his pets in the way of good exotic hardy herbaceous plants, of which he was an ardent admirer. A few years back Mr. Weaver was a not unfrequent contributor to the horticultural papers, and a successful exhibitor at the Southampton and other horticultural shows. *W. H. B.*

—— By the death of Canon KINGSLEY science loses an ardent admirer and a faithful expositor. Though not profoundly versed in geology or botany, he succeeded by his vigorous, accurate, graphic word-painting in instructing and interesting a large class of readers who could not otherwise be reached. His descriptions were simply magnificent: witness his accounts of Tropical Vegetation in his *At Last.* His *Town Geology* also is a masterpiece in its way. Vigour and truthfulness were as characteristic of the man as of his style. Several years since, at the instigation of the late Professor Henslow, Mr. Kingsley was an occasional contributor to these columns, and we have to regret that his ill health and premature death have prevented him from fulfilling a promise to renew and extend his connection with this journal.

—— We first learn the death of General JACOBI, which occurred early in November last, through a brief biographical notice (in Dutch) of the deceased from the pen of M. de Jonge van Ellemeet (*Albano von Jacobi, levensberigt door de Jonge von Ellemeet*). General Jacobi was a grandson of the celebrated philosopher and theological writer, F. H. Jacobi, a contemporary of Goethe during the early and middle periods of his life, and a warm supporter of the Kantian philosophy. Van Ellemeet draws his materials partly from personal knowledge, and partly from a memoir by Lieut.-General Baron von Troschke, in the *Militair Wochenblatt*, Nov. 18, 1874. He is described as a highly-gifted man, a brave soldier and a true friend. His military talents were recognised and acknowledged in the highest quarters. But it was as an amateur botanist and horticulturist that we in England knew him—an amiable unassuming man, who devoted his leisure time to botanical pursuits out of pure love for the beauties of Nature. Agaves and other succulent plants were his favourites. In 1864 he commenced publishing, in Otto's *Hamburger Garten und Blumenzeitung*, a monograph of the genus Agave, under the title of *Versuch einer Systematischen Ordnung der Agaven*, which was continued and

completed in the *Abhandlungen der Schlesischen Gesellschaft für vaterlandische Cultur*. For this work he very modestly claimed no scientific value, describing it as an attempt to devise a classification suitable for horticultural purposes. There is little doubt, however, that he possessed a far more extensive practical knowledge of the genus than any living botanist, and it was simply a want of scientific training that prevented him from producing a monograph of more lasting value.

The Villa Garden.

Winter Pruning of Wall Trees.—We have now reached, in the order of the seasons, that time of year when wall trees, such as Apricots, Peaches, Nectarines, Plums and Cherries require to have their winter pruning done. For some time past a great rainfall has taken place, which has much retarded gardening operations in the open air, but as some settled weather may now be looked for, advantage must be taken of every favourable opportunity to get the pruning of wall trees performed. As a rule, Villa Gardens are bounded by walls, which may be turned to account for fruit culture. There are none so lofty as those which are found in fruit gardens, for the simple reason that tall walls would exclude from small gardens too much light and air. There is a certain disadvantage in having low walls, for the simple reason that they do not admit of a free development of the trees; a certain restriction must be applied to them, which calls for the exercise of some skill in so treating the trees as that they shall produce fair crops of fruit. Walls not more than 5 to 6 feet in height are frequently met with, and there is the additional disadvantage of having the trees planted in such soil as may compose the border; too frequently of a character not well suited to them. In planting Villa Gardens at the outset it suffices to plant—the appropriateness of the soil is not considered; the garden must be furnished in some way, and the commission goes forth to plant, and too frequently this is done in a careless and imperfect manner. Many difficulties thus beset the fruit cultivator, and the wisest thing to do is to endeavour to make the best of these discouraging circumstances.

Apricots.—In the case of this popular fruit, it is always best that the branches should be properly regulated in the autumn after the fall of the leaf. All weak branches are practically useless, and they should be removed; and when Apricots are in a soil that induces a strong growth, much superabundant wood is produced, and this should be removed also. Strong shoots require to be shortened back, especially if they are likely to prove unfruitful; one consequence of cutting back will be to cause them to send forth young growth in the spring, that will supply fruiting wood the following year if attended to during the summer. Old wood that is either naked or barren should be cut quite back, leaving, however, enough of the stem to send forth shoots to lay in during the summer to take the place of the wood removed, as just recommended. "In general, strong and vigorous branches or shoots should not be shortened so much as those that are weak and slender, except for the purpose of filling up a vacancy. In pruning, you should detach the branches from the wall, and when properly cut or shortened to the required length they may be again secured regularly and neatly." This passage enshrines one of George Glenny's golden rules for fruit cultivation.

The Peach.—The Peach produces its fruit-buds from the wood of the previous year's growth; it is therefore obvious that it is the duty of the cultivator to maintain such an even supply of fruitful shoots as will secure a good crop each year; at the same time the tree must not be over-cropped, or its productive powers will be weakened in consequence. The main branches of a Peach tree on a wall should be from 12 to 15 inches apart, and from the upper sides of these branches the fruiting wood should be encouraged to grow, and those shoots that in the following season will be looked to to produce fruit must not be too much crowded; as a rule gardeners like to have them several inches apart, but much depends on the variety, position of the tree, its age, and the soil in which it is growing. After all, a great deal of the success which attends on fruit tree culture depends on the observance of many little things that are taught by experience: the school of experience gives an excellent training, and the young cultivator, enthusiastic and hopeful, but yet inexperienced, will do well to get advice from some practised gardener from time to time. It is impossible to lay down general rules that will cover all the experiences of the cultivator or the requirements of the cultural process.

In many Villa Gardens round London, where clay abounds, the Peach makes a strong, gross, and what some of the old gardeners appropriately termed a "watery" growth; alluding to its soft and immature character—such wood is practically useless for producing fruit. Where trees in such a condition of growth are also against low walls it is necessary to almost entirely renovate the trees at intervals of five or six years, by cutting away the main branches, and by laying in young wood out of which to construct a bearing tree.

In regulating the length of the fruiting shoots at the time of the winter pruning, regard must be had to their strength; and when a tree is trained on the nearly horizontal fan-shape (on low walls, the branches must of necessity be trained in this direction), the fruiting shoots should not be more than a foot long, and they should be cut back to a wood-bud, *i.e.*, a bud that will produce wood only, and not blossom. The blooming buds are generally produced towards the base of the shoots, the merely wood-buds towards the extremities of them. In order to keep up a succession of such shoots, the cultivator should train a young shoot from the base of the fruiting shoot each year during the summer, which shoot should not be stopped but allowed to grow, and may extend a few inches beyond the space it is required to fill; it should then be shortened by pinching out the point of the shoot.

The hints here given as to the cultivation of the Peach on walls applies also to the Nectarine, though the latter is not so commonly planted in Villa Gardens as the latter.

It is well once in two or three years to loosen all the shoots of the trees from the fastenings in the walls, and give the lines of mortar between the bricks a dressing of whitewash, and at longer intervals point the walls with fresh mortar. Large holes are frequently made in the walls by nailing, or by drawing out old fastenings, and in these holes slugs, small snails, and other insects are apt to secrete themselves; and there they are, ready at hand to work great injury to the ripening fruit, especially during a fall of rain, when the ripening process is being perfected.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
For the Week ending Wednesday, January 27, 1875.

Month and Day.	Barometer. Mean Reading Reduced to 32° and Sea Level.	Barometer. Departure from Average of 18 Years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 60 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
Jan.	In.	In.	°	°	°	°	°	°			In.
21	29.24	−0.51	45.1	40.4	4.7	42.6	+ 5.3	40.1	94	WNW; WSW	0.49
22	29.75	0.00	41.3	31.4	9.9	36.1	− 1.3	31.2	82	WNW; N.W.	0.09
23	29.45	−0.30	52.0	34.0	18.9	43.4	+ 5.9	40.3	89	S.S.W.; WSW	0.10
24	29.19	−0.56	50.0	38.5	11.5	44.5	+ 6.8	41.0	88	WSW; S.W.	0.23
25	29.19	−0.57	45.3	38.8	6.5	42.0	+ 4.1	38.9	89	WNW	0.60
26	30.00	+0.25	42.5	36.9	5.6	39.6	+ 1.6	35.5	85	N.E.; E.N.E.	0.01
27	30.06	−0.30	50.7	40.5	10.2	45.8	+ 7.6	42.8	90	S.S.E.; S.S.W.	0.02

Jan. 21.—Fine; bright; and cloudless throughout the morning. Overcast; dull; and heavy rain fell in afternoon and evening.
— 22.—Fine; bright; and nearly cloudless throughout the day. Lowest temperature of vegetation, 29°.7.
— 23.—Overcast; dull; and rain in morning. Cloudless at noon. Overcast again at night. Strong gale.
— 24.—Overcast; dull; and frequent rain throughout. Vivid lightning from 6 P.M. to 8 P.M. Gale.
— 25.—Overcast; dull; and heavy rain in morning. Fine and bright from noon. Cloudy at night. Strong gale.
— 26.—Fine; and nearly cloudless all day. Colder; fine at night.
— 27.—Overcast, and dull in evening. Fine; mild; with light clouds in afternoon. Cloudless at night.

—— In the neighbourhood of London the reading of the barometer at the level of the sea increased from 29.71 inches at the beginning of the week, to 29.79 inches by the morning of the 18th, and decreased to 29.68 inches by the afternoon of the same day, increased to 29.92 inches by the morning of the 19th, again decreased to 29.32 inches by the early morning hours of the 21st, increased to 29.49 inches by about noon, and then decreased to 29.22 inches by the evening of the same day; a rapid rise followed, and 30.02 inches was reached by the morning of the 22d, and it then decreased again to 29.52 inches by the end of the week. The mean reading for the week was 29.53 inches, being 0.20 inch lower than that of the preceding week, and 0.21 inch below the average value for the same week. The readings were all below their respective averages, that for the 21st being as much as 0.51 inch in defect.

The highest temperatures of the air by day at 4 feet above the ground varied from 54¼° on the 20th to 41½° on the 22d, the mean for the week being 49¾°. The lowest temperatures of the air at night ranged from 46¾° on the 19th to 31½° on the 22d, the mean value being 40¾°. The mean daily range of temperature was 9°, varying between 19° on the 23d and 4½° on the 17th. The mean daily temperatures of the air and their departures from their respective averages were as follows:—17th, 46°.3, + 9°.6; 18th, 49°.9, + 13°.1; 19th, 49°.4, + 12°.4; 20th, 48°.4, + 11°.2; 21st, 42°.6, + 5°.3; 22d, 36°.1, — 1°.3; and 23d, 43°.4, + 4°.9. The mean temperature for the week was 45°.2, being 8°.1 above the average of sixty years' observations.

The highest reading in the week of a thermometer with blackened bulb in vacuo, placed on grass in sun's rays, was 72° on the 22d, but on the 17th, 54° was the highest reading. The lowest readings of a thermometer on grass, with its bulb fully exposed to the sky, were 30° and 31° on the 22d and 23d, but on the 18th and 19th they were 43° and 44° respectively. The mean for the week was 38¾°.

The weather was overcast and dull on the 17th, 18th, and 23d, but somewhat fine and bright on the 19th, 20th, 21st, and 22d. The direction of the wind was generally W.S.W.

Rain fell on six days, the amount being 0.81 inch.

Vivid lightning was seen on the evening of Sunday, the 24th inst.

In England the extreme high day temperatures ranged between 62° at Sunderland and 51½° at Nottingham, the general average all over the country being 54¾°. The extreme low night temperatures varied from 33¾° at Leicester to 26½° at Manchester, the general average being 29¾°. The extreme range of temperature in the week was 25°, varying from 33° at Sunderland to 20° at Leicester. The mean high day temperatures ranged from 51¾° at Sunderland to 46° at Nottingham and Hull, with an average value of 48½°. The mean low night temperatures varied from 40¾° at Blackheath to 34¾° at Newcastle-on-Tyne, with a general average of 38½°. The mean daily range of temperature in the week was 10°, the greatest range being at Sunderland, 14½°, and the least at Leicester, 8°.

The mean temperature for the week was 43½°, being half a degree higher than the value for the corresponding week in 1874; the highest in the week occurred at Blackheath, Bristol, and Birmingham, 45° respectively, and the lowest at Hull and Newcastle-on-Tyne, both 40½°. Rain fell on every day in the week at Portsmouth, Bristol, Liverpool, and Leeds, and on six days at all other stations; the amounts recorded at the different places varied from 1 inch nine-tenths at Bristol, to six-tenths of an inch at Liverpool, the average fall over the country being 1 inch.

The weather during the week has been somewhat fine, although the sky has been generally overcast, and showers of rain have been frequent. Snow fell at Liverpool, Manchester, and Bradford, on the early morning of January 23.

In Scotland the highest temperatures ranged from 57½° at Glasgow to 47° at Dundee. The lowest temperatures varied from 29½° at Greenock and Leith to 26¾° at Aberdeen, their respective averages being 53° and 28½°. The range of temperature in the week was 24½°. The mean temperature for the week was 40°, being 1° lower than the value for the corresponding week in 1874; the highest was 41¾°, at Glasgow, and the lowest was 38°, at Dundee. Rain fell to the amount of 3 inches and three-tenths at Greenock and 2½ inches at Glasgow, but at Aberdeen seven-tenths of an inch only was measured. The average fall all over the country was 1 inch six-tenths.

At Dublin the highest temperature was 55°, the lowest 27½°, the mean 44, and the rainfall 1.01 inch.

JAMES GLAISHER.

Garden Operations.

(For the Ensuing Fortnight.)

PLANT HOUSES.

Greenhouse Hard-wooded Plants.—*Azaleas.*—The plants will now have almost shed the leaves which annually through the winter they throw off, and their appearance will be much improved by being gone over and hand-picked, removing all that have turned yellow. Plants that are in good health and were thoroughly ripened in the autumn, will now begin to push young growth round the base of the flower-buds; this is an indication of good health and proper treatment, and will in no way interfere with their flowering, as by some supposed—that is, if the growth, flower, and buds were well ripened in the autumn. As they commence to push this young growth they will naturally need a little more water at the roots. Plants that are required to be retarded for exhibition late in the season, or for successional flowering for conservatory decoration, must be at once placed in the retarding-house, where they will not receive any sun.

Young plants of new varieties that it is desirable to grow on quickly should be put in heat, so as to give them as long a season's growth as possible, by which means they will make double the progress that would result from simply allowing them to start later on with solar heat.

Camellias, where planted out, are very often allowed to get so crowded as to become an absolute thicket, growing into each other. Where such is the case, if they have got at all thin and straggling, head a portion of them in, and let them make a season's growth, taking them up and putting them in pots or boxes: the plants so treated will not only make fine specimens, but their removal will allow room for those remaining to develope themselves much better. Let the whole be gone over with a hard brush and sponge, giving them a careful cleaning before the insects begin to breed and the plants commence to grow. If there is any appearance of the bed being exhausted, remove a little from the surface, without injuring the roots of the plants, and renew with good fresh soil. Camellias in pots should also at this time be well cleaned from insects, and their leaves sponged as recommended for such as are planted out; and if any are suffering from want of additional root-room, they should very shortly be potted so as to get their roots in the new soil before the shoots begin to grow, for if not potted until growth has commenced, it will, as would happen with most kinds of plants, injure their season's growth considerably. In potting Camellias it is necessary to be very careful to make the new soil quite as hard as the old ball (which in the case of these plants generally gets much harder than with most things), for if this is not attended to, the water will run through the new soil, leaving the ball a hard dry mass, which would quickly reduce the plants to a bad state. It is no bad plan in potting Camellias, to leave the new portion of the soil round the rim of the pot half an inch higher for a few months, so as to compel the water to pass through the ball: it can afterwards be removed.

SOFT-WOODED GREENHOUSE PLANTS.—Plants of *Fuchsias* used last year, and that were dried off in the autumn, if not previously pruned, should at once be attended to, cutting them well back, and placing them in a little heat. When they have made some growth, repot; these will flower earlier than the summer-struck plants, and will be very useful to precede them. If *Lilies* have been placed in dark situations, under stages, or other places where there is not much light, see that they do not remain in such after they have pushed their new growth above the soil even ever so little, or they will in a very short time be so drawn as to be seriously injured: remove them at once to the full light, keeping the soil just moist.

Conservatory.—The whole of the different subjects that are here permanently planted out should be gone over and cleaned from the accumulations of dust that more or less gets upon the leaves, especially in the winter season, when there is little use of the syringe or garden engine to remove it; this is especially the case if the plants happen to be affected with scale. The glutinous excrement deposited by these insects upon the leaves catches the dust, which, if allowed to remain, hastens their decay, as well as impairs the general health of the plants. There is no better season for giving them a general and thorough cleaning than the present, before they begin to grow. If they are affected with either white or brown scale let the whole of the wood and leaves be gone over with sponge and brush. The conservatory climbers at the same time should be regulated, cutting in such as require it much closer at this than at any other time during the year, and, where mealy bug and scale exist, giving as thorough a cleansing as possible. This is necessary at the present season, for if advantage is not taken of the reduced bulk of the plants to be gone over, through their being cut in, and with no young tender growth upon them, such an opportunity will not occur again during the year. Where it can be done, take them off the wires, and steep them in a solution of insecticide as strong as the leaves will bear it, going over the whole with the hard brush. Where *Acacias* are grown, and are at all affected with white scale, the pest increases so fast upon them as to require incessant labour to keep it down, while at the same time it will get upon every plant that is stood under them. The best thing to do with plants of this kind so affected is to head well back, and dress them several times with strong insecticide, before they have time to break into fresh growth. It takes a considerable time to go over the permanent plants in a house this way, but it is a saving of labour before the end of the season. The house at this season, before the principal spring-flowering subjects come in, is usually thinner than at any other season of the year, giving a good opportunity for cleaning it well. If the glass is washed, the shelves well scrubbed, as also the floor and internal fittings, the appearance will be much improved. Where the plants temporarily used here are arranged in groups in as natural a way as may be, the arrangement should from time to time be varied, which imparts more interest to the place.

Conservatory borders are generally very limited in space for the roots of the different subjects that have to exist in them, and if not assisted with new soil they become so exhausted that the plants in time get poor and become an easy prey to red spider and other pests. The best way to remedy this is to remove a couple of inches of the surface soil each season, replacing it with such as is rich and new. *T. Baines, Southgate, N.*

ORCHIDS.—A rise of 5° in the temperature may now be given. The East Indian house may be kept at 70° by day, allowing 5° more with the aid of the sun; the night temperature should be from 5° to 10° lower than by day. The moisture of the air must be proportioned to the heat, an increase of temperature must be accompanied by an increase of moisture; air should be given in fine weather, and where practicable it should be made to pass over the hot-water pipes; it then becomes warmed before it reaches the plants. There is no need of top air being given at present, as every lap in the glass is a ventilator. Above all, avoid cold currents of air coming in contact with the plants. Potting may now be proceeded with; Aerides, Saccolabiums, Vandas, and Camerotis are amongst the first to be seen to. Previous to potting the plants should not receive any water for a few days; the old materials are much more easily removed from the roots than when in a wet state. Plants that do not require shifting should have as much of the old material taken from the roots as possible, as by doing so it frees the plants from many insects—the wood-louse especially is generally very close to the surface; on the other hand the cockroach secretes itself amongst the crocks. Where baskets are used these must be examined; if they show any signs of decay, it is better to transfer the plant to a new basket than to trust to it until it becomes rotten: it is not wise to trust to a basket more than two years; when plants get into vigorous growth it is not an easy matter to transfer them into other baskets without injuring their roots. The most material point to be considered in potting is, that the pots should be well drained; potsherds of a suitable size should be used, filling two-thirds of the pot, and placing them edgewise, as when placed in that way it enables the point of the stake to be forced between them; by that means it is kept firm; it also allows the water to pass off freely. All species delight in a great amount of moisture at certain periods of the year, but they will not thrive without good drainage. The plants must be made firm by staking, the sphagnum must be made firm and clipped over neatly with the shears; give the plants sufficient water to keep the sphagnum in a fresh state. It adds to the appearance of the plants to cover over the moss with the common Selaginella or any small creeping plant with small leaves. Stanhopeas should be examined, and if they have become dry they should be dipped into a tub of tepid water, so that the whole mass may get a good soaking. Flowering plants which are placed in a dry atmosphere should not be neglected in the matter of watering, sufficient only to prevent shrivelling being given. *G. Baker, Clapham Common.*

FLOWER GARDEN, &c.

PARTERRE AND MIXED GARDEN.—Neatness and order are requisite in every department of a garden, but in the flower garden this requires the most vigilant attention. Instead of having set times for performing certain work, as is too often the case, the eye should be ever on the alert to detect any defect, and when observed the order should follow instantaneously for its removal. A good deal of the pleasure of a garden is derived from the manner in which it is kept, and any one having an eye for neatness and order is not slow in detecting a fault in this respect. A small affair, such as a few scattered leaves, a weed or two in the walk, an uneven piece of turf, or a trodden-down edging, will mar the beauty of the best garden ever made. Worm-casts are a great disfigurement on grass, and these should be kept down by constant sweeping and rolling, or by destroying the worms that cause it. This may be done, or their numbers greatly thinned, by using clear lime-water when they are near the surface, as occurs after heavy rain. A bushel or so of lime is sufficient for 150 gallons of water. If poured on quickly through the rose of a water-pot it will soon bring them to the surface, when they can be picked up and destroyed. Lawns containing extraneous plants, as *Daisies*, *Crowfoot*, *Plantain*, &c., should now be gone over, and such weeds carefully removed, as they are a great disfigurement, and spoil that rich velvety appearance so highly prized in a well-kept lawn. The best way of destroying the above weeds is to dig them entirely out. A simple tool for this purpose may be made out of a piece of iron about an inch or so wide and an eighth thick. This should be sharpened and have a swan-neck bend, so that it may be used as a lever to prize the weeds out by the roots. The late dry summer has been very trying for *Box* and other like edgings. Look over these, and make good any defects. If the soil is found to be unsuitable to the growth of *Box*, by being deficient in calcareous matter, some fine chalk should be added before planting.

Continue to place in heat all stock plants required for propagating purposes, and keep such things as *Coleus*, *Alternantheras*, &c., near the glass, so as to have plenty of light. If the stock is likely to be short, shift on the plants in light rich soil to get them into free growth. Plants in cold pits are liable to damp at this season. It is poor economy to winter things in these structures, as the expense of mats or any other covering involving breakages, &c., far outweighs the cost of pipes and fuel. If plants have to be wintered in such structures they should be frequently and carefully looked over, and every decayed leaf removed. Advantage should likewise be taken of every dry sunny day to change the air; on the other hand, they should be kept closed if the external air is at all damp. The practice is too common of putting air on these structures thoughtlessly, and without reference to the state of the atmosphere. This is often the case, too, with plants wintered in houses, when in reality little or no air is required during the winter season, unless accompanied with gentle fires for the purpose of drying the atmosphere. There is generally sufficient air in winter passing through the laps, and most plants will be found to do much better than by having large volumes of cold air rushing in. *Hollyhocks* should now be planted, so as to give time to get them strong and well-established, to insure a good spike of bloom. Seedlings of these can be obtained at a cheap rate, and are generally but little inferior to named varieties. Before planting out, the soil should be prepared by digging a hole 2 feet or so in diameter, and as much deep, thoroughly enriching the same. If the manure is at all rank, it should be kept near the bottom of the hole, and not allowed to come near the collar of the plant, as it is apt to cause canker. Before forking or digging mixed borders, the clumps of bulbs or herbaceous plants hidden beneath the soil should be sought out, and marked by driving neat and lasting pegs of oak or strong galvanised iron wire to prevent them being destroyed. If the latter are made with a circular loop at top they are very neat, and when not in use can be threaded and taken care of. Advantage should be taken of bad weather to have a stock of such things made. *T. Sheppard, Woolverstone Park.*

FRUIT HOUSES.

PINES.—The fact of ripe Pine-apples being obtainable at all seasons in the year, renders its accomplishment necessary where they are required, which necessitates successions of plants being started at various times during the year. To supplement the batch of autumn-potted suckers which was put into fruiting-pots about last October, it will about this time be necessary to select another lot from those plants which remained at that time, and which have been so far wintered in 7 and 8-inch pots, choosing out of these the most vigorous and the best-rooted plants for the same purpose; and the plants which remain after this selection is made should be reserved until the spring potting time, when they should be shaken out and disrooted, and be subjected to the same treatment as those suckers which will then be started, thus completing the mode of treatment to which suckers which are potted in the autumn are subjected here. Presuming that the best fibrous loam which is procurable is already prepared for potting in the manner as advised in former Pine Calendars, and in a fit condition for use, proceed with shifting these plants, keeping them well down in the pots, to admit of a copious supply of water being given them when necessary, and firmly ram the soil round the balls of the plants, which will, with the force of a brisk bottom-heat, speedily induce root-action, and soon establish the plants in the new materials. For the present, a mean temperature of 63° will be suitable for these plants, and also for those which were potted last autumn, with about 85° at the roots. See that the heat in those beds where plants are starting into fruit does not exceed 90° or 95° at the base of the pots, or the consequences arising from it will be most injurious to them. Ten-inch pots are most suitable for Queen plants and varieties of similar habit, and 11 and 12-inch ones for those of more robust growth. After the pots are crocked a free dusting of wood-ashes or soot should be applied on the crocks, to prevent the ingress of worms to the soil. *G. T. Miles, Wycombe Abbey.*

CUCUMBERS.—The weather is still very dull, which necessitates all the more need of a close and vigilant attention. An absence of sun for the past few weeks has had the effect of producing foliage somewhat weak and flimsy, despite the greatest care and attention, and it needs no philosopher to discover that when the foliage is in this condition the energies and capabilities of the plants are very much weakened, and the fruits correspondingly stunted. This is, of course, an undesirable state of things, and the means which are calculated to successfully grapple with such

an evil are briefly these—viz., a steady and even mean of 70° to 72°; a very moderate supply of moisture in the atmosphere and at the roots (excepting where hot-water pipes are in close proximity to the latter, when they must of necessity have more); very little excitement by way of liquid manure or other stimulants; and a modicum of air at the top at every favourable opportunity. A portion of the old soil, which may have become sour or exhausted, might also be removed with a small hand-fork from the roots, and previously warmed compost added, pressing it down fairly tight. The Cucumber delights in a firm bed. Giving air, let me remark, must be done with judgment and caution just now, and should never be practised with a view of lowering the temperature; that is done by regulating the hot-water valves. The primary object of giving air just now should be to permit the escape of stagnant heat and moisture, to be replaced by the ingress of fresh air. The external thermometer should stand at 53°, or thereabouts, before much air is admitted. Continue to remove male blossoms, or anything else which is likely to generate damp, and fertilise the female blossoms every day while the weather is so dull. Beware of canker at the collar and in the old growths, and do not allow the preparation of dung and soils to escape attention. *Thos. Simpson, Broomfield Lodge.*

Answers to Correspondents.

AIR ROOTS ON VINE STEMS: *James Brown.* These are generally supposed to be produced through the proper roots being in a somewhat cold and wet border, whilst the top or stem itself enjoys a warm humid atmosphere; a little more bracing atmosphere in the house would tend to check their growth. They do no harm, only their presence betokens unhealthy action of the roots, and that of course means ultimately unhealthy Vines.

CHILIAN BEET: *S. J.* What is called the Chilian Beet, and also Beta chilensis, is no doubt a coloured-leaved form of the Beta Cicla, or Sicilian Beet. Hence the name "Chilian" is probably a mere corruption of "Sicilian."

FRENCH BEAN: *J. A. Shaw.* It is a sort of "callus"—the result, probably, of injury.

GARDENING BOOKS: *Ebor.* Thompson's *Gardeners' Assistant*, M'Intosh's *Book of the Garden*, *The New Practical Gardener*, *Handy Book of the Flower Garden.*

GRAPES, THE KEEPING OF: *J. B.* Your Barbarossa Grape stalks are shrivelling up, we should suppose through the complete ripening of the stem; nothing particular the matter. When you cut the bunches and place the stalks in the bottles, place them in a dry room, the bottles lying a little on one side, so that the bunch itself may be suspended clear and free.

JUTE CARPETS: *R. N. H.* Jute stair-carpets can be bought, at 3*d.* per yard, at Cox Brothers, Camperdown Linen Works, Dundee.

KEEPING GRAPES: *Ebor.* Cut the bunches off the cane with a portion of the shoot carrying them, and insert them in bottles of rain-water in which a small piece of charcoal has been placed. Let the bottles then be placed a little on their side in a dry room.

MULBERRY TREES: *C. R.* We do not understand your question. Mulberry trees are generally planted like other trees, where suitable places can be found for them.

NAMES OF FRUITS: *A. F. S.* Your Apple is Dumelow's Seedling or Wellington.—*J. E. H.* The Apple is unknown: appears to be some American sort; *Pear:* Ne plus Meuris.—*J. K. Peake. Pears:* 1, Passe Colmar: 2, Jean de Witre; 4, Beurré d'Aremberg; 5, Winter Crassane; 6, 7, Beurré Diel.

NAMES OF PLANTS: *E. L. D.* Hypnum tamariscinum.—*T. B.* Linum trigynum.—*H. G. W.* The orange-red flower is Aphelandra aurantiaca, the other Rhipsalis salicornioides.—*P. H. G.* We have not succeeded in identifying your Orchid yet, but will try again.—*Subscriber, Dublin.* The Berberris is probably B. aristata; your specimen is too poor to enable us to name it for certain. The shrub is Sophora (Edwardsia) grandiflora var. microphylla.—*F. B.* Lycaste Barringtoniæ.

NOTICE TO LEAVE: *W.* There is no established custom that we know of. If you are paid weekly, you must give, or take, a week's notice, unless there is an agreement between you and your employer to the contrary. In agreements a month's notice on either side is usually agreed upon.

PALM ROOTS DISEASED: *Geo. Walker.* The large white patches on the roots of your Livistonia are not due to fungus agency. Under the microscope they are seen as a protrusion of the cellular tissue, which is in a very diseased state.

COMMUNICATIONS RECEIVED.—Subscriber, Dublin.—A. F. S.—J. Scott (next week).—A Carse o' Gowrie Man.—G. Dodd.—G. B.—J. M. H.—F. F.—B.

Markets.

COVENT GARDEN, January 28.

A moderate amount of business current just now. Supply good, both home-grown and Continental, the latter including salading from Paris, and good Easter Beurré Pears in considerable quantities. We have also received a very heavy consignment of Pines from St. Michael's in fine condition, the fruit ranging from 3 lb. to 6 lb. each. *Thos. Taylor, Wholesale Apple Merchant.*

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, per ½-sieve	1 0	1 6	Melons, each	..	....
Chestnuts, per bush.	10 0	20 0	Nuts, Cob, p. lb.	1 6	2 0
Grapes, English, p. lb.	4 0	10 0	Oranges, p. 100	8 0	12 0
— Muscats, do.	6 0	10 0	Pears, p. doz.	4 0	8 0
Lemons, per 100	8 0	12 0	Pine-apples, p. lb.	3 0	6 0
Medlars, per doz.	..	....	Walnuts, p. bush.	16 0	..

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, Fr., each	0 8	..	Horse Radish, p. bun.	3 0	5 0
Asparagus, English, per bundle	..	12 0–15 0	Leeks, per bunch	0 2	0 4
— French, p. bund.	2 0	..	Lettuces, per doz.	1 6	..
Beans, French, p. 100	6 0	..	Mushrooms, per pott.	1 0	2
Beet, per doz.	..	1 0 2 0	Onions, young, bun.	0 4	0 6
Broccoli, p. bundle	0 9	1 6	Parsley, per bunch	0 4	0 6
Brus. Sprts., p. bush.	6 0	..	Parsnips, p. doz.	0 9	1 0
Cabbages, per doz.	1 0	2 0	Radishes, per bunch.	0 2	0 4
Carrots, p. bundle	0 6	0 9	— black, Turnip, do.	..	0 6
Cauliflowers, per doz.	2 0	6 0	Seakale, per bundle	1 6	2 0
Celery, per bundle	1 6	2 0	Shallots, per lb.	0 3	..
Cucumbers, each	4 0	6 0	Salsify, per bundle	1 6	..
Endive, per doz.	1 0	2 0	Tomatos, per doz.	1 0	3 0
Herbs, per bunch	0 2	0 4	Turnips, per bundle.	0 6	0 0

Potatos:—Early Shaws, 110*s.*; Early Myatt's 140*s.* · Early Regents, 120*s.*; and Early Dons, 120*s* per ton.

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Azaleas, p. 12 sprays	1 6	3 0	Pelargoniums, 12 spr.	1 6	3 0
Camellias, 12 blooms	2 0	6 0	— Zonal, 12 spr.	0 9	1 6
Carnations, 12 blooms	2 0	4 0	Roman Hyacinths, per 12 spikes	2 0	4 0
Cyclamen, 12 blooms	0 3	0 6	Roses, indoor, p. doz.	2 0	6 0
Epiphyllums, 12 bl.	1 0	2 0	— French, do.	2 0	3 6
Eucharis, per doz.	6 0	12 0	Stephanotis, 12 sprays	9 0	15 0
French Lilac, p. bun.	7 6	10 0	Tuberoses, p. doz.	2 0	4 0
Heliotropes, 12 sprays	0 6	1 0	Violets, per 12 bun.	2 0	4 0
Mignonette, 12 bun.	4 0	6 0			

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Begonias, per doz.	6 0	12 0	Heaths, in var., doz.	12 0	30 0
Bouvardias, do.	9 0	18 0	Mignonette, do.	4 0	6 0
Chrysanthemums, do.	4 0	9 0	Myrtles .. do.	3 0	9 0
Cyperus, do.	6 0	12 0	Pelargoniums, dble., per doz.	6 0	12 0
Dracæna terminalis	12 0	30 0	— Scarlet, do.	6 0	9 0
— viridis, per doz.	12 0	24 0	Primula sinensis, do.	4 0	8 0
Epiphyllums, each	1 6	3 6	Solanums, do.	6 0	18 0
Ficus elastica	1 6	7 6			
Fuchsia, per doz.	6 0	12 0			

SEEDS.

LONDON: *Jan.* 28.—Considerable activity has prevailed during the past week in the agricultural seed trade. All descriptions of Red Clover seed have met with greatly increased attention, and a general advance of values of from 1*s.* to 2*s.* per cwt. has been established. For anything choice in new English holders are particularly firm in their demands. Advices received per cable from New York describe the Clover market as exceedingly strong. Alsikes and white Clovers keep steady. A good trade has sprung up for Trefoil seed, and rates have increased fully £2 per ton; in fact, nearly all the articles dealt in on our market now realise more money. Foreign spring Tares in especial show a rapid and remarkable rise of several shillings per quarter. Extreme scarcity is the explanation of the unusually high currencies now ruling. For large Scotch Gores we have a good inquiry. Rape seed, being in short supply, still tends upwards. The demand for Mustard seed is now somewhat less sluggish. White Millet seed is dearer, and meets with larger consumption, on account of the extravagant cost of Canary seed. Higher quotations for foreign Italian come to hand from the other side. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C.*

CORN.

On Monday at Mark Lane on Monday all classes of produce were greatly affected by the weather, and trade was dull. In Wheat, prices underwent a further reduction, amounting in some cases to 2*s.* per quarter. Barley was from 1*s.* to 2*s.* cheaper on the week. Malt was without appreciable change from Monday last. Rather higher rates were occasionally given for really sound Oats. Maize was fully 1*s.* lower on the week. In Beans and Peas holders submitted to a fall of 1*s.* per quarter; and the quotations for flour were in favour of the buyers. Canary seed, eagerly sought after, advanced to £12 per quarter.—The market was somewhat firmer on Wednesday, but Wheat did not recover. Barley was difficult to move, and but little business was done in malt. In Oats, slightly higher rates were asked for sound descriptions. Maize was dull, and Beans and Peas sold quietly at Monday's rates. Flour was steadier, but not higher.—Average prices of corn for the week ending Jan. 23:—Wheat, 43*s.* 9*d.*; Barley, 45*s.* 3*d.*; Oats, 29*s.* 8*d.* For the corresponding week in 1874:—Wheat, 63*s.* 3*d.*; Barley, 46*s.* 5*d.*; Oats, 27*s.* 10*d.*

POTATOS.

The arrivals of Potatos to the Borough and Spitalfields markets are on a moderate scale, and the trade is very slow, at the following quotations:—Regents, 85*s.* to 115*s.* per ton; Victorias, 100*s.* to 125*s.*; flukes, 120*s.* to 135*s.*, rocks, 60*s.* to 75*s.*—Last week's imports into London consisted of 20,803 bags from Antwerp, 2271 bags and 508 tons from Dunkirk, 319 bags from Rotterdam; 111 tons Dahoust, 316 bags Ghent, 1065 sacks Boulogne, 3 bags Brussels, and 1 bag from Ostend.

COALS.

At Monday's market the price of house coals gave way 1*s.* per ton. Quietness characterised Wednesday's transactions, with no further change in prices.

WHEELERS' LITTLE BOOK FOR 1875.

"The Catalogue of Seeds sold by J. C. Wheeler & Son, of Gloucester, appears to us to deserve notice, because of the stand which its authors make, in common with ourselves and others, against the useless incomprehensible seed lists of the day. In this, as in all matters of taste, there will be a difference of opinion as to the relative qualities of varieties: yet the mass of buyers who have no fancies, but who dislike being perplexed, and are satisfied with what is excellent, will greatly prefer a Short Select Seed List to an interminable labyrinth of names, which, for the most part, represent nonentities or rubbish. Messrs. Wheelers' 'Little Book' will do something to satisfy their expectations."

The above was written by that eminent authority, Dr. Lindley, twenty years ago; we still adhere to our original plan of keeping the lists of the different varieties as short and select as possible, so that an order given almost at random from our Catalogue will secure something good and select.

It has grown, however, until it is almost a misnomer to call it a "Little Book," but this growth has been principally and gradually effected by the number of illustrations we introduce.

Our new edition for 1875, for instance, contains eight beautifully coloured drawings of the newest and choicest varieties of Calceolaria, Cineraria, Cyclamen, Mimulus, Pansy, Petunia, Primula, and double Zinnia, drawn from nature by Mr. Worthington G. Smith expressly for our book. In addition to the eight coloured drawings, it contains ninety-two other illustrations, and much descriptive matter; so that altogether it is a great improvement on all previous editions.

It abounds with cultural hints and instructions, and is got up expressly for our numerous customers throughout the kingdom, to whom it is sent gratis. A few extra copies are printed, which may be obtained on application, post free, for *6d.* each.

J. C. WHEELER & SON,
SEED GROWERS, GLOUCESTER,
AND
59, MARK LANE, LONDON, E.C.

CHOICE VEGETABLE SEEDS.

Price for a Single Collection .. *2s. 6d.*

	Per dozen—*s.*	*d.*
For 1 dozen and under 5 dozen Collections	28	0
For 5 ,, and ,, 10 ,, ,,	27	0
For 10 ,, and ,, 20 ,, ,,	26	0
For 20 ,, and over	25	0

One dozen packets and upwards sent Carriage Free to any Station in England.

CHOICE FLOWER SEEDS.

Price for a Single Collection .. *1s. 6d.*

	Per dozen—*s.*	*d.*
For 1 dozen and under 5 dozen Collections	17	6
For 5 ,, and ,, 10 ,, ,,	17	0
For 10 ,, and ,, 20 ,, ,,	16	6
For 20 and over	15	0

SUTTON & SONS,
THE QUEEN'S SEEDSMEN, READING.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840)
Have now ready for delivery, in fine dry condition—
CORN MANURE, for spring sowing.
PURE DISSOLVED BONES.
PURSER'S BONE MANURE.
PURSER'S BONE TURNIP MANURE.
SUPERPHOSPHATE.
NITROPHOSPHATE.
NITRATE of SODA, SULPHATE of AMMONIA,
Genuine PERUVIAN GUANO, &c.
116, Fenchurch Street. E. PURSER, Secretary.

ODAMS' MANURES,
FOR ALL CROPS.
Manufactured by the NITRO-PHOSPHATE and ODAMS' CHEMICAL MANURE COMPANY (LIMITED), consisting of Tenant-Farmers occupying upwards of 150,000 Acres of Land.
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Particulars will be forwarded on application to the Secretary, or may be had of the Local Agents.

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Superb
New Mignonette,
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THE UNIVERSAL
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For Pot, Vase,
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Open Ground Culture
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DIRECTIONS
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MADE of PREPARED HAIR and WOOL.

A perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. A good covering for Pits and Forcing Frames.

PROTECTION from COLD WINDS and MORNING FROSTS.

"FRIGI DOMO" NETTING, 2 yards wide, 1s. 4d. per yard.
"FRIGI DOMO" CANVAS—
2 yards wide .. .. 1s. 10d. per yard run.
3 yards wide .. .. 3s. per yard.
4 yards wide .. .. 3s. 10d. per yard.

ELISHA T. ARCHER, only Maker of "Frigi Domo," Stanstead and Brockley Roads, Forest Hill, London, S.E.; and of all Florists and Seedsmen. All goods carriage paid to London.

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POOLEY AND CO., Horticultural Sundriesmen, 23, Bush Lane, Cannon Street, E.C.

N.B.—P. & Co.'s new Priced LIST is now ready. A copy will be sent, post free, on receipt of Trade Card.

CANTHARIKOPHO.
COCKROACH AND BEETLE POISON.
Destroys Rats and Mice.
Sold everywhere in Tin Boxes. By post, 1s. 3d. and 1s. 10d. each.

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UNDER ROYAL  PATRONAGE.

JOHN MATTHEWS (late C. PHILLIPS), Manufacturer of TERRA COTTA VASES, FOUNTAINS, ITALIAN BASKETS, RUSTIC FLORAL ARBORETTES, STATUARY, GARDEN POTS (from 2 to 30 inches in diameter), of superior quality, withstand frost, and do not become green; EDGING TILES, &c. See specimens in the Royal Horticultural Gardens. Price List free. Books of Drawings, 7d. each.

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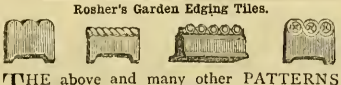

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Illustrated Price Lists free by post. The Trade supplied.

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Retail of the principal Seedsmen. Prices on application.

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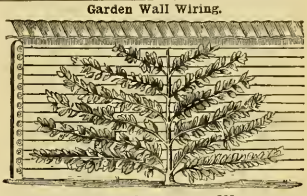

R. HOLLIDAY, PRACTICAL WIREWORKER, 2A, Portobello Terrace, Notting Hill Gate, London, W., begs to call the attention of all Gardeners who are about to have their Garden Walls Wired to his system of Wiring Walls, as being superior to all others for neatness, strength, and durability.

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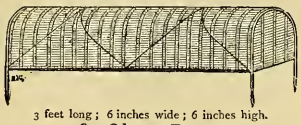

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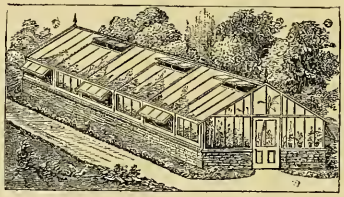

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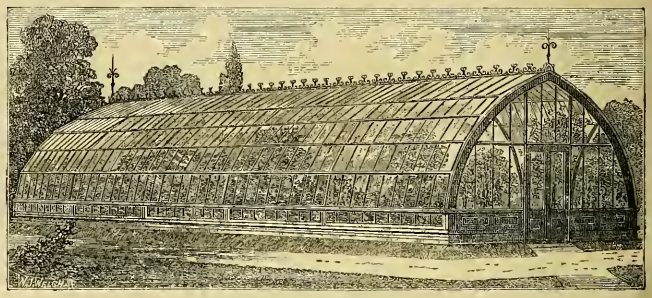

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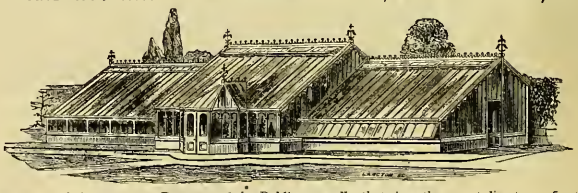

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THE

GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

No. 58.—Vol. III. { New Series. } SATURDAY, FEBRUARY 6, 1875. { Registered at the General Post Office as a Newspaper. } Price 5d. Post Free, 5½d.

CONTENTS.

SALES BY AUCTION.

Edmonton.

CLEARANCE SALE of STOVE and GREENHOUSE PLANTS and OUTDOOR EFFECTS.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Jaffé & Co. to SELL by AUCTION, without reserve, on the Premises, Bury Nursery, Bury Street, Edmonton, Middlesex, N., five minutes' walk from the Low Level Station, on WEDNESDAY, February 17, at 11 for 12 o'Clock precisely, the whole of the choice STOVE and GREENHOUSE PLANTS, consisting of two specimen Stephanotis, a very handsome specimen Double White Camellia, in tub, 9 feet by 8 feet, and another, Double Red, equally large; 2600 Ericas and Epacris, large quantities of Cyclamens, Primulas, Callas, Spiræa japonica, and Lily of the Valley in pots; thousands of scarlet and variegated Geraniums, Pelargoniums, hardy Ferns, &c.; together with a useful Cart, Horse, Harness, Barrow, Chaff-cutting Machine, sundry Hot-water Piping, Pumps, 300 feet Slate Shelving, Hand-lights, Garden Tools, and numerous other effects. The stock is now on view.

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Tooting, S.W.

IMPORTANT SALE of THRIVING NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. R. Parker to SELL by AUCTION, without reserve, on the Premises, Exotic Nursery, Tooting, S.W., on TUESDAY, February 23, at 11 for 12 o'Clock, a large quantity of EXTRA NURSERY STOCK, remarkably well grown, and in excellent condition for removal, comprising some thousands of Border Shrubs, consisting of the choicest Evergreens and Coniferæ in cultivation, and admirably adapted for effective planting; likewise a quantity of beautifully furnished Thuja aurea, and unusually handsome Yucca recurva for potting; Laurels, fine bushy Rhododendrons, well set, and numerous others; a rich assortment of Ornamental Trees, Acer Negundo var., &c.; some fine Fruit Trees, Standard and Dwarf Roses of sorts, and a quantity of Hardy Climbers in pots, &c.

May be viewed prior to the Sale. Catalogues had on the Premises, and of the Auctioneers and Valuers, 98, Gracechurch Street, E.C., and Leytonstone, E.

Frimley, Surrey.

CLEARANCE SALE of VALUABLE NURSERY STOCK, a portion of the Land being required for Building Purposes.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. J. Holder to SELL by AUCTION, without reserve, on the Premises, Frimley Park Nursery, Frimley, on THURSDAY, February 25, at 11 for 12 o'Clock precisely, a large quantity of well-grown NURSERY STOCK, consisting of a general assortment of thriving Evergreens, Coniferæ and Deciduous Shrubs, including 10,000 Common Laurels, 1 to 4 feet; quantities of Privet, Arbutus, Yews, Arbor-vitæ, Pinus of sorts, Wellingtonias, Thujopsis, and Cupressus, &c., a considerable number of Ornamental and Forest Trees, also some Standard Rhododendrons and selected Fruit Trees, together with a beautiful assortment of Standard and Dwarf Roses, and a quantity of strong Quick.

May be viewed prior to the Sale. Catalogues had on the Premises, and of the Auctioneers and Valuers, 98, Gracechurch Street, E.C., and Leytonstone, E.

Preliminary Notice.

IMPORTANT to FLORISTS, BUILDERS, and OTHERS.

MESSRS. PROTHEROE AND MORRIS will include in their Periodical Sale of Properties, to be held at the Mart, Tokenhouse Yard, City, on March 18, a small but valuable PLOT of LAND, having a frontage of 61 feet to the high-road, by a depth of about 200 feet, with an eight-roomed DWELLING HOUSE, SHOW HOUSE, GREENHOUSES, and other outbuildings standing thereon. Lease unexpired fifty-two years. Ground rent £6 5s.

Particulars had of the Auctioneers.

The property is situate on the high-road, in the best part of Sydenham.

Near Liverpool.

PRELIMINARY NOTICE of a very important SALE.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to offer by PUBLIC AUCTION, about the latter end of MARCH, in one Lot, the valuable FREEHOLD ESTATE known as Meredith's Vineyard, Garston, near Liverpool, comprising 6 acres, 1 rood, 39 poles of valuable Building Land, with the convenient modern detached Dwelling-house; also the vineries of Forty Greenhouses, Vineries, &c., heated with three miles of piping on the best modern hot-water principles; also the whole of the luxuriant fruiting Vines, &c.; full particulars of which will appear in future advertisements.

N.B.—The whole of the choice STOVE, GREENHOUSE and BEDDING PLANTS will be SOLD by PUBLIC AUCTION on the Premises as above, due notice of which will be given.

Auction and Estate Agency Offices, 98, Gracechurch Street, City, E.C., and Leytonstone, E.

Hardy Plants and Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, February 10, at half-past 12 o'Clock precisely, Hardy and Ornamental TREES and SHRUBS, FRUIT TREES, ROSES, HERBACEOUS PLANTS, GLADIOLI, &c.

On view the morning of Sale, and Catalogues had.

Fine Specimen Greenhouse Plants.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, February 11, at half-past 12 o'Clock precisely, six large and splendid Specimen CAMELLIAS, of pyramidal outline, 8 feet high, in tubs, beautiful in foliage and buds, of Belgian growth, such as are seldom to be bought in trade collections, and surpassing those generally offered in public sales; also extra fine English specimens. Superb plants of AZALEAS, on stems, in tubs, with globe-shaped heads, full of flower-buds at every point, and equal to hundreds of blossoms. Magnificent PALMS and DRACÆNAS, suited for large conservatories and outdoor summer decoration, well adapted for public buildings; also other choice Dracænas and YUCCA Plants, &c. Also a Collection of healthy ESTABLISHED ORCHIDS, including the best of Cool-house kinds, and a few choice Warm-house species, including—

Cattleya Dowiana	Oncidium Phalænopsis
,, chocoensis	Cypripedium caudatum roseum
,, gigas	,, Schlimii
Mesospimidium volcanicum	,, Masdevallia Davisii
Odontoglossum Roezlii	,, Denisonii
,, vexillarium	,, Lindeni
Oncidium aureum	Pescatorea Dayana
,, macranthum maxima	Saccolabium Crookshanki
	&c., &c.

On view the morning of Sale, and Catalogues had.

Choice Imported Orchids.

ODONTOGLOSSUM ROEZLII, &c., FLOWERING PHALÆNOPSIS SCHILLERIANA and P. AMABILIS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on Friday, February 12, at half-past 12 o'Clock precisely, CHOICE IMPORTED ORCHIDS, consisting of 300 fine healthy plants of Odontoglossum Roezlii, many of them of large size; fine plants of Oncidium Weltoni, Cattleyas from the Province of Cauca, Cattleya Mendelii, C. Trianei, Odontoglossum triumphans, &c.; also, twenty fine established plants of Phalænopsis amabilis, and twenty P. Schilleriana, all with flower-spikes; also a small collection of ESTABLISHED ORCHIDS, the property of a gentleman; and an importation of LILIUM AURATUM, just arrived from Japan in the finest possible condition.

On view the morning of Sale, and Catalogues had.

Californian Lilies.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, February 15, at half-past 12 o'Clock precisely, a quantity of CALIFORNIAN LILIES and other BULBOUS FLOWERING ROOTS, including several hundred of each of the following:—L. Humboldtii, L. Washingtonianum, L. Pardalinum, Bloomeria aurea, Brodiæa coccinea, new Calochortus and Cyrtobotha from Peru, Bolivia, the Cape and other localities; Lapageria alba plants, with various other Hardy Garden Bulbs suited for the present Season; a variety of other Rare Seeds and Bulbs, and an importation of Lilium auratum, just arrived in fine condition from Japan; Canadian and American Plants, Hardy Cyclamens of sorts, some in flower; Tree Pæonies, Belladonna Lilies, Amaryllis, hardy kinds; Double American Tuberoses, Begonia, choice bulbous kinds; Tropæolum tricolor Gerardi, in flower, &c.

On view the morning of Sale, and Catalogues had.

Cranbrook, Kent.

BLACK CURRANT and PLUM TREES.

MESSRS. WINCH have received instructions to SELL by AUCTION, without reserve, on FRIDAY, February 12, commencing at 12 o'Clock, upon the Premises at Hartridge Farm, Cranbrook, 5000 Naples BLACK CURRANTS, 24,350 Dutch ditto, and 240 PLUM TREES (all choice sorts).

N.B.—These Trees are all warranted strong and healthy, and will be actually sold without reserve on the above date.

Hanwell, Middlesex.

To NURSERYMEN, FLORISTS, and OTHERS.

MR. J. DOMONEY has received instructions to OFFER for SALE by AUCTION (in consequence of the death of the late Proprietor), at the Matt, Tokenhouse Yard, E.C., on THURSDAY, February 18, at 1 o'Clock punctually, a valuable FREEHOLD PROPERTY, consisting of a Dwelling-house, known as Floral Villa, with Nursery, Garden, Hothouses, Greenhouses, Lights, Grape Vines, &c. Three-fourths of the Purchase Money may remain on Mortgage at 5 per cent.

Particulars and conditions of Sale to be had of Mrs. OATES, on the Premises; of Mr. REGINALD VINING, 16, Furnival's Inn, E.C.; at the Mart, and the Auctioneer, 16, Furnival's Inn.

MESSRS. FRASER AND BENTON, HORTICULTURAL AND AGRICULTURAL AUCTIONEERS AND VALUERS, Romford and Grays, Essex.

Transit Agency for Plants, Seeds, &c.

C. J. BLACKITH AND CO., late BETHAM & BLACKITH, Cox's and Hammond's Quays, Lower Thames Street, London, S.E.—Forwarders to all parts of the World.

Wood Engraving.

MR. W. G. SMITH, ARTIST and ENGRAVER on WOOD, 15, Mildmay Grove, London, N.

RODERICK NICHOLSON, ADVERTISING AGENT and GENERAL COMMISSION AGENT, 112, Fleet Street, E.C.

Window Glass, Sheet Lead, Paints, &c.

THOMAS MILLINGTON AND CO., IMPORTERS and MANUFACTURERS. New LIST of PRICES, very much reduced, on application.
87, Bishopsgate Street Without, E.C.

Persons having Houses, Businesses, Estates, and other Property to be LET or SOLD, will find the MIDDLESEX REGISTER an excellent Medium for obtaining Customers for the same. Property is inserted in the "Register" free of charge, on forwarding full particulars to the Offices of

E. P. NEWMAN, Auctioneer, Valuer, House and Estate Agent, 41, High Street, Uxbridge, Middlesex.

TO BE LET, on LEASE, Rent £20 per year, a small convenient HOUSE, with 1½ Acre of good Walled-in Garden and small Greenhouse: well suited for a Florist. Apply,
T. PANNELL, High Street, Lower Mitcham, Surrey.

TO BE LET, about 30 Acres of FREEHOLD LAND, in the Parish of Streatham, annually or upon Lease, if preferred, situated about six miles from London, and particularly adapted for a Market Garden, having many breaks and a small stream running through the centre.
A. B., 5, Regency Square, Brighton.

Victoria Colony, Kansas, U.S.—To Farmers and OTHERS.

TO BE SOLD, fine STOCK FARMS of 640 Acres and upwards, Freehold, from 10s. to 25s. per acre. Grass in its natural condition unsurpassed for feeding Sheep and Cattle. For PAMPHLET containing full particulars respecting this Property, apply to
ROBERT W. EDIS, Esq., F.S.A., 14, Fitzroy Square, London, W., Architect to the Estate.

Standard Limes and Euonymus japonica.

THOMAS S. WARE can supply a few hundreds of clean grown LIMES, 10 feet; EUONYMUS JAPONICA, 16s. to 60s. per 100. TARRAGON and other HERBS. Prices on application.
Hale Farm Nursery, Tottenham, London, N.E.

Home Grown Mangel Wurzel and Turnip Seeds.

HAND F. SHARPE are prepared to make special offers to the Trade of the above-named SEEDS, all saved from carefully selected stocks, and of the finest quality. Prices very low.
Seed Growing Establishment, Wisbech.

MITCHELL'S CHAMPION of ENGLAND BROCCOLI.—The best late White ever grown, all new seed, will be sold in ¼, ½, and 1 lb. packages, at 10s. per lb.; sent to any part on receipt of Post Office Order, made payable
JOHN MITCHELL, Ponder's End, Middlesex.

Verbenas, Verbenas.

JOHN SOLOMON offers White, Scarlet, Purple, and other mixed sorts, good, strong autumn-struck Plants, in store-pots, with plenty of good cuttings, at 12. per store-pot. Terms cash, package included.
Islington Nursery, Park Street, Islington, N.

New Roses for 1875.

HENRY BENNETT has 10,000 PLANTS of the above to offer, of his usual matchless quality, at the reduced price made by several large Establishments in 1874. Ready early in March.

DESCRIPTIVE LIST ready, and post free.
Manor Farm Nursery, Stapleford, Salisbury.

Pansies—Show, Fancy, and Bedding.

THOMAS S. WARE'S new Spring CATALOGUE of the above, and other Florist Flowers, is now ready, and will be sent on application. Twenty thousand Pansies, established in pots, will be sure to bloom well if planted at once. The Trade supplied.
Hale Farm Nursery, Tottenham, London, N.

STELLARIA GRAMINEA AUREA—100 cuttings sent post free for 2s. 6d. This is quite distinct from Golden Feather, and certainly the best yellow carpet-bedding plant ever introduced; quite hardy.
H. CANNELL, New Florists' Flowers and Florist Flower Seed Merchant, Woolwich, S.E.

Pelargoniums for the Million.

JAMES HOLDER'S unrivalled COLLECTION of Show, French, and Fancy Varieties, strong Plants, distinct sorts, at 40s. per 100; 25s. for 50; or 15s. for 25. Hamper and packing included. Extra strong plants at 9s. and 12s. per dozen. Cash. CATALOGUES free on application.
Crown Nursery, Reading.

To Propagators and Plant Growers.

The most useful material for the attainment of successful and rapid culture is

COCOA-NUT FIBRE REFUSE.—Price 1s. per bushel, or 6d. per bushel for quantities of 20 bushels and over.
DAGNALL AND TILBURY, Steam Cocoa-nut Fibre Works, Farm Lane, Walham Green, S.W.

COCOA-NUT FIBRE REFUSE.—10,000 bushels, ready bagged, must be cleared. Price on application. Large truck, holding 300 bushels, free on to any rails, £2 10s.
H. WRIGHT, Fibre Merchant, 4, Peterborough Terrace, King's Road, Fulham, S.W.

PEAT for SALE, in Large or Small Quantities, at Chiselhurst, Kent. Can be put on the South-Eastern or London, Chatham and Dover Railways. Apply to Mr. T. LANSBURY, Hook Farm, Burnley Common, Kent.

Fibrous Peat.

BROWN FIBROUS PEAT, best quality, for Orchids, Stove Plants, and Potting. £6 6s. per Sixton Truck-load. BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, New Holland Plants, &c. £5 5s. per Six-ton Truck-load. Delivered on rail at Blackwater, South-Eastern Railway, or Farnborough, South-Western Railway.
WALKER AND CO., Farnborough Station, Hants.

Sphagnum, or Peat Moss, for Orchids.

FRESH SPHAGNUM MOSS, 10s. 6d. per sack.
WALKER AND CO., Farnborough Station, Hants.

Caution.

A. G. GILMORE, being NO LONGER in the SERVICE of J. H. LEY, Royal Nursery, Croydon, it is requested that NO ACCOUNTS be PAID to HIM, and that all Letters be Addressed to J. H. LEY.

Caution.

A. G. GILMORE, having LEFT the EMPLOY of J. H. LEY, Royal Nursery, London Road, Croydon, REQUESTS that NEITHER CORRESPONDENCE nor CASH be addressed or forwarded to him there, but to his (A. G. Gilmore's) Private Address,
1, Longley Road, Croydon.

Eucalyptus globulus (Australian Blue Gum).

JOHN WILSON, SEEDSMAN, Whitehaven, expects to receive in a few days a consignment of SEED of this well-known EUCALYPTUS, from Messrs. Thomas Lang & Co., Nurserymen and Seedsmen, Melbourne. Prices on application.

Roses—very Fine Plants.

THOMAS S. WARE can still offer strong plants of Standard, Half-Standard and Dwarf, H.P. and other Roses; also strong Climbers of sorts. Prices on application.
Hale Farm Nursery, Tottenham, London, N.

Best Seeds Only.

WM. CUTBUSH AND SON'S CATALOGUE of SEEDS, GLADIOLI, &c., should be had by all Gardeners and Amateurs purchasing really first-class goods at a moderate price. Post-free on application.
Highgate Nurseries, London, N.

WELLINGTONIAS:—
100, 3 feet high .. .. 3s. 6d. each
50, 5 to 6 feet high .. 9s. each
20, 7 to 8 feet high .. 12s. 6d. each
10, 9 to 10 feet high .. 15s. each.
Al well formed plants, from seed, and constantly removed; grown by a gentleman who has more than he requires. Address H. GAMBELL, Sharsted Court, Sittingbourne.

JOHN NELSON, NURSERYMAN, Heeley, near Sheffield, begs to offer the following at per 100:—
CHERRIES, Standard, extra strong £6 10
,, Maiden, extra strong 2 10
PEARS, Standard and Pyramid, extra strong .. 6 10
APPLES, Standard, extra strong 5 0
GENTIANA ACAULIS, nice clumps, ... 1 10
A liberal allowance to the Trade.

VINES, extra strong leading sorts, close-jointed and well ripened; SEAKALE, ASPARAGUS, and RHUBARB, extra strong, for forcing: ROSES, FRUIT, FOREST, and ORNAMENTAL TREES, STOVE and GREENHOUSE PLANTS, &c.
Priced Descriptive CATALOGUE, post free.
DICKSON AND ROBINSON, 23, Market Place, Manchester.

TO PLANTERS.—A CORRECTION.—PRIVET, Evergreen, 2½ to 3½ feet, strong, 35s. per 1000, 4s. per 100.
PRIVET, Oval-leaved, 2 to 3 feet, 40s. per 1000, 5s. per 100; 3 to 4 feet, 50s. per 1000, 6s. per 100.
For other kinds of TREES, SHRUBS, and ROSES see last week's advertisement.
JAMES BACKHOUSE AND SON, Nurseries, York.

TO THE TRADE.

PEARS, dwarf, horizontal-trained, of sorts, extra fine.
CHERRIES, dwarf-trained Elton and Morello, extra fine.
PLUMS, dwarf-trained Victoria, extra fine.
Prices on application.
FRANCIS & ARTHUR DICKSON & SONS, "Upton" Nurseries, Chester.

New Grape.

VENN'S BLACK MUSCAT.—This splendid Grape has all the good qualities of the Black Hamburgh with the rich full flavour of the Muscat of Alexandria. Good well ripened Canes, 31s. 6d. each. Usual allowance to the Trade. Post Office Orders payable to
WILLIAM DODDS, Gladstone Villa, Bishopston, Bristol.

DAVISON AND WHITTEM'S Complete COLLECTIONS of GARDEN SEEDS (Carriage Free), unsurpassed in quantity and quality, to suit Gardens of various sizes. No. 1, £3; No. 2, £2; No. 3, 30s.; No. 4, 20s.; No. 5, 15s. See priced Catalogue, free on application.
Seed Merchants, Library Buildings, Hereford.

B. MALLER, The Nurseries, Lee, and Lewisham, S.E., begs to offer the following, all of which are fine, healthy stuff:—
LAURELS, Common, 2 feet, 12s. per 100; 3 to 4 feet, 30s. per 100.
CURRANTS, Black, strong, 12s. per 100.
GOOSEBERRIES, Lancashire Lad, 12s. per 100.
CHESTNUTS, Horse, 8 to 10 feet, stout and straight, 50s. per 100.
,, Scarlet, Standards, £6 per 100.
POPLARS, Lombardy, 8 to 12 feet, 50s. per 100.
,, Abele, 8 to 10 feet, 50s. per 100.
ROSES, Standard, £4 per 100.

Marechal Niel and other Roses from Paris.

LÉVÊQUE AND SON, NURSERYMEN, Ivry-sur-Seine, near Paris, beg to offer good and strong plants of MARECHAL NIEL, dwarf, from the ground, £2 10s., in pots £2 16s., per 100; Standards, £5; and other TEA ROSES, Standards, £5; Dwarfs, £2 16s. PAUL NERON, Dwarfs, £2 8s.; Standard Perpetuals, our own selection, splendid heads and plants, £4 to £5; Dwarf Perpetuals, our own selection, strong plants, £2 to £2 8s. per 100. SOUVENIR DE LA MALMAISON, on own roots grown in pots, £2 per 100.

Gladioli from Paris, per Names and Seedlings.

LÉVÊQUE AND SON, NURSERYMEN, Ivry-sur-Seine, near Paris, beg to offer splendid, healthy, and good flowering bulbs of GLADIOLI, to the prices:—Gladioli, seedling, first-rate, 8s. per 100, £3 per 1000; mixed white, 12s. per 100; do. red, 12s. per 100; do. yellow, 24s. per 100; do. rose, 12s. per 100; per names, 100, 10 sorts, 8s. per 100; 25 sorts, 14s. per 100; 50 do., £1 to £2; 100, £2 to £6, and upwards, according to the novelty of the sorts, all in good flowering bulbs. English Cheques or Post Office Orders on Paris accepted for payment.

CHRYSANTHEMUMS, FUCHSIAS, GERANIUMS, FLORIST'S FLOWERS, &c.—Chrysanthemums in all the new and good varieties, 3s. per dozen, 20s. per 100. Fuchsias, from the best sorts, 3s. per dozen, 20s. per 100. Geraniums, autumn-struck Zonals and Nosegays, strong and well-rooted, twelve varieties, best for pots, 4s.; bedding varieties, 2s. per dozen, 15s. per 100. Twelve beautiful named Antirrhinums, 4s. Twelve fine Pentstemons, 4s. Twelve Phloxes, 4s. 6d. Twelve Pinks, 4s. Twelve Pansies, 4s. Twelve Carnations and Picotees, 6s. Twelve Coleus, 3s. Twelve fine Show and Early-flowering Pelargoniums, 6s. and 9s. All the above are named and good varieties. Trade prices on application
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

TO BE SOLD, 50,000 Spanish CHESTNUT, 12 to 18 inches; 30,000 ASH, 2 to 3 feet; 20,000 LARCH, 1½ to 2 feet; 5000 do., 5 to 10 feet. Apply to
Mr. G. CHORLEY, Midhurst.

SUTTONS' EARLY RACEHORSE POTATOS—about 1 ton for sets. Apply to
Mr. MANN, White End Park, Chesham, Bucks.

FOR SALE—three fine Specimen IXORAS, best sorts; and one CORDYLINE INDIVISA. For particulars, &c., apply to
AUSTIN AND McASLAN, 16, Buchanan Street, Glasgow.

Herbaceous and Alpine Plants.

THOMAS S. WARE'S Illustrated CATALOGUE of NEW, RARE, and CHOICE PERENNIALS for 1875 is ready, and will be sent on application.
Hale Farm Nursery, Tottenham, London, N.

FRUIT TREES.—Standard and Pyramid CHERRIES, APPLES, PEARS, and PLUMS, from 75s. per 100. GOOSEBERRIES, 3-yr. and 4-yr., from 10s. to 15s. per 100. CURRANTS, 3-yr. and 4-yr., from 6s. to 10s. per 100. Catalogues on application to
T. EVES, Gravesend Nurseries. Established 1810.

Orchids.

FOR SALE, a Collection of ORCHIDS, numbering about seventy species or varieties, and about 200 plants. The plants are of medium size, and would constitute a good nucleus for any one commencing the cultivation of these plants. For price apply to
Mr. KINMONT, Exotic Nursery, Canterbury.

Verbenas, Verbenas, Verbenas.

WILLIAM BADMAN offers Purple, White, Scarlet, Crimson, and Rose Verbenas—good Plants from single pots, 12s. per 100; rooted cuttings, clean and healthy, 6s. per 100, 50s. per 1000, package included. Terms cash. Cemetery Nursery, Gravesend.

Woinersh Nurseries, near Guildford, Surrey.

MESSRS. W. VIRGO AND SON can still supply large quntites of all kinds of FRUIT TREES, EVERGREEN SHRUBS, and LARGE TREES for Belting; extra strong QUICKS, SCOTCH, LARCH, ASH, HAZEL, OSIER, BIRCH, &c.

YEWS.—About 2000 well rooted and grown plants for Sale, from 3 to 4 feet high; they are as good as any one ever wished to see—cannot see better in Surrey, according to age, &c. Well adapted for hedges or ornamental plants. Price 80s. per 100.
JOSEPH SPOONER, Goldworth, Woking.

Notice.

SEEDS, SEEDS.—Now on view, SAMPLE GROWTHS of 1874, at
TANTON'S SEED WAREHOUSE, Borough End, London Bridge, S.E. CATALOGUES free.
Five per cent. discount and carriage free.

Lombardy and other Poplars.

THOMAS S. WARE can supply the above from 10 to 18 feet, well furnished trees; also BALSAMS. New Silver, and Black Italian, 10 to 12 feet. Prices on application.
Hale Farm Nursery, Tottenham, London, N.E.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS; also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.
Mr. WEBB, Calcot, Reading.

Roses, Fruit Trees, &c.

WM. CUTBUSH AND SON'S stock of ROSES, FRUIT TREES, &c., is unusually fine this season. A visit to the Nurseries would well repay intending purchasers. CATALOGUES post free.
Highgate Nurseries, London, N.

STRONG FOREST TREES, well transplanted, good roots.
ALDER, BEECH, BIRCH, CHESTNUT,
SCARLET LIMES, OAK, POPLAR, SYCAMORE.
Sizes and prices on application to
W. JACKSON AND CO., Nurseries, Bedale, Yorkshire.

To the Trade.

EUCALYPTUS GLOBULUS.—A fresh importation of the Seed of this well-known valuable Gum tree, just arrived, in good condition. Quantity very limited. Price on application to
HURST AND SON, 6, Leadenhall Street, E.C.

Orchids.

AMATEUR'S COLLECTIONS, adapted to those beginning the culture of this class of Plants, or to those already having a good collection, can be supplied in strong, healthy specimens, at 42s., 63s., 84s., and 126s. per dozen. Package and delivery to London free, on receipt of cash with order.
J. H. LEV, Royal Nursery, Croydon.
N.B.—Plants put in, gratis, to compensate for carriage beyond London.

Vincs, Vines, Vines.

VINES.—Fruiting and Planting Canes, strong, well-ripened, short jointed, and with fine plump eyes, of Black Hamburgh, Black Alicante, Muscat of Alexandria, Lady Downe's, Foster's Seedling, Gros Colman, Madresfield Court, Mrs. Pince, Bowood Muscat, White Tokay, West's St. Peter's, Trentham Black, White Frontignan: 2s. 6d. to 5s. each; a few extra strong canes, 6s. 6d.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

STRONG FOREST TREES.

LARCH, 2 to 3, and 2½ to 3½ feet.
SCOTCH, 2 to 2½, 2½ to 3, and 3 to 3½ feet.
SPRUCE, 2 to 2½, 2½ to 3, and 3 to 4 feet.
OAKS, English, 3 to 4, 4 to 5, and 5 to 6 feet.
The above, with other sorts, are all strong and good, and there is a considerable quantity of each size on offer. Apply to
JOHN HILL, Spot Acre Nurseries, near Stone, Staffordshire.

Roses.—Special Trade Offer.

RICHARD LOCKE has a great Stock, on Manetti, budded low. Fine plants and leading sorts, 25s. per 100, £11 per 1000.
Planting SEAKALE, 30s. per 1000. For cash only.
Alexandra Nurseries, Red Hill, Surrey.

New Dwarf Silver-variegated Geranium, Little Trot.

W. POTTEN is BOOKING ORDERS for the above, as advertised in the *Gardeners' Chronicle*, January 30. Those who wish to secure good plants should Order Early. See report of Chiswick trials in the *Gardeners' Magazine*, January 30.
Camden Nursery, Sissinghurst, Staplehurst, Kent.

Phlox (Herbaceous), Pæonies, Pyrethrums.

SPECIAL OFFER.
THOMAS S. WARE'S new Spring CATALOGUE of the above, and other Hardy Florist Flowers, is now ready, and will be sent free on application.
Hale Farm Nursery, Tottenham, London, N.

Roses, Roses, Roses.

WILLIAM FLETCHER has a great Stock of the above to offer, Dwarf, budded low on the Manetti, consisting of Madame Lacharme, Princess Beatrice, Comtesse d'Oxford, Baroness Rothschild, Alfred Colomb, Duke of Edinburgh, and all other well-known varieties. Also the New Varieties of 1873. Price per 100 or 1000 on application.
Ottershaw Nursery, Chertsey, Surrey.

Twelve Choicest Stove or Greenhouse Ferns, 21s.,

OR SMALLER SIZE, 12s., including many very rare varieties. This is the best time to buy Ferns, as the young and delicate fronds are not yet started, and they will consequently travel better. Package and delivery free to London on receipt of Post Office Order or Cheque.
J. H. LEV, Royal Nursery, Croydon.

Cabbage Plants! Cabbage Plants!

TRUE to NAME.
MESSRS. W. VIRGO AND SON can now supply any quantity of strong—
ROBINSON'S DRUMHEAD .. .. 3s. 6d. per 1000
EARLY BATTERSEA .. .. .. 3s. 6d. ,,
NONPareil .. .. 3s. 6d. ,,
ENFIELD MARKET .. .. .. 3s. 6d. ,,
RED PICKLING .. .. 5s. 6d. ,,
Woinersh Nurseries, near Guildford, Surrey.

POTATOS for SEED, all true to name, at moderate prices:—

Hundredfold Fluke	Compton's Surprise
Red-skin Flourball	Brownell's Beauty
American Early Rose	and
American Late Rose	Myatt's Ashleaf.

Prices on application to
HENRY CLARKE AND SONS, Seedsmen, 39, King Street, Covent Garden, W.C.

Genuine New Seeds.

WILLIAM FROMOW'S Descriptive CATALOGUE of VEGETABLE and FLOWER SEEDS, GENERAL GARDEN REQUISITES, &c., is now ready, and may be had post-free on application; also LISTS of ROSES, CLIMBERS, NURSERY STOCK, &c.
Sutton Court Nursery and Seed Establishment, Turnham Green, London, W.

GRAPE VINES from EYES.—Well ripened, short-jointed, fruiting and planting Canes of most of the best kinds, including Black Hamburgh, Victoria Hamburgh, Gros Colman, Lady Downes, Muscat of Alexandria, Mrs. Pince's Muscat, Duchess of Buccleuch, Madresfield Court, &c. Price 3s. 6d. to 7s. 6d. each.
T. JACKSON AND SON, Nurseries, Kingston, Surrey.

NEW APPLE—PEASGOOD'S NONESUCH.—Handsomest, and one of the largest autumn Apples in cultivation (Sept. to Dec.). First-class Certificate, Royal Horticultural Fruit Committee, Sept. 18, 1872; First-class Certificate, Crystal Palace Show, Sept. 8, 9, and 10, 1874. Strong Maidens, 72s. 6d. each; Dwarf-trained, 105. 6d. each. Trade terms on application.
W. AND J. BROWN, Nurserymen, Stamford.

Planting Season, 1874-75.

MESSRS. JOHN STANDISH AND CO. invite the attention of intending Planters to their large and valuable Stock, consisting of all the newest and best varieties of the Japanese Importations, as well as a vast quantity of SPECIMEN CONIFERÆ, HOLLIES, LAURELS, DECIDUOUS and EVERGREEN PLANTS, ROSES, FRUIT TREES, &c., all of which are in excellent condition for removal.
Their NEW CATALOGUE is now ready, and will be sent post free, on application.
Royal Nurseries, Ascot, Berks.

CRANSTON'S NURSERIES, Established 1785.—The following CATALOGUES are just published, and will be forwarded on application:—
DESCRIPTIVE CATALOGUE of ROSES (1874 and 1875).
DESCRIPTIVE CATALOGUE of FRUIT TREES.
DESCRIPTIVE CATALOGUE of CONIFERS, SHRUBS, and FOREST TREES.
DESCRIPTIVE CATALOGUE of BULBS. Address,
CRANSTON AND MAYOS, King's Acre Nurseries, near Hereford.

AMARANTHUS HENDERI.—For description, &c., see *Florist and Pomologist* for February which contains four pages of Testimonials and Opinions of the Press—*Gardeners' Chronicle, Gardeners' Magazine, The Garden, Journal of Horticulture*, and local papers on the "Dejeuner;" also Testimonials from the Gardeners of the principal Seats in the West of England. For full particular and Coloured Illustration of Plant, see our CATALOGUE for 1875, gratis on application. Per packet, 2s. 6d., sealed with the raiser's name.
W. HENDER AND SON, Bedford Nursery, Plymouth.

CONNOVER'S COLOSSAL ASPARAGUS.—This Giant American Asparagus is described as producing heads from ½ to 1½ inch in diameter.
"I have now much pleasure in saying that in point of size this is a colossal variety; it far exceeds the Giant or Battersea."—Vide *Gardeners' Chronicle*, May 9, 1874.
Good plants, 3s. 6d. per 100; extra strong, 5s. per 100.
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To Gardeners.

Gardeners are most respectfully Invited to Visit

THE PINE-APPLE NURSERY,

MAIDA VALE, LONDON, W.,

Where it is anticipated they will be highly gratified.

JOHN BESTER, Manager.

NEW HYBRID BEGONIAS.

THE FOLLOWING NEW BEGONIAS belong to the handsome-flowered, bulbous-rooted section, and are most desirable acquisitions, as they succeed and bloom well in an ordinary Greenhouse. The Bulbs being similar to those of Gloxinias, and now dormant, can be sent by Post:—

ANACREON, deep crimson, a beautiful flower, very long petals, *7s. 6d.*
BRILLIANT, very rich bright orange, a fine showy flower, *7s. 6d.*
CARDINAL, magnificent variety, fine large flowers of a rich deep magenta-rose, *7s. 6d.*
CAROLINE, deep rosy pink, with broad petals, *5s.*
CLIMAX, deep rich rosy carmine, broad outer petals, *5s.*
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ENSIGN, bright pink, a very elegant variety, *5s*
GEM, cream colour, the reverse of the petals pink, *5s.*
GLITTER, vivid orange-scarlet, extremely showy, *7s. 6d.*
HERMINE, bright orange cinnamon, very distinct, *5s.*
LOTHAIR, deep rose, a fine flower, with short broad petals, *7s. 6d.*
LUCINDA, fine flowers with long petals, of a deep rose colour, *7s. 6d.*
MAGNET, light pink, the reverse of the petals deep pink, *5s.*
MAZEPPA, light cream colour, tinted with orange-pink, *5s.*
PHYLLIS, delicate sulphur colour tinted with pink, *5s.*
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SURPRISE, bright pink, a very pretty colour, *5s.*
TROJAN, light rosy pink, very distinct, *5s.*

The entire Collection of the above Eighteen Varieties for Four Guineas.

Seed of the above New Begonias, separate kinds, *2s. 6d.* per packet; mixed, *3s. 6d.* per packet.

WILLIAM BULL, F.L.S.,
ESTABLISHMENT FOR NEW AND RARE PLANTS, KING'S ROAD, CHELSEA, LONDON, S.W.

HEATHERSIDE NURSERIES.

Nurseries (270 Acres in extent) near Bagshot, Surrey.

SEED ESTABLISHMENT AND LONDON DEPÔT,

QUEEN VICTORIA STREET,

CLOSE TO THE MANSION HOUSE STATION.

A LONDON BRANCH

Has just been opened, as above, where a succession of Sample Plants will be on view, and where also the

Flower, Vegetable, and Agricultural Seed Business

will be carried on and made a special object.

The very extensive Stock is, this season, in splendid condition. It includes every species of

ORNAMENTAL TREES and SHRUBS, Evergreen and Deciduous (of all sizes),

FRUIT TREES, ROSES, RHODODENDRONS, &c.

Buyers are invited to visit the Nurseries, at Bagshot, to inspect, and personally select what they require to be sent to them when removal is safe.

Descriptive Catalogues obtainable on application.

Please address orders to

THOMAS THORNTON,
Heatherside Nurseries, Bagshot.

Forest Trees, when taken in quantity, charged at a proportionately reduced price.

Vegetable & Flower Seeds
Seed Potatos, Garden Tools &c
Superior quality, Carriage free
Descriptive Price list post free,
James Dickson & Sons
"Newton" Nurseries and
108, Eastgate Street,
Chester.

SEED OATS.—MESSRS. LITTLE AND BALLANTYNE have to offer some fine samples of Black Tartarian and White Potato Oats, Chevalier Barley, &c.
Royal Seed and Nursery Establishments, Carlisle.

AS SUPPLIED TO THE QUEEN — AS SUPPLIED TO THE PRINCE OF WALES

SUTTON'S GRASS SEEDS FOR ALL SOILS.

CARRIAGE FREE.

Sutton & Sons

SPECIAL FEBRUARY LIST OF

GRASSES, CLOVERS, &c.,

Is now ready, and may be had, gratis and post free, on application.

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CHOICE VEGETABLE SEEDS.

Price for a Single Collection .. *2s. 6d.*

	Per dozen—s.	d.
For 1 dozen and under 5 dozen Collections ..	28	0
For 5 " and " 10 " " ..	27	0
For 10 " and " 20 " " ..	26	0
For 20 " and over	25	0

One dozen packets and upwards sent Carriage Free to any Station in England.

CHOICE FLOWER SEEDS.

Price for a Single Collection .. *1s. 6d.*

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For 5 " and " 10 " " ..	17	0
For 10 " and " 20 " " ..	16	6
For 20 and over	15	0

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THE QUEEN'S SEEDSMEN, READING.

FRANCIS & ARTHUR DICKSON & SONS.

106 Eastgate St. & The Upton Nurseries **CHESTER.**

Illustrated Catalogue of Vegetable & Flower Seeds,
Post free on Application.
Quality unsurpassed.

Cheap, Healthy, and Well Grown Trees and Shrubs,
ALSO
GARDEN and FLOWER SEEDS
OF THE VERY FINEST QUALITY.

Martin & Son

Seed Merchants and Nurserymen,
COTTINGHAM, and 61, MARKET PLACE, HULL,
(ESTABLISHED 1788).

Have pleasure in inserting the following Testimonials:

"December 22, 1874.

"Mr. MARTIN: Sir,—I am happy to say that, notwithstanding the past excessively dry season, the 25,000 Ornamental and Fruit Trees, Shrubs, &c., that I bought of you have done remarkably well. Had I not planted any Pinus austriaca (which do not like the soil here), I should scarcely have had any to make up this season. A. W."

The Shrubs and Trees were from 3 to 20 feet high.

"December 28, 1874.

"Mr. MARTIN: Sir,—I am able to say that, after having bought Seeds, Plants, and Trees, of your firm for fifty-four years, I have no reason but to speak in the highest terms of the quality of the same which you have always supplied to me. 'F. B. A."

GENUINE and NEW GARDEN SEEDS.
The 63*s.* Collection of Garden Seeds contains 25 qts. of Peas, &c.
Other Collections, *21s.*, *31s. 6d.*, and *42s.*, carriage paid.

Catalogues of Seeds and Trees on application.

PLANTING SEASON.

RHODODENDRONS

WILL BE SUPPLIED,

In Fifty of the most Popular and finest known Hardy Kinds,

Sturdy, Bushy Plants, 1½ to 2 feet high, at
£10 per 100,

Carriage Free to any Railway Station in England.

Many of these are Raised from Layers, and better Plants of their height cannot be desired or obtained.

A Descriptive Catalogue free on application to

ANTHONY WATERER,
KNAP HILL NURSERY, WOKING, SURREY.

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Is now ready, and may be had on application.

IT COMPRISES:—

HARDY JAPANESE and other CONIFERÆ.
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RHODODENDRONS in fine named varieties; PONTICUMS, and other common kinds for covers.
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FRUIT TREES.
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Cheap EVERGREENS and DECIDUOUS TREES and SHRUBS for Planting Belts and Shrubberies.
TRANSPLANTED FOREST TREES.
QUICKS, and other Hedge Plants.
DWARF EVERGREEN and VARIEGATED PLANTS for Winter Bedding, &c.

DESIGNS, PLANS and ESTIMATES prepared for Laying-out and Planting New Grounds, and for Improving Park Scenery and Existing Shrubberies and Plantations.

MILFORD NURSERIES, near GODALMING.

Hooper's Illustrated Gardening Guide & General Catalogue

This interesting Work is now ready. Price 1s., post free.

HOOPER & CO.,
COVENT GARDEN, LONDON, W.C.

Carnations, Picotees, and Pinks.

ISAAC BRUNNING AND CO. beg to announce that they have this Season a very fine and extensive Collection of the above to offer, strong plants of which are now ready for sending out. LIST of Varieties and Prices, together with Illustrated SEED CATALOGUE, on application.

Our ONE GUINEA COLLECTION of CARNATIONS, &c., contains six pair of choice Show Carnations, six pair of choice Show Picotees, twelve pair of Show Pinks, and twelve choice mixed Carnations and Picotees for borders.

Carriage and package free on receipt of Post Office Order. Half of the above quantities, 11s.

ISAAC BRUNNING AND CO., Great Yarmouth Nurseries.

Planting Season.—Avenue Trees.

LIMES, 12 to 16 feet high, straight stems, girting 4 to 8 inches at 4 feet from the ground, with well-balanced heads, and splendidly rooted. A stock of more than 5000 of these fine Trees to select from.

PLANES, OCCIDENTAL, 12 to 16 feet.
HORSE CHESTNUTS, 10 to 12 feet.
SCARLET HORSE CHESTNUTS, 10 to 12 feet.
NORWAY MAPLES, 10 to 16 feet.

All being stout, straight stemmed, and finely rooted. Every Tree has been removed within two years.

POPLAR, CANADENSIS NOVA, 18 to 20 feet.—This new variety of Poplar, far exceeding in rapidity of growth any tree I am acquainted with, is strongly recommended as a Town Tree, especially in smoky districts. There are hundreds in this Nursery 3 years old, measuring 18 to 22 feet high, and stout in proportion.

ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey, S.W.

Six Beautiful Orchids, 21s.

FOR WINTER and SPRING FLOWERING no class of plants can compete with Orchids, their culture being extremely easy, and the flowers very lasting.

The above are of distinct varieties, and are sent package and delivery free to London on receipt of Post Office Order or Cheque.

J. H. LEY, Royal Nursery, Croydon.

Twelve Graceful Palms, 21s.

HEALTHY YOUNG PLANTS, to grow on for Table decoration, and will be ready in about six months; or fit for immediate use, including many choice and very rare kinds, 63s., 84s., and 105s.

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INCLUDING ANTHURIUM SCHERZERIANUM, ALLAMANDA CHELSONI, and other equally fine sorts, in nice plants. Package and delivery free to London on receipt of Post Office Order or Cheque.

J. H. LEY, Royal Nursery, Croydon.

Twelve Ornamental Foliage Plants, 21s.,

INCLUDING many of the finest and newest varieties of ALOCASIAS, MARANTAS, CROTONS, &c., well established, clean, and healthy plants, to grow on for specimens. Package and delivery free to London on receipt of Post Office Order or Cheque.

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Snowflake.

THE FINEST POTATO ever introduced; will yield from 300 to 400 bushels per acre of handsome tubers of the most splendid quality and FREE FROM DISEASE. Messrs. DANIELS BROS. have just received a consignment of this magnificent variety direct from the original raiser in America, where it has obtained immense popularity, and which is now being distributed at the following rates, carriage free to any address:—3s. 6d. per lb.; 7 lb., 21s.; 14 lb., 42s.; cheaper by the cwt.

DANIELS BROS., Seed Growers and Importers, Royal Norfolk Seed Establishment, Norwich.

POTATOS for PLANTING.—Special offer to the Trade (for cash) of the undermentioned, in the following quantities:—Myatt's Prolific, by the sack, ton, or 10 tons; Red-skinned Flourball, ditto; Bresee's Peerless, ditto; Climax, ditto; Paterson's Victoria, ditto; Early Goodrich, ditto; Bresee's Prolific, ditto; Mona's Pride Ashtops, by the sack or ton; Fortyfolds, ditto; Early Rose, ditto; Hundredfold Fluke, ditto; Early Don, ditto; Regents, ditto. IMPORTED AMERICANS, by the pound, stone of 14 lb., or hundredweight, viz.:—Snowflake, Extra Early Vermont, Eureka, Compton's Surprise, Brownell's Beauty, Early Gem, Nonsuch and Late Rose. ASPARAGUS PLANTS:—Connover's Colossal, 2-yr., by the 100, 1000, or 10,000; Connover's 3-yr., by the 100 or 1000; Giant, 3-yr. and 4-yr., by the 100 or 1000; 6-yr. forcing, by the 100 or 1000. Prices on application to

CHRISTMAS QUINCEY, Potato Seed Grower and Merchant, Market Place, Peterborough.

N.B.—Peterborough being a central town there is easy communication to all parts of the country.

WRIGHT'S GIANT WHITE CELERY.—This is quite a distinct pure white variety: it is very crisp, and of excellent flavour, combining a robust, compact habit, forming very solid hearts, which blanch very easily. Heads of this variety have been grown weighing from 8 to 10 lb. each, and can be highly recommended for exhibition, private or market purposes. 1s. per ½ oz. packet.

WRIGHT'S RED GROVE and WHITE GROVE CELERIES.—These possess all the good properties of the Giant White, but do not grow quite so large. 1s. per ¼ oz. packets. The usual discount to the Trade.

The following fourteen firms have secured supplies of the above for this season, for which I beg to thank them, soliciting extended patronage:—

Hurst & Son, London.	Godwin, F. G., Sheffield.
Cooper, Robt., London.	Lawson Seed Co., Edinburgh.
Daniels Bros., Norwich.	Downie & Laird, Edinburgh.
Dickson, Brown & Tait, Man-	Drummond & Son, Sterling.
Dixon, E. P., Hull. [chester.	Howden & Co., Inverness.
Holmes, Ed., Lichfield.	Laird & Sinclair, Dundee.
Brotherton, Wm., Leeds.	Finney, S., & Co., Newcastle.
Nutting & Sons, London.	Umpleby, Geo., Leeds.

CUCUMBERS.—Wright's Wonder, fine white-spine, and Wright's Improved, black-spine; these will grow 24 to 30 inches long, are very prolific and of mild, good flavour. Pearson's Long Gun, Rollisson's Telegraph, Berkshire Champion, Improved Sion House, Masters' Early Prolific. 1s. per packet.

Lowest price quoted per 100 seeds on application.

W. WRIGHT, Seed Merchant and Nurseryman, Market Square, Retford, Notts.

WHEELERS' CHOICE SEEDS.

WHEELERS' TOM THUMB is the smallest and the best CABBAGE LETTUCE. Large packet, 1s.; small packet, 6d., post free.

WHEELERS' KINGSHOLM is the largest and the best COS LETTUCE. Large packets, 1s.; small packet, 6d., post free.

WHEELERS' COCOA-NUT CABBAGE.—Very early and excellent. Large packet, 1s.; small packet 6d., post free.

WHEELERS' GLOUCESTERSHIRE KIDNEY is the best early Potato grown. 3s. 6d. per peck; 12s. per bushel.

WHEELERS' FIRST EARLY PEAS.—The earliest in cultivation. 1s. 6d. per quart.

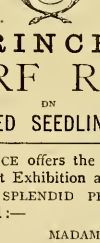
WHEELERS' GUINEA COLLECTION of GARDEN SEEDS is a Marvel of Cheapness, as it contains a liberal supply of some of the very Choicest Seeds in cultivation, and is delivered, carriage free by rail, to any part of the Kingdom.

Especial attention is called to the fact, that Wheelers' First Early Peas, Wheelers' Tom Thumb, and Kingsholm Cos Lettuce, Wheelers' Cocoa-Nut and Imperial Cabbage, are included in the Guinea Collection, and that this is the cheapest and most economical method of purchasing really choice Garden Seeds.

WHEELERS' GARDEN ORDER SHEET contains the Lowest Prices of the choicest Garden Seeds, Flower Seeds, and Seed Potatos in cultivation; with columns ruled ready for the quantities required to be filled in; thus rendering the usual troublesome matter of making out a "Seed Order" excessively easy: it will be forwarded gratis and post free. It contains a complete List of all the Best Varieties.

WHEELERS' CHOICE GARDEN SEEDS and POTATOS, to the value of 20s. and upwards, are delivered, Carriage Free by Rail, to any part of the Kingdom.

J. C. WHEELER & SON,
SEED GROWERS, GLOUCESTER,
AND
59, MARK LANE, LONDON, E.C.



PRINCE'S DWARF ROSES,

ON

CULTIVATED SEEDLING BRIAR.

GEORGE PRINCE offers the undermentioned Twenty-five finest Exhibition and Garden vars. of ROSES, in SPLENDID PLANTS, for 25s., package included:—

ANNIE WOOD,
BARON HAUSSMANN,
COUNTESS of OXFORD,
DEVIENNE LAMY,
DR. ANDRÉ,
CAMILLE BERNARDIN,
DUPUY JAMAIN,
EMILIE HAUSBERG,
ELISA BOELLE,
ETIENNE LEVET,
LA FRANCE,
EXPOSITION DE BRIE,
MAURICE BERNARDIN,
MADAME LAURENT,
MDLLE. E. VERDIER,
MAD. CHARLES CRAPELET,
MARIE BAUMANN,
MARIE RADY,
MARQUISE CASTELLANE,
MONS. NOMAN,
MONS. WOOLFIELD,
MONS. PAUL NERON,
REINE BLANCHE,
VICTOR VERDIER,
MARÉCHAL NIEL.

Also the following Twelve newer vars. for 25s., package included:—

AUGUSTE REGOTARD,
CLAUDE LEVET,
DUCHESS of EDINBURGH (Bennet),
ETIENNE DUPUY (Levet),
ETIENNE LEVET,
LE HAVRE,
MADAME LACHARME,
MADAME GEO. SCHWARTZ,
ANTONIA DECARLI (Tea),
THOMAS MILLS,
ANNA OLIVIER (Tea),
MARÉCHAL NIEL.

14, MARKET STREET, OXFORD.

Rare Opportunity.

NEW and VERY SCARCE TREE FERN SPORES from AUSTRALIA and NEW ZEALAND.

J. H. LEY, having just received an importation from his Collector, can supply good packets, with directions for sowing and rearing, at 3s. 6d., 5s., and 7s. 6d. each.

The fronds from which three sorts have been obtained are new species, the other four sorts are Cyathea dealbata (silver), C. medullaris, Alsophila McArthuri, Dicksonia fibrosa, and a small quantity of Dicksonia squarrosa. Should be sown now to obtain nice plants before autumn.

J. H. LEY, Royal Nursery, London Road, Croydon.

N.B.—Twelve choice PALM SEEDS, in distinct sorts, 5s.

LILIUM AURATUM.—This splendid flower, unsurpassed by any other in beauty, is specially recommended to Florists and Gentlemen Amateurs; it is suitable for Outdoor or Conservatory Decoration, and, although its price has hitherto placed it beyond the reach of many, lovers of the beautiful need no longer hesitate, as the Advertiser has received consignments from Japan which enable him to offer them at very moderate prices. Splendid bulbs 2s. 6d., 1s. 6d., and 9d. each. Address, by letter only,

J. W. H. GRAY, Agent, Melford House, Lordship Park, Stoke Newington, N., who will punctually forward all orders.

CONIFERÆ SEED, New and Rare, collected by M. Roezl in November, 1874:—

ABIES HOOKERIANA, A. Murray.—According to M. Roezl this fine Conifer attains the height of 100 feet; its branches are long and pendulous, resembling the Deodar Cedar, but of a much more graceful habit—a description fully confirmed by Mr. Lobb, who also compares it to the Deodar. M. Roezl says that he found it, without exception, in northern aspects, never fully exposed to the sun, and he believes it prefers shady situations. Price 3s. 6d. per 1000, 15s. per 5000 seeds.

PINUS (Strobus) MONTICOLOR, Douglas.—Sixty per cent. good. 3s. 6d. per 1000, 15s. per 5000 seeds.

PINUS (Pinaster) CONTORTA, Douglas.—This species grows in swampy places in the lowlands of California, and forms dwarf compact trees, with tortuous branches. On the mountains where M. Roezl encountered it, and where he collected the seeds, it forms stately trees of 100 feet in height; the wood is, owing to its elasticity and durability, much sought after. Seed of excellent quality, 90 per cent. good, price 3s. 6d. per 1000 seeds.

We also offer the following, collected by M. Roezl, in October, 1874: many of them familiar to, and ably described by, M. E. Ortgies, of Zurich: see *Gardeners' Chronicle*, December 11, 1874; and Mr. A. Murray's article, January 23, 1875:—

PICEA CONCOLOR, Engelmann: 2s. 6d. per 100, £1 per 1000, £4 per 5000 seeds.
,, ,, var. violacea, Roezl: 2s. 6d. per 100, £1 per 1000, £4 per 5000 seeds.
,, BIFOLIA, Murray: 1s. 6d. per 100, 12s. per 1000, £2 10s. per 5000 seeds.
,, DOUGLASII, var. glauca, Roezl: 1s. per 100, 8s. per 1000, £1 10s. per 5000 seeds.
ABIES COMMUTATA, Parlatore: 4s. per 1000, 15s. per 5000 seeds.
PINUS ARISTATA, Engelmann; 6s. per 100 seeds.
,, FLEXILIS, James: 1s. 6d. per 100, 12s. per 1000 seeds.
,, DEFLEXA, Torrey: 1s. per 100, 8s. per 1000 seeds.
PICEA LASIOCARPA VERA: 2s. per 100, 16s. per 1000, £3 per 5000 seeds.
,, MAGNIFICA, Murray: 2s. per 100, 16s. per 1000, £3 per 5000 seeds.
,, ,, MACROCARPA: 1s. 6d. per 100, 12s. per 1000, £2 10s. per 5000 seeds.
PINUS LAMPERTIANA: 1s. per 100, 7s. 6d. per 1000 seeds.

F. SANDER AND CO., New and Rare Seed Importers and Growers, St. Albans.

In Liquidation.

GUILDFORD NURSERY, WHITFIELD, near DOVER.

THE TRUSTEE of the ESTATE of Mr. C. F. BURBRIDGE, NURSERYMAN (in liquidation by arrangement), desires to inform Gentlemen about to plant, and the Trade, that in order to effect a speedy clearance of the well grown and thriving

NURSERY STOCK,

comprising over 10,000 healthy Standard, Pyramid, and Trained Fruit Trees; 30,000 Forest Trees, of sorts; 25,000 thriving Evergreen and Deciduous Shrubs and Coniferæ, including fine specimens of Wellingtonia gigantea, Deodara, &c., choice variegated Hollies; 8000 Scotch, Spruce, and Larch Firs; 1500 Ornamental Trees of the choicest and rarest species; 9000 Gooseberry and Currant Bushes; 3000 Raspberry Canes; 4000 Fruit Stocks; 8000 Dwarf and Standard Roses, including many of the latest varieties; 5000 Manetti Stocks; 2000 Shrubs, Ivies, and Creepers in pots, Herbaceous Plants, &c.; also the

STOVE and GREENHOUSE PLANTS,

including Exotic Ferns, Camellias, Azaleas, Primulas, Cinerarias, Cyclamen, Genistas, Heaths, Arums, Libonias, Solanums, Fuchsias, Geraniums, Foliage Plants, &c.; 10,000 Bedding Plants, 1000 Myosotis, 500 Roses in pots, a fine collection of Tricolor Geraniums, &c. He is prepared to Sell the same

By PRIVATE TREATY,

in large or small quantities, at greatly reduced prices.

To all those about to plant this Sale offers an exceptional opportunity, as the Stock cannot be surpassed either for variety or condition.

For prices apply to Mr. C. F. BURBRIDGE, at the Nursery; or to Messrs. WORSFOLD AND HAYWARD, Auctioneers and Surveyors, at their Offices, New Bridge, Dover.

GLOXINIAS.—Twelve finest named Gloxinias, 21s., very large roots, fit for exhibition this spring, including many sorts not yet in commerce; smaller size, 10s. 6d. per dozen. Packed and delivered free to London on receipt of Post Office Order or Cheque.

J. H. LEY, Royal Nursery, London Road, Croydon.

CALADIUMS.—Twelve finest sorts, 21s., including many of the best introductions of late years; large roots, fit for exhibition this year, or smaller size, 10s. 6d. and 15s. per dozen. Package and delivery free to London on receipt of Post Office Order or Cheque.

J. H. LEY, Royal Nursery, London Road, Croydon.

ACHIMENES.—Thirty-six corns, in 12 finest sorts, 10s.; or 100 corns, in 24 finest sorts, 21. Free by post on receipt of Post Office Order.

J. H. LEY, Royal Nursery, London Road, Croydon.

N.B.—CATALOGUES free on application.

SATURDAY, FEBRUARY 6, 1875.

A HOLIDAY IN NORWAY.

(*Continued from p. 136.*)

ALTHOUGH dressed in a suit of plain homespun cloth, and very often seen with all "the defilements and defacements of labour," the pride that seems especially to belong to the possessors of hereditary estates is shown by the peasant farmer in considerable self-assertion in all political matters, in a manly and independent bearing, and in the jealous maintenance of his social position. Assisted in the work of their farms by men styled housemen, who occupy a portion of land as tenants, holding it under lease for two lives, and paying their rent in labour, the distinction that exists between the peasant landowner and his associate is seldom forgotten so far as to permit of intermarriages between their respective families. A long and pure descent is claimed by many Norwegian bonders, and to illustrate how far this pride of lineage is cherished and its records preserved I may relate the following anecdote:—A young priest, fresh from college, who could have known little of the people amongst whom his lot was cast, said ironically on some festive occasion, when the principal men of the parish had assembled, that he supposed it not impossible that even amongst the present company some descendants of the ancient nobility might be found. He was seriously answered, that of the persons then present he alone was probably the only one who had no claims to such distinction.

The ordinary enclosed farms that came under my observation in meadow and under plough seemed to average from 40 to 60 acres. Attached to all farms is a certain extent of woodland and mountain pasture, the latter relieving the home farm for three months during the summer, and the former affording a supply of leaves and brushwood, on which the store stock are mainly fed during the winter season. Bere or Barley, Oats, and Rye are generally grown. Potatos, which occupy the place of Turnips in their system of farming, appear on every farm; the ordinary brandy of the country is distilled from this crop, with an admixture of malt. The hay crop is one of great consideration, and the utmost care is exercised in making it; it is dried on rails erected expressly for the purpose, and is with other crops securely housed in special sheds, or more often in lofts above the cow-house and stabling. Such farms as I have mentioned will maintain a family, supplying all reasonable wants. Farming in Norway is not conducted on the manufacturing principle, as it is in England, very little, if any, of the produce being sold.

The dwelling-houses and outbuildings, which appear numerous in proportion to the extent of the land, are built of Fir poles, notched and laid end to end, the interstices being filled with moss; sawn boards are, in the better class of houses, nailed on each side of the rough poles; the roof is formed of boards laid on the rafters, on which Birch bark is placed overlapping, on this are placed sods and sometimes slate—in either case the roof is tolerably impervious to wet and cold. The similarity of construction of all farmhouses and buildings over so great an extent of country seems to show that the people are satisfied that they have discovered the best and readiest system of construction that can be devised.

The mountain regions are the great grazing grounds of the country during the summer months. Farmers mark their sheep, and drive them to the hills to roam at will over the immense ranges of pasture, forest, and moss-covered rock; the animals naturally congregate in large flocks, and graze with that degree of system practised by animals enjoying liberty. The young beast stock also range with but little supervision, and the horses have equal liberty, but the cows are accustomed to graze near, or rather within call of the *seater*, and to answer the summons to be milked; the milkmaids reward them by giving them a handful of salt. The girls who live in these mountain farms make cheese and butter: the whey or buttermilk is boiled, and sent down in tubs on the backs of horses, once or twice a week. This is the drink of the work-people: I found it detestable.

There is something congenial to the habits of even domesticated animals in the wild free life enjoyed on the mountain pastures. I was assured that horses, beasts, and sheep, acquire so great a fondness for their mountain life, that when the summer-time comes round it is with difficulty that they can be retained on the home farm, and if one happens for convenience to be left, he escapes and follows his companions on the first opportunity. The sweet fresh pasturage, and the invigorating mountain air, have doubtless much to do with the fondness the animals evince for the hills. The cultivated part of the country amounts to one forty-second part. Forests cover one-fourth; the rest is mountain, portions of which afford herbage and moss, the latter supporting considerable herds of reindeer, so that in the farming economy of the country the land reported to be barren and uninhabitable represents pasturage for the greater portion of live stock for three months in the year.

In its general aspect, Norway presents the most unpromising conformation of surface for farming operations that can well be conceived. Mountain ranges, with plateaus whose altitude precludes cultivation, and from which rise mountains that reach an elevation of 8300 feet above the sea, prevail generally throughout the country. Except in the South, the mountain tops are covered with snow for the greater part, if not all the year; their slopes, when not absolutely inaccessible, are far too rocky and abrupt for farming settlements. The deeper valleys that intersect these mountain ranges, and which ramify with the contortions of the hills, are channels up which the sea sends its tides; above the level of these fjords are other water-worn valleys, which convey the overflow of the mountain lakes, subsidised by countless streams that in varying volume leap from the hills as waterfalls, or rush foaming down the mountain side—the impervious primitive or metamorphic rocks that are characteristic of the country, not permitting the absorption of the melting snows or the summer's rains. There exists, therefore, a very extensive superficial area that presents physical as well as climatic difficulties of a character not to be surmounted by the most enterprising cultivator. With few exceptions, the homestead of the Norsk farmer is built on the lower slopes of the hills, where, in fact, the wash of the rocky surfaces, in broken stone and silty soil, has accumulated to a sufficient depth for the operation of the plough; or on the embanked levels of loamy soil, the deposit left by ancient rivers, or when rich lacustrine alluvium is met with, or where moraines are spread out at the embouchure of glacier-grooved and expansive valleys, forming suitable sites of scattered hamlets and little farms.

The farms are generally parcelled out in fields, the necessary subdivisions being effected by loose stone walls, or fences made of poles placed in the ground without shortening, two cross-bars secured with twisted birch bands, holding sawn or split rails, which are laid so

close as to touch, and in a sloping position; such fences appeared to me prodigal of wood, and less secure than our ordinary post and rail fence. Quick hedges are rare; no rails are required in these fences, and they have the merit of great simplicity.

After making several excursions about Vang. I proceeded on my journey southwards, and I may here mention that I dispensed with the services of a guide, and never sent a *forbad* or messenger to order horses, and I do not think I lost time or horses by the avoidance of a custom strongly enforced by guide books; I found that "First come first served" was the rule.

Oilo, the first station after Vang, is charmingly placed, and has a good trout stream within sight. Continuing the journey, the stations of Skee and Riun were successively taxed for horses, and the day's journey was finished at Frydenlund. Evidences of glacial action are frequently met with in the course of a day's journey in this district; the greater part of the enclosed yard of the station is of rock smoothed down and rendered almost level by the great ice river that had at some remote period polished its surface. It is seldom such mighty operations of Nature, resulting in the degradation of mountains, are conjoined with so small an effect as that involved in the fashioning of an inn yard. There is a gradual ascent from Frydenlund, the road being carried along the side of a range of hills: far down, and at the bottom of the two ranges of mountainous heights which enclose this profound valley, a stream rushes, sometimes widening to the extent of a lake, in which islands covered with Fir trees every now and then are seen—sometimes pouring its waters over rocky channels, always lending a charm which bright moving water alone can give to the richly wooded landscape. Just before gaining the summit of the ascent, the view north looking up the valley comprehends an extensive range of snow-covered mountains, part of the Fille Fjeld, and under certain aspects of light and shade the prospect is exceedingly grand. The road in many places has been widened by blasting the exceedingly hard black crystalline rock, of which the mountain is composed at this elevation. The road is carried across the summit of this range: on one side Fir woods stretch away far and wide into the dim distance, and amongst the woods nearest the road immense rounded masses of rock, like the hulls of upturned ships, stand out in bold relief in the forest sea of deepest green. Broad expanses of boggy land, opening sometimes in wider pools, extend in one direction, aquatic plants in the bogs, and mosses and lichens, replace all other vegetation, and the country at this elevation has a dreary, cold, cheerless aspect. *William Ingram, Belvoir.*

(*To be continued.*)

New Garden Plants.

MASDEVALLIA SHUTTLEWORTHII, *n. sp.**

This appears from dried materials to be a rather nice thing among the Masdevallias of the second order of beauty. The upper sepal is yellowish, striped with nine longitudinal dark port-wine-coloured nerves. The lateral sepals are quite covered inside with innumerable small port-wine-colour dots over a yellowish ground. The long tails may be yellowish or green. The whole expanded flower is a little larger than that of M. triangularis. It was discovered in the United States of Columbia by Mr. Shuttleworth, one of the collectors of Mr. W. Bull, and has been dedicated to him. *H. G. Rchb. f.*

MASDEVALLIA CAUDATA, *Lindl.*

I am sometimes surprised by hearing my English acquaintances speaking in a sneering tone about M. caudata. That species will, no doubt, one day prove to be one of the most elegant of those of second-class merit. I have never seen any specimen grown in Europe, and know just nothing about its being here. I am very suspicious that the M. caudata of my English acquaintances is the M. coriacea, Lindl., by no means a splendid plant, and, I am sorry to say, of a very unpleasant smell. *H. G. Rchb. f.*

MASDEVALLIA (SACCILABIATÆ) SEVERA, *n. sp.**

This Masdevallia is rather near M. Chimæra and Roezlii. It comes nearer the last, but appears to be sufficiently distinct by its lateral sepals being straight, not divaricate; by all the sepals being narrower, and having all their asperities both on the surfaces or on the border from very short bristles, not from warts. The colour appears to be a vivid maroon, or rather port-wine-brown, with very numerous small transverse whitish (yellowish ?) bars, which gives it a rather gay appearance. I have at hand good flowers dried by M. Roezl, and others obtained from M. Patin, the young Belgian traveller. Lately I obtained a sketch of dried flowers, sent from the United States of Columbia by Mr. Shuttleworth to Mr. W. Bull. We may therefore well watch Mr. Bull, to see whether he will not suddenly show this interesting plant. *H. G. Rchb. f.*

* *Masdevallia Shuttleworthii, Rchb. f., n. sp.*—Perigonio aperto; sepalo summo semiovato; sepalis lateralibus semioblongis acutis, omnibus in caudas ipsis bene longiores extensis; tepalis supra basin angustam subito dilatatis ligulatis seu ligulato-panduratis, apice tricrenatis, antice basi inflexo auriculatis; carina obliqua per paginam; labello basi subcordato, panduratо obtuso, carinis geminis per discum anteposita in medio antico carinula minuta; columna apice tridentata.

* *Masdevallia severa, Rchb. f., n. sp.*—Folio maximo a basi petiolari spatulato oblongo acuto subacuminato; pedunculo valido apice triflore (pluriflore ? homochronice ?); sepalo summo triangulo caudato; sepalis lateralibus altius coalitis, dimidio liberis triangulis, porrecto subparallelis; caudis ipsa sepala æquantibus; limbo ac disco obpilos breyissimos scabridis; tepalis ligulatis apice duplicatis denticulatis; labello cuneato-oblongo, basi bilamellato; lamina limbo implicito denticulato subcalceata; nervis omnibus carinatis; columna acuta.

ROYAL HORTICULTURAL SOCIETY.

REPORT OF THE COUNCIL TO THE ANNUAL GENERAL MEETING ON FEBRUARY 9, 1875.

[In submitting this report the Council request the earnest attention of the Fellows to the concluding statements upon the financial position of the Society. It is hoped that there will be a good attendance at the annual meeting on February 9, when the Society's financial position will be discussed.]

THE Council, in presenting their report for 1874-5 to the Fellows, have great pleasure in again commenting upon the magnificent displays which the Society's shows have produced. The amendments introduced into the schedule, together with the reduction in the number of the shows, have both contributed to this result, and in no instance more remarkably than in the concluding exhibition of the season, when the collection of fruits and Chrysanthemums transcended almost all similar collections of former years. The more purely scientific work of the Society has again been attended with success. The experiments made at Chiswick form, as usual, the subject of a supplementary report. The meetings of the Scientific, Fruit, and Floral Committees have been well attended, and the work done considerable.

The Council have established a series of evening meetings for the discussion of horticulture. They are convinced that the comparatively small attendance at the ordinary meetings arises from the inconvenience of the hour rather than any indifference to them on the part of the Fellows, and they, therefore, consider that evening meetings may be considered of value both by the Fellows and others engaged in the pursuit of horticultural science.

In the course of the past summer the Council received an offer from Messrs. Prince, the proprietors of Prince's Club, of a large sum by the way of rent for the privilege of constructing a skating rink in the Society's gardens under certain conditions. Whilst considering this offer, the Council gave weight to the following points:—1. That the present expenditure of the Society cannot be maintained upon its present income, and that some increase would have to be made in the Fellows' subscriptions, or additional sources of income be provided. 2. That the large majority of the Fellows would prefer to give up the absolute use for a time of a small portion of their ground rather than pay an increased subscription. 3. That a great number of Fellows would be likely to accept the opportunity of subscribing to a very popular amusement brought to their own doors, and that many persons would be induced to become Fellows in order to obtain the privilege of so subscribing. 4. That Messrs. Prince proposed to erect the rink at their own cost, to reserve three days of the week for those Fellows who should subscribe to it, to conduct the rink in concert with the Society's officials, and to pay sums of money as rent amounting on the average to £1100 a year. The advantages thus offered appeared to the Council to be opposed by few countervailing objections, and they came to the conclusion that they ought not to let slip so admirable an opportunity of increasing the income of the Society. It is true the scheme had nothing to do with horticulture directly, but it would have been a great indirect benefit, tending to set more of the Society's funds at liberty for the direct advancement of horticultural science.

In this last respect the Council had before them the example of Her Majesty's Commissioners for the Exhibition of 1851, who have considered the sale on building leases of land which they had acquired for purposes connected with science and art a legitimate manner of advancing those interests. The mention of Her Majesty's Commissioners introduces the one difficulty which lay in the way of the skating rink. The Council had no power to sub-let any part of the ground held of the Commissioners, but Messrs. Prince were ready to accept of a "licence to use" without a lease. But in addition to this the Commissioners have power to prohibit any proceeding of the Society with regard to the gardens which shall not be of a horticultural nature. The Council felt that to communicate with the Board of Management on this subject would be useless, seeing that the Board had declined to discuss with them the Society's affairs; but the earliest opportunity was taken of bringing the matter to the notice of the Commissioners at their meeting on December 11. It was finally resolved to acquaint Messrs. Prince fully with the exact terms on which the gardens are held, and if they were willing to proceed the Council would then undertake such arrangements as they were competent to make. Messrs. Prince, after examining the Society's documents, entered into an agreement, and commenced operations. It was confidently expected that in view of the many difficulties which the Society had encountered in consequence of the onerous engagements originally made with the Commissioners, and in consideration of the many concessions made to them from time to time in support of the International Exhibitions, no interference would take place. Such non-interference would have been at least consistent with the expressions of amity towards the Society with which the refusals to co-operate with the Council had been accompanied. Accordingly, for the first four or five weeks no objection was offered. The officials of the Commission were well aware of what was in course of erection, and conversed about it to the Society's officials. Messrs. Prince spent a considerable sum in furthering the undertaking, when suddenly the Commissioners came to the conclusion that an interference was convenient, and intimated that they were about to file a bill in Chancery to test the legality of the Council, and to litigate all disputed points with the Society. The Council having repeatedly received this threat for two years, and having taken the highest legal opinion as to its *status*, and as to all other points in dispute, cannot feel any regret that the relations of the two bodies should be at length brought before the public. They are satisfied that not only will their own *bona fides* be vindicated, but that a public discussion will redound to the credit of the Society.

The Council have now to call the earnest attention of the Fellows to the state of the Society's finances. It has been impossible to make any serious reduction in the debt to which the Council called the attention of the Fellows in their last report. Indeed, since the accession of the present members to office, the Council have been called upon to pay debts previously ignored in the published accounts of the Society. Sir Trayton Drake advanced prior to 1860 £1000 to the Society at interest; no interest had been paid since 1864, and although the matter had been before 1873 brought to the Council's notice by legal proceedings, no settlement had been effected. The Council have succeeded in compromising this claim by a payment of £600. There was also a claim by Mr. Cooper of £105, which the Council have settled.

It has become evident to the Council, as already stated, that the ordinary revenue of the Society cannot support its expenditure. Several reductions have been made which will prevent any increase of liability in 1875;* but this course is looked upon by the Council as wholly unsatisfactory. The question as to whether the Society is to remain at South Kensington is brought into prominence by the necessity of paying rent to the Commissioners in 1876, so that the local Fellows (and neighbourhood) must now make up their minds definitely either to risk the loss of the gardens at South Kensington or to subscribe more largely. The Council feel that any increased subscriptions ought fairly to fall upon those who use the gardens most frequently, and to whom their loss would be most serious. Those Fellows who live at a distance and support the Society on account of its being the national representative of horticulture ought not, in the Council's opinion, to be further taxed for the maintenance of the South Kensington Gardens. To this end the Council are prepared to suggest a scheme for increasing the annual income of the Society should the above policy be accepted, and will call a special meeting for the purpose of submitting their scheme to the Fellows.

In conclusion, the Council feel it their duty to

* In particular, reductions have been made in the staff; prizes will only be offered at the most important shows, those in May, June, July 7 and 21, and October. Other extensive reductions have been temporarily sanctioned.

remind the Fellows that whatever opinion they may have as to the desirability of retaining the South Kensington Gardens, the Society is bound to do its utmost to maintain its lease, if only for its obligations to the Life Fellows, and, above all, to the debenture-holders. If Her Majesty's Commissioners should succeed in an attempt to get the lease avoided, the property would be released of its debt to the debenture-holders, who would thus lose the whole of their £50,000 originally advanced, or be obliged to accept such a dole as the charity of the Commissioners might induce them to offer.

Report of the Chiswick Board of Direction. [February, 1875.]

The Chiswick Board of Directors have to report, that the operations in that establishment during the past year have been chiefly directed to the general maintenance of the garden, the experimental trials of vegetables and flowers, the supply of plants for the decoration of the gardens and conservatory at Kensington, and the provision of seeds and plants for distribution to the Fellows. As regards the latter, the new plan which has been adopted in lieu of the ballot, of allowing the Fellows to select a certain number of plants from a list provided for the purpose, has been found convenient to work, and, as they believe, has given greater satisfaction to the recipients.

During the year the garden has been supplied with water from the waterworks, which has proved a great advantage, both as to convenience and economy of labour. The immediate cause of this supply being laid down was the failure, during the dry period with which we were visited last summer, of the wells upon which the water supply had formerly depended.

In the Floral department the distributions to Fellows have consisted of 42,684 packets of flower seeds, 3643 plants selected from the distribution list by Fellows, and 428 packages of cuttings and bedding plants. The garden at Kensington has been supplied from Chiswick with 13,936 plants for the decoration of the conservatory; 56,627 plants have been used in the summer bedding arrangements, 3164 plants in the bedding provided for the spring season, and 8487 plants for autumn bedding.

The comparative trials of new flowers which took place last year were devoted to Pelargoniums and bedding Pansies, and reports of the results, drawn up by the floral director, will be found in the last number of the Society's *Journal*. The number of varieties of Pelargoniums planted out for these experimental purposes was 293, while eighty-three sorts, chiefly consisting of the rose-pink varieties, were grown in pots under glass, in order to ascertain which varieties were the best adapted for that mode of cultivation. Amongst the former, nine new certificates were granted, and in twenty-four cases the previous certificates were confirmed, on a comparison of the newer with some of the best older varieties. In the pot trial six new certificates were awarded, and the previously granted certificates were confirmed in the case of five others.

In the case of bedding Pansies, 139 varieties (some of them of the fancy class) were received and planted. The Floral Committee awarded eleven certificates, and suggested that the best varieties should be grown again and examined earlier in the season. In accordance with this suggestion, Mr. Barron is preparing to plant out an entire bed of each of the selected varieties.

So far as this year's limited means will allow, these interesting trials will be continued as heretofore.

The [Vegetable] trials which were made during the past season in the garden at Chiswick were a continuation of the examination of the Potatos which was commenced last year, and an investigation of complete collections of Broad Beans, Kidney Beans and Celeries. Of Potatos, 158 varieties were dealt with which had not been included in the trial of the previous season, and of these five received First-class Certificates. In the trial of Broad Beans there were forty-seven varieties, of which a full report will be found in the Society's *Journal*; but on account of the dry, cold season the Kidney Beans, of which 113 varieties were sown, proved a failure, and it was determined not to proceed with any examination of them till another year, when a second attempt will be made. The trial of Celeries was a very successful one. Fifty reputed sorts were sown, and these were reduced after careful comparison to eighteen, of which six were distinct red varieties, and twelve distinct white.

The vegetable trials which are contemplated for 1875 are Kidney Beans and Onions.

The subjects most worthy of remark in relation to Fruits which have come before the board this season are a set of seedling Vines raised by crossing Black Monukka and Black Hamburgh, with the view of obtaining a seedless variety with the quality of the Black Hamburgh—the result of this experiment will be found in the *Journal*—and the other is the fruiting of the Pommier de Paradis for the first time in this country. The result of this is, to determine the distinct individuality of this variety, and to prove that it is not only valuable as a dwarfing stock, but that its fruit is one of great excellence as a dessert variety.

CATTLEYA GIGAS.

This plant was spoken of and illustrated in the *Gardeners' Chronicle*, No. 46, 1874. Having not only been the discoverer of this most wonderful Orchid, but also sent it three times to M. Linden and to Messrs. Veitch of Chelsea, I am enabled to say something about it; and I think it only fair that my services as its discoverer should be known.

When travelling in the year 1868 from Medellin to Frontino (in Columbia, South America) I had the great pleasure to meet with Cattleya gigas, just when most desirous of discovering a novelty. I confess I had become tired of observing that a long series of different forms, hitherto met with, proved to be mere varieties of one type, as C. quadricolor, C. Trianæ, and C. chocoensis.

When I discovered this brilliant Cattleya, just after having most fortunately met with Odontoglossum vexillarium, I found also a fine yellow-blooming Cattleya, probably a variety of C. Dowiana, not to mention hundreds of other valuable plants, gathered on that and other trips to the same place. Frontino since that time has became famous as a rich Orchid producing field. Mr. Chesterton went there subsequently, especially charged with the mission of acquiring a great lot of Odontoglossum vexillarium; and in the year 1871, M. Roezl, on account of M. Linden, arrived there in order to bring home large quantities of both Orchids and many other plants.

In the year 1872 another supply from my hands reached Brussels; and finally, in the year 1873, for a third time, I directed my steps to Frontino. It was then for a stay of about eight months, during which I undertook many rambles in all directions.

Another traveller, M. Patin, exploring at the same time the State of Antioquia (to which Frontino belongs), availed himself of my discoveries. Consequently, Frontino has become through me a true cornucopia to Orchid seekers. The inhabitants of Frontino—I may be allowed to state here as a mark of gratitude—in consideration of my activity and the services rendered to them, conferred a great honour on me by calling a street and a square after my humble name. There is now in Frontino a Wallis Street, and a Wallis Square!

But to return. I have to express some doubts whether the Cattleya brought in by M. Roezl is really C. gigas, as a great many plants imported by him came from Amalfi, a more easterly point, and about 80 miles distant from Frontino. The same may be said of all that were sent by Mr. Ewans from Antioquia, which were sold. I saw the flowers of this Amalfi Cattleya, and I recognised a different but likewise fine species, introduced by me three years ago from Medellin and the Cauca Valley. It is not yet determined, but dried specimens and sketches are in the hands of our learned Orchidiograph, Professor Reichenbach, and we shall have in a short time a full description of it. It has a delicate rose colour, the margin of the lip being nicely cut out; two large yellow spots, like a pair of shining eyes on each side of the lip, constitute the most characteristic feature.

The place of the true Cattleya gigas is in the immediate vicinity of the little town of Frontino, where it grows in thick forests, and also in the tops of high trees. The elevation above the sea is about 4000 feet, and the best-flowered plants were found in a shady situation, of course in a rather temperate climate. I believe your temperature statements are too high, and I should propose 65° to 70° in the night, and 70° to 80° in the daytime, as being more convenient. The rainy season, properly speaking, is not distinguished in that part of the Cordilleras.

Certainly you will be astonished to learn that I observed twice during my last stay at Frontino a hailstorm, the hailstones being nearly as large as a Hazel-nut. But I don't mean by this observation that it is a severe climate.

The extremely long blooming of C. gigas deserves to be mentioned here. I enjoyed the sight of the fine flowers during a period of three weeks. A sketch of a full-flowering spike of this plant was sent to Professor Reichenbach, and which gives an idea of its great beauty. To draw a conclusion from the differently situated localities, as well as the differences of elevation which C. gigas is growing in, I should be inclined to suppose that there are some three or four varieties in the large stocks existing in the stoves of Brussels and Chelsea.

I was often told while in Frontino of a black-flowered Cattleya, as occurring on a certain place thereabout, and which was visited by me. If there can be any reliance placed on this statement, we might suppose it to be a dark violet-painted—an atropurpurea form. *Gustavus Wallis, Botanical Traveller.*

ADIANTUM GRACILLIMUM.

In the *Gardeners' Chronicle* for January 3, 1874, p. 14, will be found the original description of this most elegant Fern, from the pen of Mr. Thomas Moore, where the botanic state of the fronds, pinnules, sori, indusia, rachis, &c., are described in terms as correct and compact as the generic name itself.

For some months previous to the publication of this description the plant was known to horticulturists, and since that time Mr. Williams has gradually increased his stock, and more recently made the Fern public by an illustrated advertisement, so that now the plant is well known by name, if not by aspect, to all interested in new plants.

As Adiantum gracillimum has been already so well described botanically in these columns, I may well be excused for writing a few lines less botanical than popular, regarding perhaps the most elegantly graceful of all known Maidenhair Ferns. A too close description of anatomy and habit considerably detracts from the ideal character of a first-class and delicate beauty like Adiantum gracillimum. An anatomical description of the "bronchial tubes" of Dante's "Beatrice," or an account of what Goethe's "Margaret" was in the "habit" of eating for "supper," would considerably lessen the ethereal beauty of these heroines.

The size and habit of an individual frond of Mr. Williams' new Fern is shown in our illustration (fig. 31), but the pinnæ themselves are often so small as to be no more than a thirty-second, or even a sixty-fourth part of an inch across; in fact, a full grown plant at times exactly looks as if it were covered with the finest green dust, or emeralds, or drops of glittering water finely balanced on the slenderest of slender hairs. As seen at its best in Mr. Williams' houses devoted to new plants, this Fern has been not inaptly compared with a small and elegantly refined fountain covered with pellucid drops. If such a "Maidenhair" Fern could ever have its spray-like fronds associated with a maiden at all, it would be the "Maiden of the Mist" in Sir Walter Scott's *Anne of Geierstein*, or, better still, the exquisite *Undine* of De La Motte Fouqué. Compared with other Adiantums, it is in its parts the smallest of the small, with an elegance and refinement it is impossible to reproduce in wood engraving. If Adiantum farleyense is like the growl of the drums when the terrible one-eyed giant is announced in Handel's "Acis and Galatea," then A. gracillimum is like the innumerable, endless, tinkling midsummer-night's fairy-bells heard in Mendelssohn's "Wedding March." Its fineness is like the fineness of some grasses, as Briza minor, but combined with a lightness, elegance, and emerald transparency never yet possessed by any grass, or indeed any Fern other than Adiantum gracillimum itself. *W. G. Smith.*

CAMBUSMORE.

Seeing Mr. Downie's note at p. 83 on the successful lifting of a large Apple tree at Cambusmore, I am induced to send you a few particulars of this estate, which is the residence of Samuel Bateson, Esq. It is a beautifully situated house, nestling in the midst of rocky surroundings and native Birch woods. Extensive views of the most varied and beautiful description are seen from the mansion, the most prominent of which are some of the mountainous rocks of Sutherlandshire, its fine woods and cultivated fields, in the midst of which is spread out the lovely estuary called Little Ferry. In looking over the garden there I observed several things truly worthy of notice. The standard Roses were most wonderful specimens of successful cultivation. On November 3 Gloire de Dijon had large numbers of very fine flowers in perfection, as well as many of the best sorts of hybrid perpetuals, the flowers of which were exquisite in colouring. The Lilium auratum is used here as a line or ribbon; it grows most luxuriantly, and at the above date many of them were throwing up flower-spikes, while others were in the full development of their beauty, and the colours perfect. Another plant largely used there, the common white Heath, Erica vulgaris alba, had been most effective. Grown in a front line, and with perfect uniformity as to size and shape, it had been one mass of pure white throughout the whole autumn. Bedding plants are grown extensively, and in all the fashions and styles of the day are they planted out. They grow and flower most abundantly under the judicious arrangements of the Hon. Mrs. Bateson, who takes much interest in all that concerns the garden, ably assisted by the care and skill of Mr. Gordon, the painstaking gardener there. *T.*

MOOR COURT, HEREFORDSHIRE.

Moor Court, the residence of the Rev. James Davies, President of the Woolhope Club, is approached from the Leominster and Kington Road through a broad avenue of Elm trees, somewhat more than half a mile in length. The road through this noble avenue makes a considerable descent towards the house. The avenue is spacious in breadth, as it should be, that the tall forms of the Elms may be seen to advantage, and that the small foliage of the tree may receive those grand masses of light for which it is so well adapted. This fine avenue is certainly the most striking feature of the estate. It has been planted at different times, but the trees have all attained the characteristic features. Below the second gate the Elms on each side are here and there alternated with Lime trees, and towards the end approaching the fish-ponds and the house, Scotch Firs, in support of the Elms, form, as it were, a double avenue. The Elms are the finest in the valley, but they are drawn up into very picturesque forms. This part of the avenue is very striking; and whether the dark foliage of the Firs is seen in marked contrast with the light green leaves of the Elm, with which their bright cinnamon-coloured stems harmonise so well, or whether, when the winter has left bare the handsome rugged forms of these old trees and the Scotch Firs are fully seen, it is extremely interesting and picturesque.

There are other fine and lofty Elms in the approach from the lawn meadow, in girth 12 feet, 12 feet 1 inch, and 12 feet 9 inches, which must have formed originally one side of another avenue approaching the house from the south, since an old map of the estate, in the possession of Mr. Davies, shows four avenues from the four quarters: it is a quaintly painted map of a hundred years ago. No trees of the avenues from the east and west remain, unless, perchance, the one from the west is represented by an Elm in the garden field or paddock by the canal, 14 feet 1 inch in circumference. In this paddock is the finest Wych Elm to be found in Herefordshire. It is a remarkably well-grown, even-balanced tree; its trunk is columnar, with fine northern buttresses, and at 5 feet from the ground it has a measurement of 18 feet 10 inches in circumference; it keeps its central axis well up into the tree, and its branches droop well on every side, as is the wont of this graceful tree.

The garden in front of the house is shut in from the west, in the most effectual manner, by a row of Yew trees, meant to be clipped originally, doubtless, and by a hedge of the most substantial character, which is kept so by clipping. The way in which this hedge has been varied and concealed, leaves nothing to be desired. The great bane of Herefordshire, the horrible west wind, is effectually turned aside by it.

A Deodar Cedar, of good and graceful character, is growing well toward this side of the lawn. It has been planted thirty years at least, is now some 30 feet high, and its trunk has the circumference of 3 feet 9 inches.

On the east side, and slightly to the south too, a grand belt of lofty Elms, closely planted together, forms beneath them that wilderness of pleasant shade which should be close at hand in every well-considered pleasure-ground. An excellent finish is given to the cluster by a fine Silver Fir, which towers above them all, to reach the height of some 120 or 125 feet, and which can be seen from a considerable distance by those who travel the high road from Pembridge to Kington. Its fine bole—would that it could be more shown towards the lawn—gives the large circumference of 11 feet 9 inches at 5 feet from the ground. It is a grand tree, and gives its character to the grounds, as such a tree must ever do.

A critical eye—one that rejoices in broad sweeps of greensward—never tires in watching the varied effects of sunshine and cloud upon it, and ever admires afresh the charming lights and shadows from the oblique rays of a rising or setting sun upon its smooth green

Fig. 31.—Adiantum gracillimum. (see p. 171.)

surface. The home grounds of Moor Court are too much closed in by trees. It longs for vistas, not only to let in broad bands of skylight, but also to admit much more of the wide space of outer lawn, which is now shut out. A small opening has been cut through to the east with excellent effect—albeit the boughs are yearly dropping down and spreading out to contract it.

Through the opening to the east an Oak of picturesque form—and made more so by a dead bough or two—is let into the view. The bole has a circumference of 14 feet 1 inch. There is seen from this opening, also, a Sequoia Wellingtonia, which is growing well, of which it may be interesting hereafter if accurate notes be now given. It has been planted twelve years, is now 16 feet in height, at 1 foot from the ground the trunk measures 2 feet 7 inches, and it has a foliage diameter of 8 feet.

In the middle of a meadow, called in old maps Drummercraft, the Anglo-Saxon Donne Croft—*domini prediolum*, the Master's Meadow—and fronting the house, are a dozen Walnut trees. They form a short avenue, as if at one time they, too, were intended for an approach to the house. As they are thus seen in perspective they form a very handsome group, with lofty heads, strong gracefully-spreading branches, and the pale deeply furrowed bark peculiar to the Walnut.

The oldest and largest trees are nearest to the house, and gave these dimensions in girth:—10 feet 9 inches, 9 feet 9 inches, 12 feet 3 inches, 11 feet 8 inches, 10 feet 7 inches, and 8 feet 7 inches, and were judged to be from 60 to 70 feet in height. At the beginning of this century they were in great danger. Walnut wood for gun-stocks was in urgent demand, and a long price was offered for these trees, but the late Mr. Davies resisted the temptation. He valued them too highly as ornamental trees to lose them at any price, and so "Diana's Grove" was spared.

That the valley is admirably adapted for timber growing the measurements of the trees already given prove, and still more clearly does a walk through it, for it abounds in Oaks that are already getting "sizeable"—trees that make a timber-dealer's eyes sparkle, "quartering 2 to 2½," and running their boles well up into their branches, "useful for everything." Occasionally, as in the Yeld meadows, one falls in with a pollard that gives off 15 feet in girth, but beyond those which have already been given there are no trees remarkable for great size.

In the course of his perambulations your commissioner came upon a young plantation of Larch to the north of the valley, hard by the farm of Cotmore. He was reminded by it of a fine plantation of Oak he once met with, where the trees, some thirty years old, all of them sent up straight boles from 20 to 30 feet high without a branch, and on enquiring how they had been educated in this very proper manner, he was told that they were self-sown acorns in a young plantation of Larch. This indeed has long been a recognised method of growing Oak timber. The crop of Larch is first gathered at intervals, and a still more valuable crop of Oak remains on the ground. It is not now intended, however, to recommend with old Tusser—

"Sow acornes ye owners that timber do love,"

though this might be done, but it is suggested that young Spanish Chesnut trees should be planted in the many places where the Larch has failed. Let those Spanish Chesnuts be thus properly educated, too, and then, if tree for tree, and space for space, they are not one-third more valuable than the Larch in the year 1890, your commissioner will forfeit a silver threepence if the fact is proven to him on the spot. "If you are planting for profit, on good ground," said an old Herefordshire timber-dealer in a confidential way, "plant sweet Chestnuts." They are much quicker in growth, and up to thirty years old are more valuable than Oak itself.

There are, too, attaching to the place certain signs of a lost history that give it a peculiar interest. What means that small canal, *à propos* to nothing, that runs straight along the paddock and under the carriage-road, being an artificial continuation of the Carl Brook, which runs from Elsdon and Lionshall through the Moor Court meadows? On the lawn, too, are certain double grooves in the turf cut in an angular form, and carefully renewed from time immemorial. A Mulberry tree occupies the centre, to which they all tend. This tree is of no great size, but rugged and gnarled enough to be of considerable age. What were the lawn games these turf grooves indicate, and who played them? It may be that they were not intended for any games, but simply indicated paths to be trimly shorn, leaving triangular plots within their lines which were suffered to grow more wildly. It is said that such was the case at an old mansion of Flemish character in Surrey, where, and where only, the same converging turf tracts as at Moor Court are to be seen. The house itself, altered and enlarged again and again, tells nothing more than may be surmised from its secluded position in the valley. As might be expected, however, some rays of light are thrown upon its history by the legal records and documents connected with it. [The sketches (fig. 32, p. 173, and fig. 33, p. 177) which illustrate this article were taken expressly for us by "our artist," while the article itself is a condensation from a description in the volume of the *Transactions of the Woolhope Naturalists' Club for* 1870. Eds.]

Fig. 32.—Moor Court: house, and part of avenue of large old walnuts.

Foreign Correspondence.

Madras.—*Gardeners in India.*—Situated as I am at present, many hundreds of miles away from my brethren in the craft, I cannot now meet and discuss with them, as I used to do weekly in my younger days, the various methods of culture pursued, and the different amount of success each had under very varying circumstances as regards appliances and situation. One privilege I still enjoy (thanks to a cheap post)—I can weekly read your journal; and allow me to thank you for publishing the portraits of British Gardeners. I think it is a step in the right direction; and it will lead to much good by directing and educating the minds of those young men who, in the course of Nature, must fill the more prominent situations ere

many more years roll over our heads. Nothing gives a greater incentive to activity in young aspirants than reading and learning what has been done, and that from no greater, and often from a much less, advantageous starting point than they have had themselves. This naturally creates a desire to be up and doing—to try and achieve something of the same success themselves, and I daresay many a young man may even dream of surpassing those who have gone before him.

Perhaps I am a little before my tale, then let us turn back to No. 45 of 1874, p. 583, and see what we can glean there in the young men's favour. I would ask Mr. Fowler if he does not attribute to the very act of writing that string of names, useless as it may have appeared at the time, his after-success in life? To a great extent it fostered a power of observation, and called into practice method, for want of which many a young man is wrecked on the sands of Time. I say, teach our young men to observe—teach them punctuality, in doing so you teach them their own ignorance; and if once a person feels he is ignorant, in ninety-nine cases out of the hundred you make him a better man, a better gardener, a better and more useful member of society, and a truer man to himself.

I have no desire to gainsay your remarks at p. 493 (1874), it is but natural to look forward with fear. "Trust in God, and keep your powder dry," was the advice of a great General to his men. Then let each of us do what we can, and while doing so be more hopeful for the future. Young men of ability in any profession are generally backward, and do not, as a rule, show to advantage at first; how much more so in a profession like gardening, where there is so much deep thinking, and so much to learn? I admit horticultural societies and schools in general do little for the young men. I would go a step or two further, and say that head gardeners do not take the interest they ought in young men. Employers—I do not say all, but 75 per cent.—take no interest in the young men; and from my own experience I feel certain if you were to ask these employers to allow their head gardeners to contribute to the pages of your journal their experience and autobiography, you would get a negative reply. In the face of all this discouragement the young man who sticks to the profession and reaches the top of the ladder, deserves great praise. It is a well-known fact that many of our best men desert the profession either for a more lucrative calling, or in disgust at what is perceived ahead. I think the publishing these memoirs of British Gardeners will give the young and persevering man a beacon ahead—in fact, I think the more public everything can be made the better. The publishing of the awards at horticultural exhibitions is often of interest to others as well as to the winner of the prize or certificate. Although not now growing Grapes, I have observed with pleasure an establishment taking first prizes and cultural commendations for Grapes at many of the London shows, as well as at provincial ones, whose Vine borders I made, thereby convincing me of the correctness of the operations then performed. I read my diary notes each time I observe the occurrence with a new pleasure, and, like Mr. Fowler, I have to thank a strict master, not exactly for these notes, but for enforcing the rule of entering every day's work at night, and examining me strictly on the same monthly.

Young men are, therefore, not quite or wholly to blame for the position they hold, if they are not quite up to the mark of their forefathers; to a certain extent indeed it is these very forefathers who should feel ashamed of their want of interest in the young and rising generation of gardeners, or shall we put it down to the changes of the times? It has often been remarked that Scotchmen make better gardeners than Englishmen; whether such be the case or not I shall leave facts to bear witness—sufficient for my purpose to take the saying as it is. I account for it in this wise, and I feel I shall get many who will bear me out in the assertion, that children are more under the control of their parents in Scotland than in England, and like good soldiers accustomed to discipline they leave their father's house and enter as apprentices—under perhaps a very strict master, and one who often has not got a large establishment to look after, and is therefore all the more able to look after the new comer, and see that proper ideas are instilled into him, and that he is taught to keep his eyes open to all that is going on around him. The mind of the young gardener is similar to the young sapling, and while it is the duty of the gardener to train the latter, it is equally his duty to teach and lead the former. In bygone years gardeners were as one to ten now-a-days, and every young man who thought of making gardening his profession was regularly apprenticed, and taught what it was to his interest to know then, as well as in his after-career. There was none of that loose system that prevails now. I refer to the practice of taking in young men as day labourers, and after a year or two in a garden, passing them out as journeymen gardeners, without any scientific training of any kind—to the disparagement of journeymen gardeners, not only in a scientific point of view, but in a pecuniary point also. Take the properly apprenticed and trained young man of the present time, and compare him with the young man of twenty-five years ago, and I, for one, have no doubt as to which side the balance will lean—most certainly in favour of the present and rising generation of gardeners. Look at our gardens both at home and abroad, and let the oldest among your readers, who knew what they were twenty-five years ago, come forward and tell us if there is not a vast difference, and that for the better—and many of these gardens are under the direction of comparaparatively young men. Why should we as professional men be retrograding, while all other learned professions are pushing ahead, and none but the ablest intellects can find employment? Given a fair remuneration, I fear not but the skilled labour and the brains to direct it will be equal to the demand.

Chemistry and laboratory work are other branches in which young men are far behind the times; but, much as you are behind your Continental brethren, you are as the full-grown man, and we out here as mere babes and sucklings. In India, with our immense resources and our vast forests, untrodden except by wild animals, it is a national disgrace that we are where we are. We can do nothing here—a handful of Europeans, with no voice in our country's affairs; with the appellation of interloper hanging over us; and the Government, although pretending to do all in its power to forward and develope the resources of the country, actually putting obstacles in our way. If one requires a few acres of land here, he has to pay more for it than he would do for a better article in the colonies, and there are many other little hindrances too numerous for detail here.

I observe from the daily newspapers that some individual—well-meaning I have no doubt—is trying to get up an emigration agency to people certain districts of India with labourers from Scotland. My advice to the labourers is to stay where they are, or to go where they can work and will get paid for it. Here we can give them from 6*d.* to 1*s.* per diem, and stigmatise them as interlopers. No; India is not the place for the day labourer. With brains and a little money India is the place for middle-class men; and those who do not know what to do with their sons, the learned professions being overstocked in the mother country, should teach them botany, agriculture, horticulture, and other sciences, and with a little ready capital and a firm determination to abide by their choice, these are the men India requires. There is plenty of labour, as, I doubt not, you are all aware, having but lately had to open your purses in aid of a famine, simply because India is undeveloped.

I am afraid I have wandered a long way from my subject; to return, we have only to look to the Coffee-producing districts of Southern India and Ceylon to see the great necessity for scientific and practical training. At one time we have the Coffee borer killing out whole estates, and men losing their all. Next we have what is called locally leaf disease, believed to be a fungus. We have another variety of disease—men over-avaricious, fancying they cannot have enough of land, opening out large tracts of country, and only half cultivating the same. The want of training, both practical and scientific, is very evident in this reckless and ruinous proceeding. If he that so acts had been taught that one acre well kept and well cultivated would tell very much better on the balance-sheet than an acre treated otherwise, he would have stopped and considered before so acting.

The Coffee borer has died a natural death. I am sorry to have to record it, but we know now about as much concerning the borer as we did before it scourged the Coffee-producing districts. If we had had two or three practical and scientific men like Dr. McNab among us, we might have been able to meet the borer halfway when he betook himself to our Coffee gardens, and, politely asking him to retire, have saved our Coffee trees, and, what is more, our fortunes. In the meantime the leaf disease runs its course. We believe we have found out it is a fungus, or, properly speaking, it has been found out for us; but no remedy has as yet been found practicable—a sad state of affairs, calling loudly to our paternal father, the Secretary of State for India, for redress. *H. M. J., Madras.*

Forestry.

Now that covert-beating in most places is over, no time should be lost in doing what is to be done in permanently improving the coverts and benefiting the woods and plantations generally. Every forester knows from experience that the time placed at his disposal by the gamekeeper for carrying on the various departments of his work is by far too limited. So much is this the case, that on many large estates, with comparatively few hands to do the work within the time prescribed, it is utterly given up in despair.

In woods devoted to game it is essential that the drainage be strictly attended to, both for the sake of the game that inhabits them, the under-cover itself, and the health of the timber trees. Nothing will cause hares, pheasants, and partridges so completely to desert the covert as a wet state of the ground, and no improvement will more effectually attract and draw them back, as that of draining and drying it. Any directions here given for draining must necessarily be brief and of a very general character, as almost every acre, if not every drain, requires to be made in a way and manner peculiar to itself. We put the drains at various distances apart, from 10 to 20 feet, sometimes even less and sometimes considerably more. The depth and width, too, must necessarily vary as greatly as the distances apart. In ordinary plantation drainage, we usually put the drains 20 feet apart, 20 inches deep, 30 inches wide at top, and the width of a common shovel at bottom. Such drains, when free of roots or large stones, are cut, and the excavations spread, at 7*s.* 6*d.* per 100 yards. Ground very soft and smooth on the surface can be done for 6*s.*, but they as often cost 8*s.* per 100 yards on unfavourable ground. It is not, however, draining for new plantations, but keeping in order drains already existing, or deepening and extending them, that is now under immediate consideration and requiring attention.

Perhaps no department of work performed by the forester is so difficult to execute satisfactorily as that of drainage, in policies and plantations contiguous to the mansion. Open surface drains are unsightly, and close tile drains choke with the roots of trees, and speedily go wrong. To overcome these difficulties, by adopting means at once cheap and efficient, has taxed the minds of foresters more than any other with which we are acquainted. When appearance is only of secondary importance, and the situation such as to admit of common open drains and ditches being made and kept open, nothing is simpler than drainage where proper and sufficient fall for the water can be obtained. Where appearances, however, are the first considerations, and everything must accord with the rules of modern taste, close drains in some form or other become essential. Having tried various plans of constructing close drains amongst trees and shrubs where common open drains were inadmissible, we find the following answers best of any we have employed. The drain or ditch is cut of sufficient size to form a path 2 to 3 feet wide at bottom, and from three to six times wider at top, according to depth. The earth thus thrown out of the drains or ditches is so disposed of as to form mounds or convex ridges between them, and these ridges and slopes, when closely planted with evergreens, either trees or shrubs, produced not only a splendid effect in a year or two, but the plants in the newly-stirred and deep soil grow with great rapidity, far outstripping those on ordinary flat natural surfaces.

Particular attention should be paid to the line of the ditches in marking them off, so that they may assume agreeable and natural curves, especially where exposed to view. In policies, shrubberies, arboretums, &c., straight lines must be carefully avoided, as any such would impart an artificial appearance to that which is intended to appear natural. The ditches may be cut to any desired depth, but, if possible, so deep at least as to reach a hard and firm bottom. In the centre of the ditches a narrow rut is cut from 9 inches to a foot deep, sufficiently large to receive a round tile, or "mug and sole." For ordinary purposes a 3-inch pipe is sufficient, but if there is much water a 4-inch tile may be required, and in some cases even a large "mug and sole."

The loose soil having been removed, makes the bottom of the ditch a firm, dry footpath, free from rank grass or herbage of any kind, and less attractive to the roots of plants than it would otherwise be, as they always run where the soil is best. The tile receives all the water, and keeps it both out of sight and at a depth where it cannot injure the plants. When the trees or shrubs grow up on each side and close to the ditch, it presents the appearance of a well-designed serpentine walk winding through the plot or group. If at any time the roots do reach the pipe-drain, its depth from the surface being so small it can be lifted, cleaned, and relaid, at comparatively trifling expense. Drains in game coverts, whether of large or small dimensions, may with advantage be laid with tiles, so as to avoid the necessity of deep surface drainage. *C. Y. Michie, Cullen.*

Notices of Books.

Economic Geology; *or, Geology in its Relations to the Arts and Manufactures.* By David Page, LL.D., &c. Blackwood & Sons. Pp. 336.

A good text-book on this subject has long been a desideratum, for with the exception of some publications of Professor Ansted, of limited scope, and now somewhat out of date, we do not recall any general treatise on the subject, though portions of it have been dealt with from time to time by various authors. The general scope of the present work may be gleaned from a summary of its contents, which comprise, first, some general remarks, and then, in succession,

chapters on the nature of soils, mineral manures, the valuation of land for agricultural or mining purposes, on building stones and cements, on the making of roads, canals, docks, railways, and wells. Mining operations and the "getting" of fuel—peat, coal, petroleum, &c., are also dealt with. Lastly, a very extensive and miscellaneous group of subjects occupies several chapters, and is devoted to various raw materials—gems, ores, &c.—which are employed in commerce and the arts.

Under the head of soils and subsoils, the author points out the difference between the soils of disintegration, resulting from the wearing away of the rock on which they rest, and soils of transport—the waste and decay of distant rocks transported by water, ice, or other agencies. The subsoil is, of course, attended to with special reference to drainage, though but too little mention is made of the earth-temperature to which the roots of plants are subjected. The author proceeds to show how the defects of any given soil may be corrected by admixture with other soils of a more fertile character, or by drainage.

Dr. Page's illustrations are all taken from agriculture, and herein we think he has not done well, in ignoring or overlooking the teachings of horticulture. We believe in most matters relating to the management of the soil, according to varying circumstances, the gardener is, as a rule, far ahead of the farmer. Indeed, he can scarcely help being so, for the conditions and limited space under which the gardener works give him a great advantage. Be this as it may, Dr. Page would, we believe, have been enabled to point his moral much more effectively had he treated the question of soil in its relation to garden-culture as well as to field culture. The principles are the same in the two cases, but practice is much more perfect in the garden than in the farm. While saying so much, we do not overlook the fact that great advances are requisite in our knowledge of geology as applied to gardening and fruit growing. The quantities, and specially the qualities, of fruits are particularly influenced by geological conditions. The ordinary geological maps are of very little service to practical men in these particulars. What is really wanted is a geological survey and map of the surface soil and subsoil of every farm and garden. We do not know any department of applied science which more stands in need of thorough investigation than this of the relation of the garden soils to garden plants and garden culture.

It may well be imagined that in dealing with so large a number of subjects, Dr. Page is unequal in his treatment of particular subjects, but he has succeeded in bringing together a great mass of very useful information, and much of it, too, which is not readily accessible or generally known.

How many of us, we wonder, know what Bath bricks are, whence they come (it is almost needless to say that they have nothing to do with Bath !), what Tripoli, rotten-stone, crocus, and a score of other things in daily use, really are and whence obtained. The reader will find abundance of this kind of information in Dr. Page's volume, which we commend accordingly to his notice.

—— Mr. Martin H. Sutton has reprinted from the *Journal of the Royal Agricultural Society* his essay *On Laying Down Land to Permanent Pasture*, and has added to it a geological map of Great Britain and a brief description of the principal agricultural grasses, with woodcut illustrations. We imagine the proportion of particular grasses recommended for particular soils is, to a considerable extent, arbitrary. Why, for instance, should a large quantity of one particular grass be used on the clay lands of one formation and a different quantity on the clay land overlying another formation, other things being equal, especially when the total quantities per acre recommended are identical for each formation? There is an appearance here of over-refinement which we do not think the present state of agricultural geology warrants.

—— The first number of a new French journal, devoted to the subject of geography in its scientific and commercial aspects, has been forwarded to us. It is entitled *L'Explorateur*, and is edited by M. Hertz, and, so far as the maps and charts are concerned, by M. Maunori, Secretary of the Geographical Society of France. Among the articles we find one by Dr. Rouher, on the geographical range of Wheat culture, which is very interesting, and from which we hope to make room for some extracts on a future occasion. Among items of news we note a proposal for the construction of a railway, compared with which the difficulties of making the Channel tunnel would seem to be utterly insignificant. The scheme, proposed by Mr. John A. Lynch, is nothing less than a railway passing eastward from Western Europe through European and Asiatic Russia, Siberia, China, Kamtschatka, over Behring's Straits, Alaska, across British North America from west to east, and so to the United States !

—— Mr. J. N. Lockyer's *Primer of Astronomy*, published as one of Macmillan's Science Primers, is an admirable elementary book, which should find a place in all schools. Messrs. Macmillan are doing excellent service by the publication of this valuable series. All those that we have met with have been exceedingly well adapted for their purpose.

Natural History.

Our Song Thrush.—No British song bird is hailed with more delight in early spring than the throstle, or song thrush. Its song is more flute-like and melodious, without being coarse, than any other of our early songsters; but I do not wish, in this brief sketch, to draw the attention of our readers so much to the song as to the other remarkable qualities of this bird. It has been remarked that the reason why many birds sing is because of the spirit of emulation; this is, perhaps, open to question, although many instances might be cited to prove this theory. An aged friend of mine, who kept several birds in his humble cottage, prided himself last summer on a song thrush which he had reared from the nest; this certainly was a noted songster. I several times walked past his house, solely to listen to his thrush. Early one morning another bird of the same species sat on the topmost bough of a tall Ash tree, opposite the cottage, and sang with great vigour for an hour or two. The caged thrush listened attentively, and, at first, tried to sing louder than the wild bird; however, the latter excelled the tame bird, and, to quote my friend's words, "he was silenced completely." Strange to relate he could never be prevailed upon to sing again, but from that day he pined and drooped, and in a few weeks died.

Although it may be, and is, I believe, often exceedingly jealous, yet I do not know a more affectionate bird. During a severe frost a few years since I found a young thrush crouching beneath the hedgerow in our garden, apparently dying from hunger; I, from motives of pity, took it into the house, warmed and fed it. Perhaps it was grateful for this little kindness, however it was very affectionate, not only towards myself, but to others. The following spring I placed a nest, containing four unfledged young of the same species, in its cage. It tended these most assiduously and carefully; if it could not find any food suitable for the tender things it was very uneasy, and each night until they left the nest it sat beside them to keep them warm. Had this bird been a female not much wonder would have been excited, but, being a male, it was thought, by all who knew of the circumstance, very remarkable. When the young were reared, and removed from its cage, it commenced feeding a flock of chickens. It had watched my sister doing this, and calling them for food, when it afterwards imitated the well known call, "chuck, chuck;" when the mother hen with her brood came beneath the cage, it manifested its joy by peculiar guttural sounds, whilst putting its own food through the bars and throwing it to the floor. Feeling compassion for it we afterwards placed beneath its fostering care a young blackbird, which it also reared. The following extract, from the *Journal of a Naturalist*, p. 208, exhibits its affectionate nature:—"We observed this summer two common thrushes frequenting the shrubs on the green in our garden. From the slenderness of their forms, and the freshness of their plumage, we pronounced them to be birds of the preceding summer. There was an association and friendship between them that called our attention to their actions; one of them seemed ailing or feeble from some bodily accident, for, though it hopped about, yet it appeared unable to obtain a sufficiency of food. Its companion, an active sprightly bird, would frequently bring it worms or bruised snails, when they mutually partook of the banquet, and the ailing bird would wait patiently, understand the actions, expect the assistance of the other, and advance from its asylum upon its approach."

In some of our popular ornithological books it is stated to be very hardy; this is, without doubt, an error, for I know no bird which suffers more. In severe frosty weather I have often found them dead and dying. After several weeks' frost they become so emaciated as frequently to be nothing more, if I may be allowed to use the common expression, "than skin and bones." In these hard seasons I have observed them busily engaged, along with fieldfares and blackbirds, feeding on the root of the Arum maculatum on the borders of Aston Woods, Cheshire. I should imagine they would not touch this food, except compelled from starvation, because of its strong pungent taste; I have never seen them feeding on these tubers except in frosty weather, for I have dug up and exposed them in hedgerows where these birds frequented, but they pass them by unnoticed in open, mild seasons. White, the Selborne historian, says the thrush and fieldfare are both tender birds, and suffer much in hard frost. During the late severe weather the fieldfare was the first to show signs of suffering. In a short walk one day over our stubble lands I found several dead. Then the thrush began to feel its effects, so as to become very tame. I never saw them so near our house as during Christmas, 1874; in fact they were caught by boys in the street, but the blackbird appeared to be as hearty as usual. It is often supposed that thrushes congregate in small flocks in winter; this error has arisen by mistaking the redwing and fieldfare for the thrush, although we have seen thrushes mingle with a flock of redwings. I have observed a flock of thrushes just lately, but I have no doubt they had migrated from Norway. The British throstle is a solitary bird, seldom mingling with its own or any other species.

Our bird is anything but a vegetarian from choice. Many mistakes have been made by their admirers feeding them too exclusively upon Hemp seed and bread crumbs. When wild, its chief food, when it can be procured, is the garden snail. In reference to diet they differ widely from their near ally, the homely blackbird, who would rather enjoy himself in either a Currant or Cherry tree, instead of toiling along the walls to find snails and worms. The thrush is thus often blamed unjustly—when seen in gardens it is at once pronounced a thief. It ceases to sing from about Midsummer; during August, which is the most silent month in the year, we occasionally hear young birds warbling; the old birds sing a little in September. I do not know if I can fully prove a theory which I have now held for some years, that the best and finest song thrushes (*i.e.*, the best songsters) are to be found amid lovely or wild sylvan scenery. I do not apprehend that any one will, for a moment, question the fact that there is a vast difference in the song of these birds, although the notion is common that the song of any species of bird is the same everywhere. I do not doubt but that the strongest and healthiest females select as their mate the best singer which is to be found in the district (thus a fine and healthy progeny are reared), a bird who will morning and evening select the highest bough in the wood to pour forth his rich melody. The Manchester bird-catchers resort to the Derbyshire vales in early summer, where they secure many good songsters, and although they are plentiful nearer home, yet the Derbyshire bird will realise a far higher price, and pays them well for the journey, &c.

Another remarkable thing connected with this well-known bird is its habit of nesting year after year in the same locality—if it is successful in rearing its young it will, if alive, prepare a nest in the same tree the following spring. I knew a pair which built their nests three successive seasons on the branch of a Cherry tree nailed against a cottage. The hen bird, in this instance, became so tame that she would allow the cottager's wife to lift her from the nest, and would fearlessly feed her brood when she stood beside the nest; but this familiarity was not allowed if a stranger happened to be in the garden. When busy at the wash-tub one day, the cottar's wife was surprised to hear the birds screaming, as if terrified. The hen knew where her friendly protector was working, so rapidly flying through the open door she perched on her shoulder, then as rapidly flew back again. She imagined something was going wrong, so leaving her work and going outside the door, she discovered the neighbour's cat climbing towards the nest. After dislodging this unwelcome intruder from the garden, the thrushes showed their gratitude, at least the female perched again upon her shoulder, and, fondling against her cheek, seemed to say, "I feel so thankful for helping me in my trouble."

Another instance, somewhat similar, just now comes to my memory. A late sheriff of Chester, now living in a village not far from the old city, a man highly honoured and respected by his fellow-citizens, loves to encourage birds in his garden. By feeding them, or perhaps by sheltering them from the dreaded gun, he has persuaded many species to build their nests in his garden, so that every bush and tree, not to mention the hedgerow, which is literally filled with the hedge-sparrow's nests, has its tenants. Amongst the rest, a pair of thrushes regularly take possession of a fine Arbutus shrub, about 3 yards from the drawing-room window. These are also very tame: in this case even strange visitors are allowed to part the leaves and look at Polly, as she sits on the nest, without disturbing her in the slightest. *R.*

HORTICULTURAL EXHIBITIONS, 1875.

FEBRUARY.

17.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.

MARCH.

3.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.

10 and 11.—Leeds Horticultural Gardens Company. Spring Flower Show. Sec. and Manager, James Birbeck, 103, Hyde Park Road, Leeds.

16.—Manchester Botanical and Horticultural Society's Floral Meeting in the Town Hall. Manager, Bruce Findlay.

17.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees. Hyacinth Show.

24.—Glasgow and West of Scotland Horticultural Society. Spring Exhibition. Sec., F. G. Dougall, 167, Canning Street, Glasgow.

31.—Royal Botanic Society, Regent's Park. Spring Show. Sec., W. Sowerby.

APRIL.

4.—Special Exhibition of the Royal Horticultural Society of Antwerp.

7.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.

21.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees. Early Rhododendron Show.

22.—Royal Horticultural Society of Ireland. Spring Exhibition. Sec., A. Balfe, 28, Westland Row, Dublin.

27.—Manchester Botanical and Horticultural Society. Exhibition of Auriculas, &c., in the Town Hall. Manager, Bruce Findlay.

28.—Royal Botanic Society, Regent's Park. Spring Show. Sec., W. Sowerby.

MAY.

1 to 24.—Royal Botanic Society, Regent's Park. Special Exhibition of Clematis, by Mr. G. Jackman.

12.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees. Pot Rose Show.

14 to 21.—Manchester Botanical and Horticultural Society's Annual National Exhibition, at the Garden, Old Trafford. Manager, Bruce Findlay.

20.—Royal Horticultural Society of Ireland. Early Summer Exhibition. Sec., A. Balfe, 28, Westland Row, Dublin.

22.—Crystal Palace Great Flower Show. Sec., F. W. Wilson.

THE
Gardeners' Chronicle.

SATURDAY, FEBRUARY 6, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Feb. 8	Sale of Lilium auratum and other Japanese Lilies, at Stevens' Rooms.
TUESDAY,	Feb. 9	Royal Horticultural Society: Annual General Meeting, at 3 P.M. Sale of 300 Pens of Poultry, at Stevens' Rooms.
WEDNESDAY,	Feb. 10	Sale of Hardy Trees and Shrubs, Roses, Herbaceous Plants &c., at Stevens' Rooms.
THURSDAY,	Feb. 11	Sale of Specimen Camellias and Azaleas, Established Orchids, &c., at Stevens' Rooms.
FRIDAY,	Feb. 12	Sale of Imported Orchids and Lilies, at Stevens' Rooms.
SATURDAY,	Feb. 13	Sale of Specimen Conifers, Fruit Trees, Roses, Herbaceous Plants, Gladioli, &c., at Stevens' Rooms.

HOWEVER much tastes may alter and fashions vary, there are certain broad principles which remain the same throughout all ages. This is a truism which no one will deny, and it is as applicable to LANDSCAPE GARDENING as to any other department of Art.

The nature of landscape gardening will be best understood by supposing ourselves on some extensive plain in which not a tree is visible. Our first sensation would be a surprise at the vastness and uniformity of the scene; let us journey a mile or two, and, the scene not changing, would become dreary and monotonous—our ideas would be of a sombre cast, and we should soon become weary of our situation. In proof of this, hear the traveller's account of passing the deserts. But it might be thought, perhaps, the scene would be changed by supplying a broken and unequal surface—that the physical character of the surface would alone create delightful emotions. Let us take the evidence of travellers who have been weeks in ascending mountainous ranges where perhaps scarcely a blade of grass enlivens the vision. Are the rugged mountain path, the bold projection and the rocky chasm, with bold sky and clouds clinging to the mountain side in dizzy depth below, congenial to pleasurable emotion? As in the instance of a plain the traveller would for a time be delighted at the novelty of his situation—he would have in addition a variety and grandeur that would oppress, perhaps appal him, but it would not produce a quiet and delicious train of thought. He would journey on much longer without disgust and satiety, but the scenery would impart sensations of solicitude, the rugged and broken mountain-tops would afford no repose, a want of continuity would incessantly break the thread of his idea as the lines were abruptly and almost fantastically placed out of undulating surfaces and proportions—the grand outlines of Nature would be given, but nothing to fill up and harmonise with them. But let such traveller pass the summit, and commence his descent—what are his emotions on beholding in the distance the blue hills crowned with trees, and the slopes bright with grassy verdure? Do not the trees afford a brighter tint and more welcome shade; are not the green distances grateful to the eye, and do not a thousand pleasing sensations arise in his bosom? Every mile as he passes on ceases to produce *ennui*, for his hopes brighten, his mind is relieved by every passing change: not a forest in perspective, nor a tree or a shrub as he passes, but adds a grateful variety to his path, and beguiles his weary wandering.

Thus, then, we have by the two situations of our traveller shown that there are certain principles that regulate the feelings in surveying external scenery, and that an immediate effect is produced from the change of its character on the mind of him who beholds it. Now this principle is variety, and that variation is not alone produced by the harmonious forms of the trees themselves, but also by the innumerable changes that are produced by light and shadow, which are more Protean in their effects on trees than on any other surfaces in Nature.

We will now suppose our traveller pacing through immeasurable forests, abounding with every exuberance of the vegetable world. He would walk on surveying the leafy grandeur in admiration, until he was arrested even here by some beautiful, by some enchanting spot that it was impossible to pass by unscrutinised. Nor would this delay take place with one alone: suppose fifty travellers of cultivated taste to pass, forty out of the number would alike be arrested. There must, then, be a cause for the surprise or delight thus experienced. If a portion of these travellers were painters, they would remain long enough to catch the effect, and thus would be perpetuated the pleasure the painters first felt. In this way the thrill of delight that first was excited in a HOBBEMA, a CLAUDE, or a WILSON, may still be vibrating in thousands of pulses, through their so potent art. If a poet, he would drink deep of the spirit of the place—would people it with imaginary beings, and ideas would crowd upon him thick and clustering as the foliage itself. In this way the Vallambrosa of MILTON has charmed thousands who never saw it, but so powerful has been the spell that painters have from his description again realised its leafy scenery. Now, suppose out of the number of travellers a landscape gardener was one; his feelings would also be awakened to the beauty of the place—he would carefully analyse the effect and study the cause—and in an after day he would endeavour to imitate in artificial plantation that which struck him as one of Nature's gems. If happily he succeeded, the same continuation of pleasing emotion would follow on the inspection of his labours that we have described in the picture or the poem. Thus, then, this art must, strictly speaking, belong to the same class, must make one of the imitative arts.

Those who have studied Nature from a poetic or a pictorial point of view know full well that every scene is not fitted for their pencils or their poems; so in like manner it is the selection only that ought to arrest the attention of the landscape gardener.

Every landscape is made up of many materials, which will require placing in certain order to produce a striking or a pleasing effect. Trees are the individual objects of most importance in a landscape; in them there is an infinite diversity, but let us suppose that a number of sketches of the most beautiful were placed singly in the same picture, such would most certainly be an indifferent picture; it would be a thing of shreds and patches—there would be a want of unity and of breadth—it would appear specky, and would from that cause be unpleasing. But now suppose one of these magnificent or pictorial trees placed in the foreground, and under its spreading boughs let there be seen in the middle distance a dense mass, gradually becoming thinner towards the centre of the picture, at which point we may suppose the existence of water or a distant road with a few scattered trees in irregular forms, beyond which extend plains, and lastly an irregular outline of distant hills, while a copse-like brushwood may be imagined as filling up the opposite side of the picture, and forming a kind of ambush for concealing the various lines of the mid and extreme distance, and with a few cattle or sheep you would have the outline of a picture that, under proper and judicious management, would assuredly please.

Thus, then, while the sketch-book may be filled with the most beautiful of Nature's productions, it by no means follows that a perfect whole may be formed from such material: there is a harmony that results from the union of what may be termed the components of a landscape that can never be dispensed with, for without this, whether in a picture or in Nature, no composition can satisfy. Speaking of this, GIRARDIN very aptly says, "Were this principle not prevalent, the groups of trees, the lake and the buildings, would only please when considered separately; and the result would be as poor a production as a machine with wheels exquisitely wrought and neatly polished, which, however, would not act with each other so as to effect the intended movement."

Another of the principles of landscape is what perhaps may be called propriety. It consists in placing an appropriate kind of tree in a particular situation. In scenery that is naturally rocky, mountainous and abrupt, Firs may be planted with great effect; they harmonise with the savage character of the scene, and if a dashing cataract could be concealed by them at one point and be then made apparent by leaving bare the rocks on the near bank while on the opposite they are allowed to clothe the rugged rocks, a fitness as well as variety of character would be produced that would inevitably please for its very propriety. But the principle is equally in operation in the quieter scenes of Nature. Let us for a moment imagine ourselves on a lawn of great extent, with Lime trees whose leafy branches sweep the ground, and a feeling of quiet security steals over us; the mown lawn convinces us we were on a cultivated enclosure, and the Lime trees touching the grass assure us that no cattle are allowed to graze there: thus a propriety of a widely differing character is established.

Variety has been mentioned as a constituent of beauty: this is well illustrated in the analysis of HOGARTH, as is too well known to repeat here; but variety does not alone appertain to the ground line, as many imagine, it is equally recognised in the character of a single tree. The Oak is universally allowed to be the most beautiful of trees as well as the monarch of the woods. Look at an Oak when winter has stript it of its leafy verdure: watch its knobbed and tortuous roots, which are disclosed for many feet from the trunk; let the eye ascend the trunk itself and dwell on the cracks and flaws of the bark, then, ascending, behold the massive and grotesque arms terminated with abrupt and tortuous branchlets; and then see if there can be found another tree in the whole European forest that in itself contains as much variety. Nor

does that character appear alone in winter, for the very manner in which the leaves are produced, in clusters at the extremity of the shoots, and the shape of the leaves themselves, all tend to keep up the character of diversity. Then let us see how magnificent a ruin it presents: unlike the Elm, that, when an untoward spring assails it, dies *en masse* before the succeeding winter, the Oak is still tenacious of life; and as it only acquired its character in the ripening of years, so also it is years before that character is obliterated. An Oak beginning to decay is far more pictural than one in perfect vigour, for when dying the beauty of summer and winter are equally disclosed, and in addition a species of veneration is attached to its character of bald and hoar antiquity.

Fig. 33.—Moor Court: Large Horse-Chestnuts and Lake.

Out of the many feelings that arise from the contemplation of such a tree is the certainty that from the very early ages of the world such must have been their character, and instead of there being only now and then one to be met with, they must have occupied all the suitable soils in this quarter of the globe as they still do in some parts of Spain and the Apennines.

Were it not that those interested in the prosperity of the Royal Horticultural Society have been on the tenter-hooks of suspense and anxiety for several years, the report which we publish in another column (p. 170), might well cause dismay. As it is, most of us would welcome any crisis which would really bring matters to a head, and permit of amputation, excision, or any other remedy which, even at a sacrifice, would put an end to this continual state of disquiet. We may add a few comments on the document before us, and extract from it what comfort we may.

First, as to the shows. Undoubtedly these were quite up to average last season, and the reduction of the number has been productive of no serious loss or inconvenience, while to many it has been a great relief. The "scientific work," as it is called, has been also of an average character, while the practical work at Chiswick has, considering all things, been more satisfactorily carried out than heretofore. For certain reforms and improvements in that department, the present Council deserve the thanks of the Fellows. Mr. Barron's services are too well known to need a word of commendation, but it is clear that the more latitude, consistently with financial considerations, that is allowed the Superintendent of the garden, the better for the Society and for horticulture.

The paragraph relating to the skating rink brings the Commissioners—those *terribles enfants*—once more on the scene. As horticulturists, it was perfectly indifferent to us whether or no the Society established such a thing or not. It was not horticultural, but horticulturists would have assented willingly to anything that might have helped to improve the exchequer. It might have been supposed that the landlords, in the view of possibly getting the rent paid by this means, would at least not have objected. Objected they have, however, and it is not quite clear from the report whether, under the circumstances, they were not perfectly justified in doing so. It would rather seem as if the Council had somewhat recklessly counted without their host in this matter. Turning now to the question of finance, it is indeed necessary to call the "earnest attention" of the Fellows to this matter. The misfortune is, that a perfectly plain and complete statement was not made long ago.

We are far from wishing to impute anything inconsistent with good faith to former Councils, but we may express our great regret that it should have been possible for their successors to make such statements as they have done in the present report. The want of explicitness on financial matters characterises also to some extent the present balance-sheet. How many of the Fellows, excepting a comparatively very small number, whose avocations have necessarily given them some insight into the matter—how many of the Fellows, seeing a balance of nearly £800 on the credit side, without an equally explicit statement as to the present and prospective liabilities of the Society, would imagine that the Society is in such straits as it is? True, by turning to the report itself they may gather some information on this point, but not so much as, in our opinion, ought to have been afforded.

It is said to be a pleasant sight to watch strong men struggling against adverse fate. Such pleasure, if pleasure it be, can now be enjoyed to the full. The present Council came into office because they thought, and a majority of Fellows thought so too, that they could conduct the affairs of the Society better than their predecessors. How, then, has the sequel fulfilled the promise? On the whole, well, we venture to think. The general business of the Society has been carried on quite as well, and

in some particulars better than in former years. The administrative abilities of the present Council have in the main, we believe, been superior to those of other Councils. If it be objected to this that the discontinuance of the Provincial Show, the arrangements with the Commissioners, the unhandsome treatment of Mr. FISH, may be cited in disproof of our statement, we reply that our remarks are general, not specific, and that what naturalists call the "environment" must be duly considered.

After all, the supreme test will be afforded when the crisis really comes. Meantime, what do the Council propose to do in the present financial difficulty, with a view of paying the rent next year and so of retaining the lease of the garden at South Kensington, which otherwise will be forfeited? Their scheme, as we gather from the report, is that the residential Fellows, by whom the garden is most wanted, should pay [if they will!] a larger subscription than those who only want the garden in so far as it affords a convenient place for exhibitions and meetings. This proposal is at least fair to the horticulturists. We shall not now stop to discuss the project, which will probably be sufficiently ventilated by-and-bye. What horticulturists want is some plan by which the Society may be relieved from the burden of a garden which is of no use to horticulture (with the exceptions just mentioned), and which swallows up a larger sum than any other department, and from a heavy debenture debt, incurred in great measure at the instigation of the Commissioners.

As things are at present, we see severe measures of retrenchment, with a prospect of others more severe; we see a garden kept up at great cost which is of little or no use to horticulture; and we see horticulture itself starved, the Society crippled with debenture debt, and threatened by the Commissioners with a Chancery suit: a pleasant prospect truly!

The present Council have shown themselves desirous, so far as possible, of meeting the views of the horticulturists; they have been conciliatory to them, and their general management, as we have above said, has been generally judicious and satisfactory. We may, therefore, suggest that the Horticultural Fellows, albeit, in some particulars, their interests are not the same as those of the party now in power, should not embarrass the Council in their present most difficult position, but, on the contrary, should lend them all the support they can consistently do in the present emergency.

—— AN EXHIBITION of POTATOS in the forthcoming autumn is in progress of organisation, the initiator of the movement being PETER M'KINLAY, Esq., of Beckenham, the champion amateur of the noble root. Mr. SHIRLEY HIBBERD is co-operating with the originator of the idea, and a committee will shortly be formed for the preparation of the schedule and other preliminaries.

—— The CHICAGO *Pharmacist* for January gives some interesting details concerning the BOTANIC GARDENS which are shortly to be established in that city. It is proposed that they should consist of:—1. The botanic garden proper, in which all indigenous plants of the United States, and hardy species from other parts of the world, will be arranged, as far as possible, according to their natural affinities, while hothouses and greenhouses will be provided for the reception and display of tropical plants. 2. An arboretum or collection of hardy trees from all parts of the world, planted in such order as to serve the purposes of science and ornament. 3. A garden devoted to general floriculture, with special reference to furnishing material for beautifying the parks and boulevards. 4. A botanical museum, for the exhibition of vegetable economic products, which will serve to illustrate, in connection with the living plants cultivated in the gardens, the sources and various applications of substances derived from the vegetable kingdom. 5. An herbarium, or collection of specimens of dried plants, scientifically arranged. 6. A library of botanical works. The two last are rightly considered as forming indispensable adjuncts to the gardens, since they furnish the only means for correctly naming the plants under cultivation, and for maintaining the establishment upon a scientific and practical basis. This large undertaking will be set on foot with as little delay as possible. A committee has been appointed, the Botanical Director being Professor H. H. BABCOCK, who possesses in an eminent degree the qualifications necessary for so important a post. It is hoped that the results of the first season's work will succeed in attracting the attention and enlisting the co-operation of all interested in the subject. Our readers will not fail to notice that the plan proposed is precisely similar to that upon which Kew is regulated. We trust that its execution will not be less successful than that institution.

—— We quote the following spirited "APOLOGY" FOR SCIENCE from the funeral oration preached by Dean STANLEY on the occasion of the death of Canon KINGSLEY:—

"But even more than to the glories and wonders of man he (KINGSLEY) was, far beyond what falls to the lot of most, alive and awake in every pore to the beauty and marvels of Nature. That contrast in the old story of 'Eyes and No Eyes' was the contrast between him and common people. That eagle eye seemed to discern every shade and form of animal and vegetable life; that listening ear, like that of the hero in the fairy tale, seemed about to catch the growing of the grass, and the opening of the shell. Nature was to him a true companion, speaking with a thousand voices; and Nature was to him also the voice of GOD, the face of the Eternal and the Invisible, as it can only be to those who study, and love, and know it. For his was no idle dreamer's pleasure: it was a wakefulness, not only to the force and beauty of the outward world, but to the causes of those mysterious operations, to the explanations given by its patient students and explorers. Never, or hardly ever, did he join in the presumptuous condemnation or the cowardly fear of science and scientific men. They were fellow workers with him and he with them. From his fearless confidence in the results of physical research take comfort, O ye of little faith! Open wide your eyes and ears to every breathing of the Divine spirit, to every accent of the Divine truth. To you as to him 'let everything that hath breath praise' the eternal GOD. Children gathering shells on the seashore, fishermen by chalk streams, huntsmen on the bright days of autumn and of winter, watchers of the secret growth of plant and insect, and penetrating streams and shifting soil, fear not to learn and to teach those lessons of holy and innocent enjoyment which awakened in him constant praise of the eternal Cause."

—— In the choice collection of ORCHIDS at WHITCHURCH RECTORY, EDGWARE, there are now some beautiful varieties in full flower. Especially we may mention an unrivalled plant of Cœlogyne cristata, which is over 12 feet in circumference, and displaying about 150 racemes of its chaste and snow-white flowers. We also very much admired some select varieties of Cattleya Trianæ—one especially, called C. T. magnifica, the bloom of which is 7 inches across, with sepals and petals of a delicate rose colour, and a bold labellum which displays an opening 2½ inches wide, and of a deep rich magenta colour, with throat of deep orange. This is one of the finest varieties we ever remember to have seen, and formerly belonged to the collection of the late Mr. DAWSON. There is also here a fine variety called C. T. atalanta, which formerly belonged to Mr. MARSHALL, of Enfield. The petals of this variety are white, and the whole of the apex of the labellum is a rich dark purple. We were much struck, also, with a very large plant of Masdevallia ignea, which is now throwing up over thirty flowers of a fine variety.

—— In an address on the produce and industry of Cayenne recently given in that colony, we are told that COTTON is extensively cultivated at Kouron. "Coffee grows almost without artificial aid, and produces an article whose aroma is not to be surpassed by the most renowned of the West Indies. Cocoa, also indigenous, equals by its softness and perfume the Cocoa of Caracas. The Arnotto tree, revelling in the extreme humidity of the soil and climate, yields a vegetable which, ripened under the fierce rays of the Guiana sun, takes its place in the foremost rank of its kind. The forests of Guiana offer inexhaustible and precious provision for dockyards, timber yards, railroads, and cabinet workshops, besides yielding gum, resin, balm, spices, and gutta-percha."

—— From an official report on the TRADE of the little ISLAND of ST. THOMAS it appears that cultivation generally is at a very low ebb. The fact of the steep hill slopes being covered only with a thin layer of surface soil, which is often washed away rather than irrigated by the heavy rains which vary the atmospheric condition of almost habitual drought, indicates that St. Thomas even in its days of slave labour could never have been very favourable to cultural enterprise. At the present time the town and harbour offer so much employment to labourers, at a higher rate of remuneration than could be obtained in the plantations, that the larger estates are left wholly uncultivated and overgrown with bush, while of the smaller ones a few only are barely kept up, more as gardens than plantations. The greater part of the island, however, remains, in spite of nominal ownership, a mere wilderness, consequent upon the absurd prejudices of the old proprietors (for the most part Danish creoles) preventing their leasing or selling small plots of land to the negros. Where, however, the negros have been able to obtain land they have succeeded in making the soil profitable, either by the production of garden or farm produce, or by the rearing of cattle. Exportation, however, is for the present out of the question—the amount of native growth, animal or vegetable, not being sufficient to sustain a twentieth part of the actual population. The produce resembles in kind that produced generally throughout the West Indies, though of poor quality, arising from the deficiency in soil and rainfall; so that the bulk of provisions required for use by the inhabitants themselves or for the steam and sailing ships that touch or lie in the port has to be taken from St. Croix, Viecas, Porto Rico, and the neighbouring islands.

—— The case of MISTLETO PARASITIC UPON ITSELF exhibited by Dr. MASTERS on behalf of Mr. CORDEROY at the last meeting of the Scientific Committee of the Horticultural Society, reminded us of an analagous case mentioned in Dr. HOOKER'S *Handbook of the New Zealand Flora*. In this instance it is one genus of parasites parasitic upon another genus of the same family, namely, Tupeia antarctica on Loranthus micranthus. The former greatly resembles the Mistleto of the northern hemisphere, and is one of the commonest of the family in New Zealand, where, in a phænogamous flora of less than a thousand species, there are eight belonging to the Loranthaceæ, all of them apparently endemic. We looked over the specimens in the herbarium at Kew to see if there were any showing this peculiarity, but we only found Mr. HECTOR'S note containing the information of its occurrence. Though he mentions the fact, he does not seem to have considered it of sufficient interest to illustrate by a specimen. While on this subject we may mention that the Germans are now actively engaged searching for Mistleto on the common Oak, but so far their search has been unsuccessful, though they have found it on the Turkey and two or three American Oaks. Both the *Oesterreichische Botanische Zeitschrift* and the *Botanische Zeitung* of last month (January) have notes on the subject, to which we may return again. We learn from the *Irish Farmers' Gazette* that a similar case had been observed in Ireland, previous to Mr. CORDEROY'S, and was recorded at the time in that journal.

—— The wife of an Irish clergyman, who, with the view of benefiting the poor of her district, has heretofore been in the habit of giving SKELETON LEAVES in exchange for cast-off clothing and books for a Sunday-school library, wishes to dispose of a collection of leaves for another charitable purpose. Those who are disposed to assist in a work of charity should communicate with Mrs. M., The Rectory, Kinnegad, West Meath, Ireland.

—— A novelty has just appeared amongst the forced flowers in Covent Garden Market, in the otherwise well-known STAPHYLEA PINNATA, or Bladder-nut. Its pellucid white blossoms, with yellow anthers, have a very pretty effect for buttonhole bouquets when mixed with a dark rosebud or other flower appropriate for cutting purposes, as the leaves when forced are rather coarse and weedy, but as a novelty amongst bouquet flowers, and one easily obtainable, its first appearance in the flower market is deserving of record.

—— At a meeting of the Council of the ROYAL AGRICULTURAL BENEVOLENT INSTITUTION, held at the offices, 26, Charles Street, Haymarket, on the 2d inst., it was resolved that at the forthcoming election fifty pensioners should be added to the present list, viz., ten males, twenty females, and ten married couples; thus raising the total number of pensioners to 404, at an annual cost of £8528.

—— CROCUS NIVALIS (Sieberi) and C. IMPERATI are now beautiful objects in Messrs. JAMES BACKHOUSE & SON'S nurseries at York. The flowers of the former are of a delicate but very bright blue-purple, those of the latter yellowish-buff externally, veined with very deep blue lines. Internally the colour is a bluish-lilac, the external veins showing through the outer petals. C. chrysanthus (Aucheri) is also in bud: it usually precedes all the other yellows. A new winter-flowering Grape Hyacinth has been in bloom for three or four weeks. It is Botryanthus pallens. Another, equally fine, or better, B. paradoxus, is also in bud.

—— The recent severe weather, which was followed by heavy cold rainfalls, has proved very detrimental to the HARDY MARKET FLOWERS, the chief of which at this time of the year are Wallflowers and Violets. With a mild winter there is at all times a certain amount of bloom to be gathered, and this in the middle of winter invariably commands a good price. Even now that January is past but little bloom has been gathered, but the flowers are coming up rapidly, and with a few open days there will be some large gatherings in favoured localities. The Czar Violet is the earliest winter variety, and usually furnishes its head of flower before the blue Russian comes in, when the Czar is at once forsaken. The Russian blooms much more profusely, the flowers are deeper in colour, and more odorous

than are those of the Czar, and in the market colour and sweetness are of the first consequence. The breadth of the Violet grown to supply the London market increases yearly, and when well done probably pays as well as any other crop can do, whilst the labour involved in the cultivation is not great, and the bulk to be carried to market is as valuable as it is proportionately small.

—— Ranunculus ficaria, var. calthifolius, an uncommon plant, is flowering in the herbaceous grounds at Kew. It is much stronger than the species, such as we see it wild in this country, throwing erect large pale green leaves without marking, some on stout stems with the flowers, which are of proportionate size. Many botanists would consider it worth specific distinction, but perhaps every gradation between the two can be found. It is a native of the Mediterranean region. Anemone pavonina, in the same bed, is extremely showy. The scarlet flowers are as vivid as those of any Pelargonium. Cyclamen Coum and the var. vernum, are producing their beautiful rose-coloured flowers on the rockwork.

—— The Effect of Frost upon the Stock may just now be seen in a market garden at Feltham. Last spring a quarter of an acre of ground was sown with seed of the scarlet Queen Stock, with the intention that the plants, duly thinned, should remain on the same spot to flower. During the summer the thinnings were planted out upon an equal extent of ground close by, and these grew into strong plants, although not so large as those that remained in the seed-bed. Since the frost, it is now too plainly evident that three-fourths of the untransplanted stocks are entirely killed, whilst of those transplanted scarcely one is injured. The soil being rich, a strong succulent growth had been engendered in the one case, and this quickly succumbed to the severe frost, whilst the check administered by the transplanting had induced a firmer growth that the frost could not injure. Biennial Stocks are the better for transplanting, and they stand the winter best when growing in sheltered places, and especially on a dry, porous soil.

—— The third annual exhibition of the Wimbledon and District Horticultural and Cottage Garden Society will be held on July 15 and 16 in the grounds of Belvedere House, Wimbledon, the residence of A. Schlusser, Esq., President.

—— In a recent number of the *Gartenflora* Dr. Regel figures Rheum palmatum, var. tanguticum, as the most genuine of all the genuine Rhubarbs. It was brought from the west of China, in the country bordering on the highlands of Thibet, and is said to furnish the medicinal Rhubarb which enters Siberia by way of Kiachta. This re-opens the question of the origin of the true Rhubarb of commerce, and seems to favour the view that it is the product of more than one species. A review of the genus Rheum by Maximowicz is promised in the January number of the periodical named.

—— We have received from Mr. B. S. Williams flowers of his Cyclamen persicum giganteum, which he proposes to distribute shortly. It is said to be a very free-flowering variety, and of compact habit. The specimen sent to us well deserves the name of giganteum. The leaves are of a deep bottle-green, very slightly marbled, and about 4 inches wide. The flowers, which are white, or blush-white, with rosy purple throat, have blunt oblong lobes 2 inches deep and three-quarters of an inch broad, and thus appear decidedly larger than the ordinary race of Cyclamens. It is a noble-looking flower, and though perhaps wanting in the refinement which characterises Mr. Little's strain, the acquisition of increased size is a manifest gain, to which quality may be superadded in due time.

—— A second edition of Hooker's *Synopsis Filicum* has just been published. It contains 400 additional species, besides numerous rectifications, and, therefore, its importance is great to all lovers of Ferns. We shall refer to it again shortly more in detail.

—— There seems to be quite a mania for planting the Blue Gum just now, and it is doubtful whether it will not be overdone. Almost every periodical devoted in any way to arboriculture, whether English or foreign, has something to say about this wonderful tree, and the most extravagant virtues are ascribed to it. Now a report comes from India, informing us that the Indian Government has been importing large supplies of the seeds of this tree. We think some caution should be exercised, and only in places where nothing else will succeed so well should the Australian Gum tree be planted extensively. It is quite problematical whether the timber will prove equal in value in all localities where the tree will flourish; and, indeed, the probabilities are that it will not prove so good as that to be had in Australia at the present time. A writer in the *Oesterreichische Botanische Zeitschrift* makes some very sensible remarks on this subject; and we think, although the Blue Gum may be a very useful tree, that it scarcely deserves all that is said in its favour, and should not be planted to the exclusion of everything else.

—— We have been favoured with the sight of a new seedling form of Primula cortusoides amœna, raised by Mr. James Allen, of Shepton Mallet, and which promises to be quite distinct in character if the peculiarities of the seedling be continued through its later stages of growth. We are informed by Mr. Allen that in 1873 he saved a few seeds from several varieties of this fine hardy Primrose, having done his best to assist fertilisation by crossing the flowers. Eleven seedlings were the produce of the seed sown in the spring of 1874, and the strongest has just flowered. The hue of colour, a bright pale lilac-violet, is very pretty; and it is in all probability a seedling from P. cortusoides amœna lilacina, fertilised by amœna; the flowers are as large and finely formed as those of the latter, and are destitute of the cut or fimbriated petals seen in the former. Mr. Allen thinks the character of the leaves and habit of growth will be different also; and the roots do not appear to creep so much as those of amœna. A further development may however alter the aspect of these supposed diverse characteristics. When seedlings are rapidly coming into bloom Mr. Allen is of opinion that in order to obtain seed of the varieties of P. cortusoides amœna the flowers must be artificially fertilised, as in no instance has he succeeded in obtaining seed if this were not done. In 1874 he succeeded in obtaining some quantity of seed from fertilising amœna, amœna alba, lilacina, and grandiflora, one with the other; and he hopes to obtain an interesting progeny. He finds it best to sow the seed the following spring, not in the autumn of the year, when it is gathered.

—— One of the most striking in appearance of the many types of fine foliage plants to be seen in the large show conservatory attached to the residence of Mr. John Wills, Onslow Crescent, South Kensington, is Aralia fastigiata. It is a very elegant and handsome plant, with bold compound leaves, each of which had from six to eight petiolate leaflets, somewhat oblong in shape, and bright green in colour. It is a bold-looking and handsome plant, one that would tell in a collection of ornamental foliage plants, because of its great distinctness of character and beautiful outline. Another handsome foliage plant is Dracæna fragrans, a species that is largely grown by Mr. Wills for decorative purposes. The bronzy-green leaves are broad, arched, and handsomely pendulous; the habit of growth is very regular and symmetrical. It is especially commended by Mr. Wills as a house plant, to stand in halls and various suitable places in a dwelling. It will last in good condition for three months, if watered when required, treated to light, and the leaves kept clean from deposits of dust.

—— Heterotropa asaroides is showing several flowers in the Cape-house at Kew. It is a remarkable species of the Aristolochiaceæ, with leaves closely resembling those of Cyclamen, and also of Asarum, to which genus this is "too nearly allied." They are united by Messrs. Morren and Decaisne. The flowers have very short peduncles, throwing them but little above the soil. The perianth is globose, flattened at the top, and contracted to a pale yellow wrinkled mouth, with a spreading limb of three triangular segments. Outside it is of a blackish purple colour, and within is deeply celled. This species was figured in the *Bot. Mag.* of 1856, and another, H. parviflora, in 1863. Both are natives of Japan. The latter is quite distinct, though not nearly so curious as the former. They are very rare; H. parviflora is perhaps lost to cultivation.

—— The old single mauve Primrose, which is now generally grown under the incorrect name of Primula altaica, is now in very fine bloom in the neighbourhood of Bristol. One lady states that she has had it in her garden for forty years past, and possibly, like Primula vulgaris auriculæflora, which is also now in bloom, its origin is involved in obscurity. Probably the soil in which the single mauve Primrose is growing at Bristol has something to do with its fine development; certain it is that the flowers are finer and better coloured than we are in the habit of seeing it round London.

—— A magnificent form of Masdevallia Veitchii is now in flower in one of the Orchid-houses at Gunnersbury, the residence of Baron Rothschild. The colour of the singularly-shaped blossom is most brilliant, and the vivid orange-red is much flushed with purple on the upper part of the flower. Measured from the extremities of the sepals in a downward direction, its length is over 6 inches, and the plant is quite a small one. Mr. Richards, the gardener at Gunnersbury, who is well-known as a cultivator of orchidaceous plants, pronounces it to be the finest form of M. Veitchii he has ever seen.

FUCHSIAS.

Being engaged in the collection of materials for a horticultural history of this attractive genus, to be followed by a more purely scientific monograph, I should be glad to receive fresh specimens of some of the original species and very old varieties. I will name a few species that I have access to in the living state:—F. fulgens, thymifolia, alpestris, radicans, and several forms of F. macrostema. I should also be pleased to see specimens of the hardy Fuchsias of the south and west parts of the kingdom, as soon as they come into leaf, as I still hope to find the true F. coccinea. It will be in the memory of many readers of the *Gardeners' Chronicle* that Dr. Hooker discovered this plant in the Botanic Garden at Oxford a few years ago, and published a figure of it in the *Botanical Magazine*. Previously we had all been calling magellanica coccinea. Since Dr. Hooker read a paper on this subject to the Linnean Society additional evidence has come to light, and I hope to be able to clear up the confusion at present existing in the synonomy of the species. It may be useful to give a few preliminary notes here to indicate the kind of information sought. As recently as 1832 Gay collected a specimen of the true F. coccinea in a garden in Guernsey, of which he says, on the label accompanying the specimen in the herbarium at Kew, it was one of the chief ornaments. In 1837 he took specimens of it from a garden at Versailles; and Mandon's recent Madeiran collections contain it, labelled quasi-spontaneous. Loddiges' figure (*Botanical Cabinet*, plate 933, 1825), is apparently the true plant, although badly drawn. Sweet (1838), *British Flower Garden*, 2d series, under plate 216, says that coccinea is distinct from the F. magellanica set; and somebody else says (I forget where for the moment) that he has not seen wild specimens of the true coccinea. Salisbury, however (*Icones Stirpium rariorum*, t. 7), respecting its native country says, "*Sponte nascentem:* ex Brasil habuit Vandelli circiter anno 1787." Dr. Hooker appears to have overlooked this, as well as Salisbury's reason for changing the name to elegans, which was "because the name coccinea was equally applicable to several other species." Duhamel figures the true coccinea as F. magellanica.

This is pretty well the extent of my knowledge of F. coccinea at present, but I expect it will prove to be the same as a species figured in St. Hilaire's *Flora Brasiliensis*, of which there are no specimens at Kew. Of course this evidence of its being a native of Brazil tells against its being hardy, but at all events it appears, from the way Gay speaks of it, to have been hardy in Guernsey. To guide those who may not have a figure for reference, I may add that it has very short-stalked, heart-shaped leaves, and the leaf-stalks are bearded, the hairiness extending more or less along the underside of the leaf on the midrib.

F. magellanica and F. macrostema (not macrostemma, as usually written) are undoubtedly synonymous, and it is doubtful whether any other species is hardy. Respecting globosa, conica, gracilis, discolor, and several others, it is quite likely that they are simply varieties of magellanica, but an examination and comparison of wild and cultivated specimens may lead to the discovery that more than one species inhabits the extreme south of America. F. lycioides, Andrews (*Botanical Repository*, t. 120), introduced from Chili* in 1796, is the same as F. rosea of Ruiz and Pavon, and apparently a very distinct species. I am not sure whether it is quite hardy, nor do I know whether it is in cultivation now.

There must be much unwritten history respecting the early seedling Fuchsias that gardeners could furnish, as we have to go back only about fifty years. F. globosa is said to have been raised by a Mr. Banney. It would be interesting to know the origin of F. Riccartoni, the earliest mention of which that has come under my notice at present is in the *Gardeners' Chronicle* for 1841, where it is spoken of as being quite hardy at Liverpool, Arran, &c. The preceding notes will give some idea of the information needed to complete the history of garden Fuchsias. Most books are here accessible to me—it is unpublished knowledge of the first seedlings raised that would be most serviceable. It should be borne in mind that both coccinea and magellanica were introduced towards the end of the last century, and not the first only, as was formerly supposed, therefore it is possible that there were garden hybrids earlier than the date 1825–1830. Loddiges' Catalogue of 1826 contains the names arborescens, coccinea, excorticata, gracilis, lycioides, macrostema, serratifolia, and tenella. Nothing approaching a complete and accurate history

* In *Botanical Repository* it is stated that this species was introduced by Menzies from North-Western America, and this error was copied into De Candolle's *Prodromus*.

of this genus is known to me in any language, and, therefore, I shall be obliged to any of your correspondents who may favour me with information or specimens. The names of species and original varieties will be communicated when desired. *W. B. Hemsley, Herbarium, Kew.*

BRITISH GARDENERS.—XI.

Thomas Baines.

The name of Thomas Baines has become a household word amongst gardeners, while a most honourable niche in the temple of horticultural fame has been won by its possessor, to whom may be fairly assigned the premier position as a plant grower at the present day. Of this the gardening records of the past few years are a sufficient attestation. The Thomas Baines to whom we refer, and whose portrait accompanies this notice, comes of a race of successful gardeners dating back some three or four generations. He was born in July, 1823, in the then entrance lodge to Claughton Hall, the seat of the Brockholes, of Claughton, in North Lancashire, one of the oldest families in the country, they having been in uninterrupted possession of the estate since the time of Edward II. Whitaker, in his *History of Lancashire*, traces the Baines family on the estate for 400 years. His great-grandfather, Thomas Baines, whom, he remarks, he well recollects, died at the age of ninety-six, at Claughton Hall, after having been for many years steward of the estate for the grandfather and uncle of the present James Fitzherbert Brockholes, Esq. His grandfather served his time in the garden at Claughton, and held the head-gardener's situation for fifty years; and his father was also there brought up to the profession.

"From early childhood," writes Mr. Baines, in the notes which accompanied his portrait, "I was passionately fond of gardening. My first essay, and the one most indelibly fixed upon my memory, occurred when I was about five years of age; I then assisted my mother in planting some Ivy near the door of the lodge, which Ivy now forms a complete porch over the door, and in the forty-five years which have elapsed has developed a trunk 33 inches in circumference. At thirteen years of age I commenced my gardening career under my grandfather, who was a really good gardener of the old school, and was well known in the north of the kingdom as a most successful grower of fruits, especially of Grapes. Indeed the fine old Vines planted by him some sixty years ago still bear ample testimony to the careful preparation first made for them, since they have never even had the soil renewed, and at the present day finish off such crops of sloe-black fruit, both early and late, as are rarely surpassed. In common with most garden-boys at that day I had to submit to what, even if against one's will, was of great advantage afterwards—that is to say, I had to commence at the foot of the horticultural ladder. There was in those days little chance of a youngster trying his hand at the walls until he was sufficiently initiated in the work of the kitchen garden, or in the houses, until he knew something considerable about both. In most of the old establishments fruit and vegetable culture were the chief considerations, with such plants as sufficed for decorative purposes, and to furnish the comparatively small demand for cut flowers which was then made. Having fewer subjects to deal with, the young men learnt their culture, especially the things of a utilitarian description, more thoroughly. First impressions are lasting, more especially those affecting one's occupation, and if a man be from the first engaged in fruit culture, he will always feel a preference for it. Nevertheless, I was very fond of plants, and in the summer of 1842 walked 30 miles to see Fuchsia corymbiflora; railroads were not so plentiful then as now, neither was the money to spend in riding over-abundant, so that young men situated as I was, thought less of using their legs.

"I was excessively fond of reading. The books on gardening and kindred subjects to which I had access were not over-numerous, but they got pretty well thumbed. I also dropped upon an old copy of one of Linnæus' works, over which for years I used to spend an hour or so of an evening out in the fields; but I was ultimately with reluctance obliged to give it up, seeing the impossibility of getting sufficient time for studying the science in a way likely to lead to proficiency. If young men in gardens in remote parts of the country had then comparatively few professional and really useful books for perusal, there was at least this advantage, that there was much less of the fascinating but useless light reading which is the bane of learning at the present time. Half the young men in gardens now indulge far too much in this sort of literature ever to become versed in the most essential knowledge of vegetable physiology. I also read every book I could procure upon landscape gardening, and had a good opportunity of seeing such work practically carried out and judging of the effects produced, for, in addition to the natural beauties of the finely-wooded undulating grounds of the estate, alterations on a large scale were continually going on under the personal direction of the late Squire, who was known to be one of the very best landscape men of his time, and who succeeded in making the property unsurpassed in general effect by any in the country. Here were hundreds of miles of draining done before many people could see the necessity for draining at all; old fences were levelled and new roads made, large tracts of land were trenched and planted, irrigation on a large scale was carried out, and work of all sorts was done, such as afforded an excellent opportunity to any young man who was disposed to take a general interest in the cultivation and improvement of the land, as well as its effective embellishment upon correct principles of landscape art. Here were large open breadths to deal with, that gave scope to the planter in massing trees of distinct colours at different elevations, and which the undulating nature of the land admitted. As this work was going on for many years, it gave me an excellent opportunity to observe how it was done, and to note the effect produced in after years.

"High farming was also carried out at Claughton, and in this I took much interest, especially in connection with stock, for which that part of the country was, and still is, celebrated. My grandfather, with whom I lived during the time of my learning the business,

continually impressed upon me the necessity for a gardener being well acquainted with general farming, in consequence of the frequency with which one individual is required to act in the double capacity of manager both of farm and garden. With this in view, I went, at twenty years of age, for some three years to the best general farmer in the neighbourhood, where by practical experience I was enabled to acquire a knowledge which in after years has been of the greatest service to me. Through those early years and up to this time I went regularly to a night school.

"I then engaged as gardener to S. L. Behrens, Esq., of Catteral House, near Garstang, in Lancashire, and afterwards removed with the family to the Polygon Avenue, Ardwick, near Manchester. Here Mr. Behrens became extremely fond of plants, and we soon got together a nice collection of Orchids, Heaths, stove, greenhouse, and fine-foliage plants, and Ferns, as well as most of the best florist flowers of the day, including Auriculas, Dahlias, Pansies, Pinks, Carnations, and Hollyhocks. These latter, although never exhibited, were just as carefully prepared by tying, thinning, and shading, even to the providing of stands similar to those used for exhibition, and in which the flowers were arranged for placing on the tables in the entrance hall. Few men had a more perfectly trained eye, or better taste as regards the appreciation of form and colour, either in a painting, a well-kept garden, or a florist's flower; and although at present we have such a *furore* against exhibiting these in the only way in which it is possible to decide their merits, unnatural as it may be, Mr. Behrens, even in his own house, could best enjoy and admire them when thus arranged in the way calculated to display their individual excellence.

"I remained in Mr. Behrens' service for seven years, until he went to reside abroad. I then engaged with his cousin, H. L. Micholls, Esq., with whom I lived for twenty years—first at Bowdon, in Cheshire, where the collection of plants I had charge of was formed, and afterwards at Southgate. Mr. Micholls was exceedingly fond of his garden, and took the greatest delight in watching the growth of the plants, from their earliest stages up to the time of their full development. At the commencement, a few dozens in 6-inch pots were purchased, and this was kept up yearly, so as to provide a supply for filling up the places of such as got worn out or died—for plants, in common with other things possessing life, are liable to lose it by these natural causes; and those who profess to have few or no losses must be much more fortunate than I have been, or must possess some secret whereby vegetable life is indefinitely prolonged. Strictly speaking, the plants were not a collection, but a selection, representing most of the popular kinds at present in cultivation, requiring a wide range in the difference of their treatment.

"I feel the greatest repugnance to personal allusion relative to anything I have individually accomplished in this respect. The pursuit somehow begets feelings which are unobtrusive and reticent in their nature. In it, as in most other things, if a man is not able to do much, the less said the better, and if he does ever so little worth notice, the world is honest enough to give him all the credit he deserves. If, then, I make any allusion to my own doings, it is with a view of throwing a little light on the path of young men who may follow in the same track. Amongst the different plants I have grown, nineteen-twentieths were utterly strange to me, as I had no opportunity in early life of becoming acquainted with their usual treatment. This was in some measure an advantage, as I had nothing to unlearn. I always had a liking for growing plants that had the character of being difficult to cultivate; and whatever measure of success I may have been able to arrive at in the cultivation of such, I owe it to a close study of the nature and consequent requirements of vegetable life, and the natural conditions under which different plants exist in their native habitats. This I learnt in my younger days through the diligent reading of such books as treated upon the climate and soil of foreign countries, and the general conditions under which the plants we receive from them exist. A want of this knowledge is the rock upon which many young men, who attempt to grow difficult plants, split. Such reading is, however, distasteful to those who have become habituated to light literature.

"Five years ago Mr. Micholls removed from Bowdon to Southgate House, near London, to which place I accompanied him and remained until his disposal of it and the dispersion of the plants. Few gentlemen take a greater delight in gardening than did he, or encourage it through a more genuine love of plants for their own sakes. From him, and the family in general, I experienced uniform kindness and liberality, such as is seldom accorded to a gardener."

Home Correspondence.

The Lindley Medal.—Permit me to make a few remarks anent the list of the winners of the Lindley Medal, published in the *Gardeners' Chronicle* of December 12, 1874. It is endorsed by the Editors as "authentic," thus showing that it was obtained from an accredited source; but with all deference to that source, I beg to say that list is not a correct one, for on March 3, 1868, the Floral Committee awarded a Lindley Medal to me for a fine group of Cattleya Trianæ (Warscewiczii), from the collection of W. Marshall, Esq., of Clay Hill, Enfield, and this award is not in that list. The *Gardeners' Chronicle* in its report of that meeting says—"The committee recommended that a 'medal' be awarded to it"—the group (see *Gardeners' Chronicle*, 1868, p. 240). Also in reporting the award of this medal to Messrs. Veitch, February 18, 1868, the word "medal" only is used, but it was the "Lindley" Medal that was awarded in both cases. I have had some correspondence with the Secretary of the Royal Horticultural Society upon these awards, and have learned from him that this award was never entered on the minutes of the Society, and there is no official record thereof. This will explain the omission of my name in the list, but whether it is a satisfactory reason or not will appear presently, for this omission gives me the right to call attention to No. 12 in the list. But to explain the matter properly, I ought to say that I am not to have the medal under any circumstances, for according to the rules of the Society, neither a member of the Council nor his gardener may receive a money prize of any kind, and as Mr. Marshall was a member of the Council at that time I got the benefit of those rules. Turn we now to 1873. Lord Londesborough was a member of the Council for that year (see *Gardeners' Chronicle*, 1873, p. 221), and on May 21,

1873, the committee awarded a Lindley Medal to his lordship's gardener, Mr. Denning, for a very fine plant of Utricularia montana. This award appears in the list, No. 12, upon equal terms with the others, and I —also many of my brother gardeners—would like to know how it happens that an official record is kept of this award, but there is no official evidence of the other, although they were both given under the same conditions and subject to the same rules. It is clearly impossible for a list to be "authentic" when the records from which it is compiled are kept in this unconnected manner. *W. Wilson, Gr. to Mrs. Adams, Chase Park, Enfield.* [Our statement was officially communicated to us, and it appears to be correct on Mr. Wilson's own showing. First, the committee could not "award," but only "recommend" the medal; the award must be made by the Council. In the first case cited Mr. Wilson's employer was a member of Council, and according to a rule then in force no member of Council or his gardener could receive a money prize. In the second case cited Lord Londesborough was not a member of Council at the time, since he resigned with the "old" Council in February, 1873, and did not accept his unauthorised re-election by the adjourned annual meeting, consequently Mr. Denning was fully eligible to receive the medal. Eds.]

The Bougainvillea.—The accompanying illustration (fig. 35), prepared from a photograph kindly sent to us by Lieutenant-Colonel Puckle, Director of the Lal Bagh at Bangalore, admirably depicts a remarkable specimen of the Bougainvillea, climbing up a Casuarina tree at the Cubbon Hotel, Bangalore. The Casuarina tree is 40 feet high, and so completely has the Bougainvillea taken possession of it, that when in flower, during the present month, so gorgeous is the mass of colour that only a few leaves here and there are seen. "Imagine," writes Colonel Puckle, "all that a brilliant mass of young, bright mauve-coloured bracts, and you can judge what a habitat it has amongst us. I have trained it over 100 yards of one entrance wall to the Lal Bagh, and next February it will be magnificent."

Rating Nurserymen's Greenhouses. — Will you allow me, through the medium of your columns, to call attention to the extraordinary manner in which in certain parishes nurserymen's and florists' stock and implements in trade, such as those slight erections commonly called greenhouses, are rated. These slight glass structures, such as are put up by nurserymen and florists, are not buildings or fixtures, and are liable to be distrained upon for rent or debt; therefore, I submit they are clearly part of a nurseryman and florist's stock and implements in trade, and as such are no more assessable to the poor-rate than the potting-soil, flower-pots, watering-pots, stakes, &c., which, with the aid of the glass, all assist in producing those plants which we grow for a living. I will just mention a case in which I am personally concerned. I have two nurseries in the isolated parish of East Wickham, in which I grow my produce for the London markets. In my home nursery I have about one acre of land, upon which stands a dwelling-house, three sheds, and eleven greenhouses. The dwelling-house and land I hold on lease at a rental of £12 per annum, and I have made no improvements since 1871; in fact, my glass erections are very much deteriorated in value through wear and tear, want of paint, &c. Up to 1872 I was rated at £17; the next rate I received showed that the authorities had increased it to £46 10s., upon which I paid, and did not appeal, although I considered I was paying an illegal rate. Last year the assessment committee—thinking (I presume) that these glass structures are such very valuable property, and as I submitted so tamely to the former increase—strained another nerve, and showed their good judgment and abilities by making the glass sheds and dwelling-house each a separate assessment, and have assessed the eleven greenhouses at my home nursery at the very modest sum of £150, and rated them at £100. At my Hill Grove Nursery I have three large greenhouses and one smaller unfinished, which they have also assessed at £150 and rated at £100. Against this most extraordinary assessment I appealled, but could get no redress—the worthy chairman of the three gentlemen present forming the assessment committee informing me that if he had come and valued them he should have put on double. *John Turtle, The Nurseries, Welling.* [The whole subject is in a most confused and unsatisfactory state, and should be taken up by those concerned with a view to a remedy. Eds.]

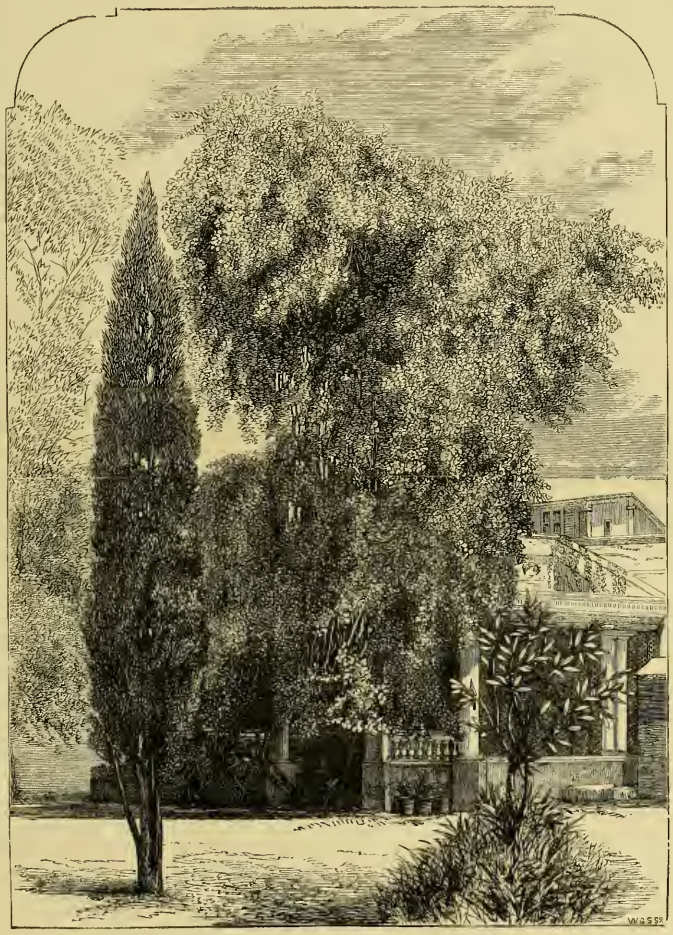


Fig. 35.—Growth of Bougainvillea in India.

Libonia penrhosiana.—Any one desirous of a variety of subjects for hanging baskets will find this plant a great acquisition for that purpose. It is

flowering with me in the most profuse manner, and continuing from September to the present time it is a good plant for amateurs, as a temperature of 32° does not appear to affect it. *W. Jones, Gr., Abbey Manor, Evesham.*

The Larch.—It would be interesting if your correspondent at p. 107, writing on the Larch, &c., could give the dimensions of those grand old trees at Dawick and Dunkeld, as from their great age they must be fine specimens. It is also more interesting to me, writing as I do from the demesne of the Right Hon. Colonel Tighe, where there are several fine specimens of Larch, supposed to be the first planted in Ireland. I measured one to-day over 60 feet in height; circumference of stem at 4 feet from the ground, 12 feet 6 inches; spread of branches, 78 feet in diameter. The trees appear to be in good health, and to all appearance will continue improving for years. I would also remark that the whole of those trees are planted a considerable distance apart; would that account for their having escaped the Larch disease, as at 500 feet higher elevation on the same range the plantations more thickly planted are all more or less diseased. *G. Dodd, Woodstock Park, Ireland.*

New Japan Pear (see ante, p. 106).—I send you two pieces of a branch of what I have as Pyrus sinensis; you will easily see that it very much differs from the figures at pp. 106 and 107 of the *Gardeners' Chronicle.* Your figure exactly corresponds to that given by M. Decaisne, in his *Jardin Fruitier*, of Pyrus sinensis of Lindley. M. Decaisne quotes four varieties as having been sent to him by M. Van Houtte; these were raised in Holland, and M. Decaisne says that they are easily known by the small caducous calyx. One is said to be like the Pear Seringe (*i.e.*, Doyenné de Saumur), which is blunt turbinate; the second to be like the Pear Seutin, which is short turbinate; the third is said to be like Martin Lee, which is obtuse pyriform; the fourth is round, like Doyenné Gris. The seed from which these four forms were raised seems to have been imported into Holland by the Dutch Envoy to the Court at Yeddo, but the trees that produced the fruit from which the seed seems to have been obtained were originally imported into Japan from China—so says M. Siebold, as quoted by M. Decaisne. In vol. vi., p. 396, *Hort. Soc. Trans.*, there is a notice of this fruit as having been sent to the Horticultural Society in 1820, and Mr. Knight had grafts of it, and fruited it at Downton, and Lindley figured and described it. I have not the *Botanical Register* to see whether Lindley's figure corresponds to my trees, but no doubt you can refer to it: the number is 1248. You will see by the old leaves I have sent that they are spathulate at the base, with a short stalk, acuminate at the point and perfectly smooth along the edges. [Your leaves are quite different from those of Dr. Thurber's plant. Eds]. Your figures and Decaisne's are very much dentate, or "acutissime-serrata," and the leaves on Decaisne's figures are rotundato-cordata, yours are oblongo-cordata. From the above I imagine that all are forms of one type, like our Pyrus communis. Let this be as it may, they form a very interesting group, with beautifully, almost evergreen, tinted foliage, and large beautiful flowers. The fruits, too, as produced in China and Japan, seem to be very beautiful and of long duration. They may yet become the parents of another race commingled with our common sorts. You will notice that the buds, both in yours and Decaisne's figures, have the scales open at the apex and obtuse, whilst those I send are closely imbricate and very pointed. Another character, which stands good with all sorts of Pears, is the venation. There is no character, that I have been able to find, that is so constant in the foliage of Pears and Apples as this; and I dare say it holds good in many other families, Ferns particularly so. *J. Scott, Merriott.*

Fuchsia serratifolia.—This fine old evergreen Fuchsia is but seldom met with, and yet it is one of the best and freest winter-blooming things we have if grown specially for that purpose. For cut flowers it is most valuable, as they last a long time in water; and the large glaucous green leaves form a charming setting to the rich pendulous tubes. To have good large plants in bloom early they should be propagated at once, and grown on in gentle moist heat till the end of May, to be then gradually hardened off preparatory to setting them outdoors. This variety is best grown in the shrubby or bush form, as it does not readily conform to the pyramid shape, and by growing in the bush shape much stronger shoots can be obtained than if it were stopped and cramped to induce it to assume a form not natural to it. The corymbs of flowers are borne at the points of the shoots, and the stronger these can be grown, provided that the growth be firm and compact, the larger and finer will be the individual heads of bloom. To induce this kind of growth they should be potted in good turfy loam well enriched with old Mushroom dung, and be grown without a check. By the middle of June, if properly established and carefully hardened off, they may be placed in the open air in a partially shaded situation, where, with proper attention in watering and syringing, they will make fine firm flowering wood. They should be housed by the end of September, and if kept in a temperature of 45° to 50° during winter they will last in bloom several months. I have found Madame Cornelissen almost a perpetual bloomer, having had plants of it both last winter and this almost equal to what they usually are in the summer months. It is only necessary to give them a slight rest in the autumn, and when started again this variety breaks freely into growth, and continues on through the winter, giving a profusion of bloom. *J. Sheppard, Woolverstone.*

The Eucalyptus and the Late Frosts.—If your correspondent, Mr. J. W. Malleson, will examine the bark and wood of his Eucalyptus, he will, I think, find both discoloured and dead. Plants often retain their leaves for a long time after severe weather, and, unless examined closely, appear to have escaped. The Eucalypti we have here stood out last winter, and were, therefore, large woody plants, and in a more favourable condition to withstand frost than those described by your correspondent, and yet both wood and bark are completely discoloured and killed, although the plants retain their leaves, and appear to have escaped. As the merits of the Eucalyptus have been so much lauded of late for various purposes, it would be interesting to know what amount of frost it will endure in this moist climate, and if it has escaped elsewhere. It is much to be regretted that such a rapid-growing ornamental tree as this is should not succeed with us, as it would add quite a fresh feature to our landscape, being so distinct in character to anything we have in that way. *J. Sheppard, Woolverstone.*

Transmutation of Wheat into Chess (or Cheat) a "Cheat" after all.—Referring to Mr. Meehan's explanation in your number for January 23 (p. 115), he says I have misapprehended him in the "Brome-Triticum matter," and objects to being "charged with being a transmutationist." In reply, I certainly must plead guilty to believing that he was so, and I drew my conclusions from the report made to the New York *Tribune*, which it now appears that Mr. Meehan himself contributed, because, as he puts it, "ordinary reporters make sad work of scientific subjects." How, I would venture to ask, could any one believe otherwise, judging from Mr. Meehan's own words? In the first place, he begins by remarking on the popular belief that Wheat will turn to Chess, and that, while the scientific world may well be pardoned for deriding such an idea, "for his own part he had seen many popular impressions derided by men of science prove true." Then, *à propos* of the viviparousness of toads, he tells us he had "proved the fact." Again, as to snakes swallowing their young, he says, "In like manner, in his youth, he saw five young snakes, one after the other, enter the mouth of the parent when alarmed." Then, he tells us, "with these things on his mind" he held himself open to get reputed facts with reference to this question of Chess. From all this I came to what appeared to me to be the very natural conclusion, that just as Mr. Meehan had found, from his own experience, how deluded the scientific man had been with regard to the toad and snake, so the scientific man who derided the transmutation of Wheat into Chess was in like manner to be confuted by the fact which Mr. Meehan then proceeds to relate. Let us see exactly what Mr. Meehan did and said. He exhibited to the Academy one of several specimens collected by Mr. Levette, of the Indiana Geological Survey, and proceeded to point out first, "that there could be no mistake" about the branch from the Wheat ear being Bromus secalinus. Then he takes pains to meet the possible contention that in other cases an examination had shown only an accidental union of the two culms, and so he tells us "that the most careful examination of the specimen, both by himself and friends, aided by powerful pocket-glasses, had failed to detect any such accidental union." "There was, indeed," says Mr. Meehan, "every presumption against the probability of any such accident in the present specimen." He then clinches his observation by declaring that the spike of Chess came out at one of the bends of the zig-zag rachis, whence the cluster of the Wheat flowers should have sprung; and declares that this was "not an accidental union of two distinct parts, but a substitution of one part for the other." Mr. Meehan then notices the remarkable coincidence that it is always the Bromus secalinus with which the popular belief in transmutation is connected, and concluded by suggesting that it would be best to refer the specimen to the microscopical section of the Academy for an instrumental examination. Notwithstanding this suggestion (which seems by the context to have been made rather in bravery than in any doubt), who, reading Mr. Meehan's report, can come to any other conclusion than that at the time when the report was written (and that is all with which I have to do), Mr. Meehan believed in transmutation, or, in other words, was a transmutationist? Now, what has happened since? According to Mr. Meehan's statement just received (p. 115), he tells us of that which I am delighted to know (because it justifies my protest in your number for December 12, 1874, p. 741), that, after all, to the disgrace of somebody, the whole thing has turned out to be a trick. "So ingenious was the trick," says Mr. Meehan, "that a leading scientist of Laporte, Indiana, was first imposed upon; then the members of the Indiana Geological Survey and many of their scientific acquaintances; then some thirty members handled and examined it, and even the chairman of the microscopical section, who is one of the best vegetable biologists in the United States had the specimen in hand two weeks, and had made microscopical sections and drawings of the various parts before he discovered the trick." It would be curious to know when the trick was discovered and exposed—that is, whether before or after Mr. Meehan's contribution to the *Tribune;* I presume it was after. I won't do Mr. Meehan the injustice to suppose him to be a transmutationist now that the trick has been exposed. All I maintain is that, judging from Mr. Meehan's contribution to the *Tribune*, he was a transmutationist then, *i.e.*, before the illusion was so rudely dispelled. It really shocks me to find it stated by Mr. Meehan that the trick had been played by the party practising it for some years past. I agree cordially with Mr. Meehan's concluding observation, that it would have "been better if his remarks and the exposure of the fraud could have gone together," because it would have saved me the trouble of writing my protest and your subscribers of reading it, although, on the whole, I shall not regret it, if it have the effect of doing something towards upholding in the public estimation the careful conclusions of scientific men, when they are brought into collision with the hasty assertions of untrained and superficial observers and lovers of the marvellous. *Wm. Marshall, Ely, February 1.*

Reports of Societies.

Royal Horticultural: *Feb. 3.—Evening Lecture.*—Sir Coutts Lindsay, Bart., in the chair. The subject selected for this occasion was "Fungi, the Causes of Disease, Real or Supposed," and the lecturer—the Rev. M. J. Berkeley—said he used the words "real or supposed" advisedly, because in many cases of disease there could be no doubt but that fungi were the cause, while on the contrary, there were many cases in which the agency of fungi was extremely problematical, and it was desirable above all things that investigators of questions bearing on the influence of fungi in diseases should have an accurate knowledge of what fungi really were, for at present sadly too many books were written in utter ignorance of this point. Attention was then called to the generally recognised distinctions between the principal subdivisions of fungi. Mr. Berkeley stated that there were three forms of fungi which were most frequently associated with diseased conditions, namely, Aspergillus, Penicillium, and Mucor. These were described in detail, and mention made of the circumstance that many forms which had been named and described separately were mere conditions of one or the other. The most frequent fungus met with in connection with disease was, he believed, due to some form of Penicillium, though it was difficult to say that such really was the case from the fact of our knowledge on this point being in a mass of confusion. Mr. Berkeley next called attention to some of the simplest forms of fungi, and alluding to the observations published some time ago by Professor Tyndall, on the enormous quantities of spores found floating in the air, and which were believed to be a fertile cause of disease, went on to describe the experiments carried out in India by Messrs. Cunningham and Lewis, at the instigation of the Government. The nature of the apparatus employed to catch the floating spores was explained, as also the results obtained by both investigators, who found that there was no relation between the presence and numbers of spores so caught and the prevalence of disease. Dr. Hallier's theory, that each form of fever was due to a specific fungus, then came under review, the lecturer remarking that he commenced his investigations with a great deal of prejudice, but his theory was ridiculed by De Bary and others; and, judging from Hallier's own mounted specimens, he, Mr. Berkeley, was not satisfied with his manipulation, and believed his theory and statements were equally untenable. With reference to the diseases caused by fungi on Rice, the lectur r stated that some years ago he had requested Dr. Thwaites, the able Director of the Botanic Garden at Peradenyia, Ceylon, to send him all the known forms of disease in Rice, but on examination it was found that only one minute fungus was peculiar to that plant. Rice soon decomposes, however, and persons eating it in that state might be seriously injured. "Sappy" meat was explained to consist of a number of little vesicles filled with very minute particles, which

presented the Brownian motion, and which Mr. Berkeley suggested, from their known effects on meat, might possibly be the cause of cholera, hospital gangrene, or other diseases. At least the suggestion was a fitting subject of inquiry, and he hoped that he should see the day when such schools of research were established at our universities and colleges. The nature of bacteria and vibrios was very imperfectly understood. They were exceedingly minute, and though he had witnessed some very delicate experiments he was not at all satisfied either with the manipulation or with the inferences attempted to be drawn that bacteria developed into moulds, or were the immediate cause of disease. The prevalence of ergot in New Zealand, and the imperfect knowledge possessed by agriculturists even in England of this pest, the silkworm disease, and the Potato murrain were then discussed, and it was stated that while in fever and diphtheria there is no evidence to show that fungi really caused the disease, it was certain that in many cutaneous diseases fungi are more or less directly connected with the maladies. Reference was made to the so-called fungus-foot of India, in which most serious disease of the bones of the foot is undoubtedly caused by a fungus which attacks the bare feet of the natives only, and for which there is no known cure but amputation. As to the precise effect of fungi on wounds there was at present no certainty, but surgeons have found from experience the policy of excluding the air as much as possible, and of using carbolic acid as a preventive of fungus infection. Reference was also made to the effects of the spores of Ustilago in producing headache, in the same manner that the pollen of grasses produces hay fever.

A unanimous vote of thanks was accorded to the lecturer.

Market Gardeners, Nurserymen, and Farmer's Association.—An extraordinary meetiug of the committee was held in their rooms, Bedford Head Hotel, Covent Garden—H. Haward, Esq., in the chair. After the election of Mr. Wm. Poupart, jun., to the office of treasurer, the question of greenhouses and the Metropolitan Building Act came on for discussion. It appeared from a statement made by Mr. Lobjoit, one of the members, that he had been summoned by the District Surveyor for not giving notice of the erection of a greenhouse, for which he was liable to a penalty of £20. His defence before the magistrate was that greenhouses were always considered exempt—that the one in question was more than the required distance from the nearest street or alley, and upwards of 100 feet from the nearest buildings and ground of an adjoining owner. The magistrate considered that it must be 30 feet from any other building, whether his own or that of an adjoining owner. The defendant said that upon that construction of the clause, if he put up a pig-stye, or even a dog-kennel in the middle of his field, he could not put another building within 30 feet of it, and he pointed out what a serious thing it would be for nurserymen and market gardeners, who had frequently to erect temporary buildings and greenhouses on land held under a yearly tenancy. The committee considered it a very important question, and one that seriously affected the trade generally, and decided to take counsel's opinion upon it, and if necessary, to have a case submitted to the Court of Queen's Bench. It was decided also that the Society should assist by every means in their power in opposing the Bill for raising the tolls in the Borough Market.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
For the Week enoing Wednesday, February 3, 1875.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 Years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 18 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
	In.	In.	°	°	°	°	°	°			In.
Jan. 28	30.05	+ 0.29	52.0	41.5	10.5	47.2	+ 9.0	43.6	88	WSW	0.02
29	30.10	+ 0.33	50.7	46.9	3.8	48.9	+ 10.6	48.5	98	WSW	0.29
30	30.41	+ 0.64	43.2	35.3	7.9	39.2	+ 0.8	34.3	83	N.E. ; E.S.E.	0.07
31	30.38	+ 0.62	46.0	31.5	14.5	38.4	— 0.1	33.9	85	E N.E.	0.00
Feb. 1	30.17	+ 0.41	49.0	33.0	16.0	40.4	+ 1.8	37.0	88	S.S.W. ; S.W.	0.03
2	30.04	+ 0.27	45.0	32.7	12.3	38.8	+ 0.1	38.3	99	WSW ; W.	0.00
3	29.74	— 0.03	41.8	34.0	6.9	38.5	— 0.3	35.8	91	WNW	0.00

Jan. 28.—Overcast; dull; and mild all day, but fine at intervals.
— 29.—Overcast; dull; and rain throughout.
— 30.—Overcast in early morning, but the sky became cloudless about 10 A.M. Fine afterwards.
Jan. 31.—A very fine day.
Feb. 1.—Hoar-frost in morning. A fine day. Lowest temperature of vegetation, 29°.1.
— 2.—Hour frost in morning. Fine, but light clouds prevailed all day. Slight fog at night.
— 3.—Overcast; dull; slight fog in morning; somewhat brighter in afternoon and evening. Slight fog at night.

—— In the vicinity of London the reading of the barometer at the level of the sea decreased from 29 52 inches at the beginning of the week to 29.16 inches by the early morning hours of the 24th, increased to 29.25 inches by about noon, then decreased again to 29 inches by the afternoon of the same day; it then turned to increase again, and by the evening of the 26th, 30.28 inches was reached; it again decreased to 30.20 inches by the evening of the 27th, increased to 30.32 inches by the morning of the 29th, decreased to 30.19 inches by the night of the same day, and increased rapidly to 30.67 inches by the end of the week. The mean reading for the week was 30.03 inches, being 0.32 inch higher than that of the preceding week.

The highest temperatures of the air at 4 feet above the ground ranged between 52° on the 28th and 42½° on the 26th, the mean value for the week being 47¾°. The lowest temperatures of the air at night varied from 47° on the 29th to 35½° on the 30th, the mean for the week being 39¾°. The mean daily range of temperature was 8°, ranging from 11½° on the 24th to 3¾, on the 29th. The mean daily temperatures of the air were as follows:—24th, 44°.5; 25th, 42°; 26th, 39°.6; 27th, 45°.8; 28th, 47°.2; 29th, 48°.9; and 30th, 39°.2; and the departures from their respective averages being, +6°.8, +4°.1, +1°.6, +7°.6, +9°, +10°.6, and +0°.8. The mean temperature for the week was 43°.9, being 5°.8 above the average, as deduced from sixty years' observations.

The highest readings in the week of a thermometer with blackened bulb in vacuo, placed on grass in the sun's rays, were 86½° and 89¾° on the 28th and 30th, but the highest readings on the 26th and 29th were 58¾° and 55°. The lowest readings of a thermometer on grass, with its bulb fully exposed to the sky, were 34½° and 33° on the 26th and 30th; the mean for the week was 37°.

The weather during the week was fine and bright, but the sky generally cloudy.

The direction of the wind was for the most part W.S.W.

Rain fell on five days, the amount being 1.20 inch.

In England the extreme high temperatures observed by day ranged between 57½° at Bradford and 46° at Nottingham, the general average all over the country being 52°. The extreme low temperatures observed by night varied from 36½° at Liverpool to 30° at Hull and Newcastle-on-Tyne, the general average being 33¾°. The extreme range of temperature in the week was 18½°, the greatest range being 24° at Hull, and the least 11¾° at Nottingham. The mean high day temperatures ranged from 50° at Bristol to 42° at Nottingham, the average value being 47¾°. The mean low night temperatures varied from 41¾° at Bristol to 33½° at Newcastle-on-Tyne, with a general average of 38°. The mean daily range of temperature in the week was 9¾°, being as large as 13° at Sunderland, and as small as 4½° at Nottingham. The mean temperature of the air for the week was 42½°, being ½° higher than the value for the corresponding week in 1874, the highest in the week being at Bristol, 45½°, and the lowest at Nottingham and Newcastle-on-Tyne, both 39½°.

Rain fell on every day in the week at Bristol, and on five or six days at most other stations, the amounts varying from 1 inch and four-tenths at Birmingham to 1 inch and two-tenths at Portsmouth, Blackheath, and Bristol, to three-tenths of an inch at Hull, but at Newcastle-on-Tyne no rain was measured; the average fall all over the country being eight-tenths of an inch.

The weather during the week was fine and mild, but the sky was generally overcast.

Lightning was seen at most stations on Sunday evening, January 24.

In Scotland the highest temperatures ranged from 54° at Glasgow to 49° at Greenock, the general average being 51½°. The lowest temperatures varied from 31¾° at Glasgow to 26° at Perth, with a general average of 28½°. The mean range of temperature in the week was 23°. The mean temperature for the week was 39°, being 4½° lower than the value for the corresponding week in 1874, the highest was at Glasgow, 41¾°, and the lowest at Aberdeen, 37°. Rain fell to the amount of 1 inch at Glasgow and Greenock, but at Dundee a quarter of an inch only was recorded, the average fall over the country being three-quarters of an inch nearly.

At Dublin the highest temperature was 58½°, the lowest 33°, the mean was 45½°, and the rainfall 0.64 inch.

JAMES GLAISHER.

Garden Operations.

(For the Ensuing Fortnight.)

PLANT HOUSES.

Plant Stove.—There is no time of the year when a good display of flowering plants is more acceptable or more required than throughout the early spring, more particularly if there happens to be a conservatory attached to the dwelling. To ensure this, it is necessary at the present time to prepare, by the introduction into heat, a good quantity of plants for this purpose—more *Deutzia gracilis*, the double-flowering *Prunus*, *Ghent Azaleas*, *Rhododendrons*, *Kalmias*, and *Andromedas*. Where there exists a low pit that can be used for this purpose, it is better than the ordinary stove, on account of there being generally in such a place less difficulty in getting the plants well up to the glass, as also the chance of bringing them on into flower with less heat than in the stove, which, as the days lengthen, will need keeping warmer than these forced shrubs require or do well with; 60° in the night will be found quite enough, and so treated they will last longer in bloom than if placed where they will be hotter. Syringe overhead once in the day, and that sufficiently early to allow the plants to get quite dry before nightfall. Nothing tends to make the flowers of these forced plants so tender as having them dripping wet and hot during the night. A few more *Azaleas* should also now be put in heat to succeed those introduced some time ago; as also *Richardias*. Where a sufficient number of these plants exist they can be had in bloom over a lengthened period. As decorative subjects for conservatories, rooms, or in any place where a flowering plant is required, they are well adapted for the purpose.

Hyacinths, *Narcissus*, *Tulips*, and *Crocuses*, will now require less excitement in order to bring them into flower, and care must be taken that they are not either kept too hot or too far from the light. As a hardy plant for forcing there is nothing better adapted, or that makes a finer object, than *Dielytra spectabilis*; not only is it a good conservatory decorative plant, but its flowers, from their colour and form, associate well with almost anything else—as a pendent bloom for hanging over the sides of a large vase it has few equals. But this plant must not be hurried with too much heat, otherwise half its beauty is destroyed; it must also be kept as near the glass as possible. *Solomon's Seal* is equally useful for cutting; its foliage, as well as the flowers, are fine for filling up large vases.

All the varieties of *Allamanda*, that have been kept quite dry at the roots and resting through the winter, and that have not previously been started into growth, should at once be cut back, their balls well soaked, half the old soil removed, and repotted into good sandy loam, ramming the soil quite close and firm, and at once placing them on the trellises that they are intended to be grown upon; if this is not done before the plants break into growth many of the shoots will be broken in putting them on afterwards. *Clerodendron Thompsonæ* and *Balfourii*, that have been at rest and quite dry at the roots, should have the ball well soaked; these plants should be merely trained upon the trellises they are intended to flower upon, but not cut in at all, neither must there be any attempt at shaking them out, or it will, in all probability, stop their flowering. If the plants are small, and it is desirable to grow them larger, they may be at once repotted into larger pots, without in any way interfering with the roots, further than removing the old crocks; this, with small plants, is preferable to deferring the potting until after they have flowered, as they will then have nothing to interfere with their going on growing. *Bougainvillea glabra*, which is far the best variety for pot culture, should at once be got to work, getting a portion of the old soil away from those that are already large enough, and returning them to the same pots in good sandy loam, well enriched with rotten dung. All these free-growing, gross-feeding plants must either have the soil made very rich at the time of potting, or be well fed with manure-water during their growth; if they are required for the decoration of a conservatory that adjoins a dwelling-house, the use of manure-water is objectionable, consequently in potting such plants the soil used should be rich.

Caladiums should now be started; where they are required large they must be encouraged by plenty of pot room—they do best in peat; where they are wanted in a small state, such as in 6 or 8-inch pots, the bulbs may be divided, not using the pieces too large, for if the root is too big in proportion to the soil it has to feed upon, the leaves will be poor and small. The small-leaved *Argyrites* is an excellent plant for decorative purposes, grown in 6-inch pots near the glass, and not too hot, so as to prepare it somewhat for the lower temperature of the conservatory in the summer season. A small bit of the common *Selaginella*, with its roots just secured in

the soil on the surface of the pots, will soon spread over the top, and much improve the appearance of these small decorative plants without doing them any injury. If new tan was got in the stove, as advised some two months ago, it would be much assisted now by an addition of 8 or 10 inches of fresh tan, forking it in amongst the old; this will be especially of use if there is not a pit of considerable depth that will hold a good body of the tan. Where tan is not to be had near at hand, a good bed of Oak leaves and stable manure, mixed in equal proportions, is a good substitute, but will not maintain a regular heat so long, consequently will require some new material adding at intervals of five or six weeks. As it is now time to prepare for the general potting of stove plants, soil, both loam, peat, and rotten manure, should be prepared and placed where it will get sufficiently dry for use; if the ordinary soil shed will not effect this, it should be placed upon any flue from the boilers, or in a warm stokehole, where, by turning it frequently, it can be brought into right condition; but on no account use it too wet, for if such is the case the roots will not enter it freely. See that everything in the shape of clean pots and broken crocks are in readiness. *T. Baines, Southgate, N.*

FRUIT HOUSES.

VINES.—Cuttings or eyes of Vines may now be put in; they should be inserted singly in 60-sized pots in good loam. A bottom-heat of 75° will insure an early strike. Striking Vine eyes on turves is also now a common practice; and if the Vines are intended for planting out this season, there is no doubt but that this is the best plan to adopt. In 1873 we planted a house with Vines thus propagated, and before the end of September some of them had made more than 30 feet of young wood. Vines in flower should have a mean temperature of 65°, and the air of the house shouldbe kept rather dry, but not arid. Rub the hand gently over all shy-setting kinds to distribute the pollen. Thin out both branches and berries of advancing crops, leaving the most compact bunches, and studying appearances, by taking care to have them evenly distributed all over the house. Pot-Vines should never be allowed to become dry, or all manner of ills befall them. It is a good plan to insert the pot containing the Vine in another containing a mixture of loam and dung, to which the roots of the Vine soon find their way; this obviates the necessity of too frequent watering. All inside borders should be frequently examined, and when water is requisite it should be a few degrees warmer than the temperature of the border. Look also to the fermenting material on outside borders, and where the heat is declining, renew by the addition of fresh litter and leaves. It is both difficult and injurious to keep Grapes hanging on the Vines after this date, as the warmth necessary to keep the Grapes in good condition excites the Vines; the consequence is, the sap rises, and the Grapes either crack or damp off. If the Grapes have been thoroughly ripened they will keep well, and for a long period, if cut with a piece of wood attached and inserted in bottles of water in any dry room or house. Exclusion of light, as some think, is not necessary to successful keeping. *W. Wildsmith, Heckfield, Hants.*

FIGS.—The earliest forced Figs in pots will now be in full growth, and the points of the shoots must be pinched out after a growth of 5 inches or 6 inches in length. If the pots are plunged into bottom-heat the temperature of the fermenting materials should not exceed 80°, for the roots and fibres of Figs are very gross and succulent, and so liable to be injured. The night temperature may still range from 50° to 60°, and from 65° to 75° in the daytime by sun-heat. Do not neglect to syringe the trees frequently, or to give waterings at the roots, and some well-rotted manure upon the surface of the pots. Well encourage the roots to ramify in it, which will strengthen their growth. In the house where the Figs are permanently planted out in the borders, forcing, if not already commenced, may now be done—presuming that the wood of the trees has been properly dressed, and the strong shoots thinned out so as to leave the terminal shoots for the first crop, which shoots must be tied to the trellis, and given plenty of room for them to get all the sunshine and light possible. I find that when Figs are permanently planted out, the trees are more fruitful where the borders are circumscribed; and the roots can always be encouraged to run on the surface by adding fresh soil, and giving them liquid manure in the growing time. Where new borders are made for them they ought, therefore, not to be above 18 inches deep, with plenty of drainage to let the water percolate through it rapidly. I find a good covering of old lime scraps on the top of the draining materials to add to the health and fertility of Fig trees, as does the use of a calcareous soil where it can be got for the borders. *William Tillery.*

MELONS.—But little can be done in this department at present. The preparation of soils, and the collecting of dung and leaves, however, must not be forgotten. The first batch are just peeping, and must shortly be raised nearer the glass, still keeping them in a brisk heat of 72° to 75°. Water sparingly for the present, and earth-up with previously warmed compost as the plants advance in growth. There is nothing gained by potting off too early at this season. Where it is contemplated to grow the first batch of Melons in boxes, let such boxes be prepared forthwith; they will not be wanted for the next few weeks, but nothing is lost by having them well seasoned. A very good sized box for all ordinary purposes of Melon growing is 15 inches to 18 inches square, and 12 inches to 15 inches deep, made of three-quarter rough deal, with half-a-dozen good sized holes bored through the bottom. *Thos. Simpson, Broomfield Lodge.*

HARDY FRUIT GARDEN.

The heavy fall of snow which preceded the setting in of the severe frost of December last proved very beneficial in protecting the buds of bush and dwarf fruit trees, and, consequently, but little mischief has been done. Where the pruning of these has been deferred on this account it may now be proceeded with, as the buds of the earlier kinds are swelling fast, and, should the weather continue mild, active growth will soon commence. The general planting of fruit trees should now be completed as soon as possible. In making plantations of *Gooseberries* or *Currants* it is better to keep them together, so that, if necessary, they can be netted over, which it is both difficult and expensive to do when the trees are planted round the borders or detached from each other; they may be planted as bushes at 6 feet apart each way. Gooseberries succeed well planted to wires, as recommended previously for Raspberries, only that instead of three wires five or six would be necessary for the shorter shoots of the former. Currants, red and white, succeed well here trained as pyramids, and spurred in judiciously are very productive and ornamental when in fruit, and offer less opportunity for the attacks of birds, as when closely stopped in there is little space for them to rest upon while feeding. There is also another advantage of this system, that the fruit can be effectively protected by covering with strips of tiffany or any other light material, which excludes not only birds but wasps, which latter are generally very troublesome. By this means we have usually a good supply of fruit until November. The plants may be placed in rows 3 feet apart, and the same distance from plant to plant, or in groups of three, 2 feet apart each way, in triangles, at intervals of 10 to 12 feet round the borders of the walks. *Apricots* are now swelling their buds fast, and will soon be in bloom on warm walls. Timely attention is requisite to provide the necessary protection to prevent injury from frost. Where glass copings are in use little more will be needed for another fortnight, but where such aids are not at command other means must be provided. The copings here project 6 inches over the walls, and to these battens are fixed in a nearly erect position, and a double fold of mackerel net suspended over from the outer edge of the coping to within 2 feet of the ground. This is allowed to remain on until sufficient foliage is produced to protect the fruit. The netting, while being sufficient to prevent all but extreme frosts from doing injury, also allows sufficient light for the well-being of the trees, without the necessity of constantly removing the covering, which must be the case if a heavier material is used. Advantage should be taken of a fine dry day to hoe between permanent crops of *Strawberries*, and, if necessary, to remove any decayed leaves, so as to leave the surface light and open for raking down when sufficiently dry. *William Cox, Madresfield Court.*

KITCHEN GARDEN.

Early crops of *Peas*, when they are just emerging from the soil, are liable to the depredations of birds, sparrows in particular, and unless preventive measures are used at this stage of growth they will quickly become much impaired, if not altogether annihilated. The simplest means for effecting this purpose is to place a few lines of fine but rough twine lengthways over the rows, which, with an occasional dusting of wood ashes when the Peas are damp, generally secures them from these enemies and from slugs also. Where mice are troublesome a riddance will soon be effected by using the figure-of-four trap, and giving to it constant attention. As soon as the state of the soil is fit, make a successional sowing of early and second early kinds of Peas, sufficient in quantity to meet the demand. William the First cannot be dispensed with on this occasion, and amongst old kinds Rising Sun is still a desirable sort for an early second cropper. Introduce between the Peas a single line of *Round Spinach*, so as to make available as soon as possible the ground which is occupied with the winter crop. The space between the rows of this excellent winter vegetable is oftentimes too much restricted, which renders it liable to decay when damp and sunless weather occurs. Go over the beds and remove all weeds and decayed leaves frequently. Intermediate plantings of *Celery* will soon show indications of running and become piped; to check this it is advisable to lift it entirely, retaining a small ball of earth at the roots, and to lay it in at the back of a north wall, where it can be securely protected from frost by mats or other suitable materials. We use spent tan from the Pine beds to cover it. Where *Carrots* and *Radishes* are forced in frames the sowing of these outside may be deferred until the end of this month, but otherwise sowings should be made when the soil is suitable. It is a common practice with many to cover early-sown beds of Radishes with straw or similar materials, and where large quantities are needed, and the matter is properly attended to, it answers admirably; but for private requirements, where continuous and only limited quantities are wanted, we use borders at the base of the walls, which are made about 18 inches wide and 6 inches deep. Here a ready means is afforded for protection by hanging canvas or netting on the walls. Eastern or southern aspects are best for early crops. We never sow *Turnips* in frames, but employ a border of this kind with an eastern aspect, and invariably get them as early and even better under such conditions. Towards the end of the month a sowing of the American strap-leaf variety should be got in. About the middle of the month make a sowing of *Cauliflower*—Veitch's Autumn Giant, *Brussels Sprouts*, *Leeks*, and the old black-seeded *Brown Cos Lettuce*. The angle of a southern and eastern wall is most suitable for such sowings, and is far preferable to bringing the seedlings up tenderly in heat. Look over the stock of seed *Potatos*. Where space admits spread them out thinly. The shelves of fruit rooms (which are cool) as they become vacant can be usefully employed for Potato sets.

FORCING DEPARTMENT.—Maintain the supply f *French Beans* by making fresh sowings. At this season these are best planted out if suitable places for them be at command. Both Fulmer's Early Forcing and Long-podded Negro are excellent sorts for forcing. Well air *Carrots* and *Radishes* when favourable for so doing; thin out early-sown crops to about 3 inches apart, and make another sowing of these. James' Intermediate Carrot is a good kind for sowing now. Do not suffer *Potatos* which are growing vigorously to become drawn through lack of air; remove the lights when sunshine is powerful. Sets of these which have been recently put in to break should be planted out when about 2 inches long. Large supplies of green *Mint* are required at most places; see to its being maintained by introducing fresh roots, also that of *Seakale*, *Rhubarb*, &c. Sow in pots or pans *Tomatos*, *Capsicums*, *Basil*, and *Knotted Marjoram*; also *Celery*—Incomparable White and Leicester Red are the best sorts for sowing now. *G. T. Miles, Wycombe Abbey.*

Enquiries.

He that questioneth much shall learn much.—BACON.

37. SUBSTITUTE FOR GRASS IN SHADY LAWNS.—In shady situations in town gardens it is difficult to get grass to grow, and it requires to be frequently renewed by fresh turf from the fields. I think I have read that the common Yarrow is a good substitute for grass in such situations. Will some one kindly inform me if it will grow freely in the shade of buildings; if it can be kept in neat order by the use of the ordinary lawn-mowers; if it is detrimental to the growth of other plants in its vicinity; where a supply of seed can be obtained to start the establishment of a lawn; and any peculiarity in its treatment. The name of any better substitute for grass under similar circumstances, would much oblige *Lux.*

38. RUELLIA ELEGANS, ETC.—Where can I obtain a plant of Ruellia elegans, figured in *Bot. Mag.*, t. 3389? Where can I procure a second-hand copy of Seemann's *Flora Vitiensis?* In both cases inquiries made in the ordinary way have failed. *O.*

Answers to Correspondents.

APPLE TREES: *T. D. M.* The shoots sent are badly infested with American blight. Prune out as much of the swelled or infested wood as you can, and burn it; and then give the trees a good dressing with strong Gisburst, or paint them over with paraffin.

CRANBERRY CULTURE: *Inquirer.* There is a very good practical treatise on this subject, by J. J. White, published by the Orange Judd Company, 245, Broadway, New York, and which can be obtained through a bookseller or by post.

DRYING PLANTS: *K. O. D.* You must use more than two sheets, according to the succulence of your plant, and you must change the paper frequently. Otherwise your plan is a good one. As you do not state the conditions of the competition, we cannot answer the other questions.

GARDENIAS: *P. W. O.* These strike freely from cuttings made from the half-ripened shoots inserted in sand, covered with a bell-glass, and placed in a temperature of 70°.

INSECTS: *B. K.* The specimen of a beetle sent, which has gnawed into the pseudobulbs of your exotic Orchids, is a South American weevil of the extensive genus Calandra.—*H. P. P.* The minute black objects on the underside of your Strawberry leaves (which under a microscope show no traces of segmentation or appendages, and which are therefore incapable of motion), are evidently the eggs of an aphis, of which there were various individuals of very small size, just hatched, on the leaves. *I. O. W.*

LISIANTHUS PRINCEPS: *M. A.* We are sorry to find, on inquiry, that the seeds of this fine plant have not germinated.

MEALY BUG: *P. W. O.* Where mealy bug exists in a plant-house it requires considerably more than the half-measures often used to exterminate the insect, and which too frequently merely reduce the numbers during the season when they are not breeding, leaving sufficient to spread in all directions with the advent of warm weather, entailing the yearly repetition of partial destruction, in every way unsatisfactory. If P. W. O. has climbers in his conservatory, as usually met with in such structures, the bugs will have a stronghold in them, and will infect every plant upon which the insect will live that is placed in the body of the house. The climbers should be cut closely in, taken from the wires, and the whole of their heads brushed over with "Abyssinian Mixture," at 7 oz. to the gallon, getting into every crevice of the bark down to the collar of the plants; and all that are sufficiently flexible should have their heads steeped in the mixture, in a vessel sufficiently large for the purpose, allowing each plant to remain for an hour. Take every affected plant in the house and wash or steep it similarly, repeating the operation three or four times in a fortnight. Thoroughly wash and scrub the house in every part; give a couple of coats of paint to the woodwork, stopping with putty every crevice where the insects can lodge; remove 2 inches of soil from the borders, and add new in its place. To cope with this scourge of gardeners the habits of the insect require study, and a fixed determination to conquer it. The onslaught is much better made in September or October, when the plants are going to rest, than at the present time, when growth begins to move.

MUSHROOMS: *Ignoramus.* In six weeks from the time of spawning, or in two months at the very outside.

NAMES OF PLANTS: *S. Grove.* Probably Cupressus Goveniana, but the foliage is a little puzzling.—*A. D.* Asplenium bulbiferum, var. appendiculatum.—*Y. S., Warwick. Hollies:* 1, grandifolia; 3, recurva; 5, laurifolia. The others hereafter.

PLANTS FOR A SHADY BORDER: *A. B. P.* Your question has been overlooked. Some of the flowering plants likely to thrive in a bed very much in the shade, with a north aspect and having vigorous growing evergreen shrubs at its back, with a soil of light sandy loam, would be the following:—Anemone nemorosa plena, apennina and japonica; Aconitum variegatus, Adonis vernalis, Astilbe japonica, Asperula odorata, Cypripedium Calceolus and spectabile, Cyclamen hederæfolum, Dodecatheon Meadia and Jeffreyanum, Epimedium macranthum, pinnatum, and violaceum; Epigæa repens (peat), Funkia Sieboldii, Gentiana asclepiadea and verna, Hypericum calycinum, Liatris spicata, Lilium croceum, bulbiferum, Martagon, superbum, and others; Linnæa borealis, Trillium grandiflorum, Scilla campanulata, cernua, and patula; Spiræa Aruncus, venusta and palmata; Ramondia pyrenaica, Primula japonica and cortusoides amœna (Sieboldii), Helleborus niger and atrorubens.

RHODODENDRON GRAFTING: *A Constant Reader.* See Mr. Standish's article on this subject, at p. 308, 1871.

SEEDLING APPLE, HEATH HOUSE PIPPIN: *L. M.* This is of too soft a texture, and too acid, for a dessert fruit, and too small for cooking purposes. It is inferior to many other varieties already in cultivation.

STOVE FOR GREENHOUSE: *W. Erwin.* There is always some risk from the use of detached stoves; but so long as the fumes, whether of gas or petroleum, are carried clear off outside the house, they may be used with tolerable safety. Sufficient draught may easily be got from the outside. To avoid dry heat, use an evaporating pan.

TUBEROUS-ROOTED BEGONIAS: *P. W. O.* These are very like Gloxinias, and have a natural inclination to die down in the winter, which is assisted by withholding water. It is a matter of no great importance as to their being rested very long, but is dependent upon the time when they will be required in flower.

CATALOGUES RECEIVED. — Thomas Kennedy & Co. (Dumfries), Catalogue of Select Vegetable and Flower Seeds, &c.—Messrs. Follows & Bates, List of Patent Lawn Mowers. —James W. Mackey (40, Westmoreland Street, Dublin), Annual Descriptive Seed Catalogue, and Amateur's Guide for 1875. —W. Cutbush & Son (Highgate, London, N.), Catalogue of Vegetable, Flower, and Farm Seeds; also Descriptive Catalogue of Azaleas, Stove and Greenhouse Plants, Fruit Trees, Roses, Conifers, &c.—Daniels Brothers (Norwich), Illustrated Guide for Amateur Gardeners, and General Catalogue for Spring, 1875.—W. Tait & Co. (45, Capel Street, Dublin), Spring Catalogue of Select Vegetable and Flower Seeds, Gladioli, Horticultural Implements, &c. — Paul & Son (The "Old" Nurseries, Cheshunt, Herts), Select Descriptive List of Vegetable and Flower Seeds, Potatos, &c. — William Paul (Waltham Cross, London, N.), Seed Catalogue for 1875.—W. Barron & Sons (16, Market Street, Nottingham, and Elvaston Nurseries, Borrowash, near Derby), Descriptive List of Vegetable, Agricultural, and Flower Seeds, &c. — Brunning & Co. (1, Market Place, Great Yarmouth), Illustrated and Descriptive Seed Catalogue. — F. C. Heinemann (Erfurt), General Plant Catalogue. — Edmund Philip Dixon (57, Queen Street, Hull), Descriptive Catalogue of Kitchen Garden, Flower, and Farm Seeds.—G. C. Short (Market Place, Stokesley), Descriptive Catalogue of Flower, Kitchen Garden, and other Seeds, &c.—B. R. Davis (Middle Street, Yeovil, Somerset), Illustrated Catalogue of Vegetable, Flower, and Agricultural Seeds.—James Cocker & Sons (Sunnybank and Froghall Nurseries, Aberdeen), Descriptive Catalogue of Select Vegetable and Flower Seeds, Horticultural Implements, &c.; also List of New Show and Fancy Pansies, Phloxes, &c.—Felton & Sons (23, High Street, Birmingham), Seed Catalogue for 1875. — Hooper & Co. (Covent Garden, London, W.C.), Garden Guide and General Catalogue. — Edmondson Brothers (10, Dame Street, Dublin), Spring Catalogue of Vegetable and Flower Seeds, Flower Roots, Tools, &c.—Robertson & Galloway (157, Ingram Street, Glasgow), Descriptive Catalogue and Amateurs' Pocket Guide to the Kitchen and Flower Garden.—William Sampson & Co., and W. and T. Samson (Kilmarnock, Scotland), General Catalogue of Seeds, Plants, &c., for 1875.—John Laing (Forest Hill, London, S.E.), Descriptive Catalogue of Selected Garden and Flower Seeds, Implements, &c.—J. Siekmann (Florist, Köstritz), Catalogue of Gladiolus, Roses, &c.—Little & Ballantyne (Carlisle, and 36, Mark Lane, E.C.), Spring Seed Guide.—E. Wilson Serpell (Pontey's Plymouth Nurseries and Seed Establishment), New Seed Catalogue for 1875.—Edward B. Spence (17, Tubwell Row, Darlington), Catalogue of Garden, Agricultural, and Flower Seeds, &c.; also his Catalogue of Palms, Orchids, Ferns, Hardy Perennials, &c., and of Vegetable Seeds, Potatos, Bulbs, Plants, &c.—Rush & Yeats (19, Foregate Street, Chester), Priced Catalogue of Farm, Vegetable, and Flower Seeds, Gladioli, &c.—J. C. Wheeler & Son (Northgate Street, Gloucester, and 59, Mark Lane, London, E.C.), Little Book, or Short Select Seed List for 1875.—Haage & Schmidt (Erfurt), Catalogue of Plants, and Catalogue of Seeds, &c.—William Rumsey (Joyning's Nursery, Waltham Cross, N.), Selected List of Garden, Farm, and Farm Seeds, Border Plants, &c. — Vilmorin, Andrieux & Co. (4, Quai de la Mégisserie, Paris), Supplementary Catalogue of Novelties. Also their General Catalogue of Seeds, &c.—Richard Dean (Ranelagh Road, Ealing, London, W.), Descriptive Catalogue of Vegetable, Farm, and Flower Seeds.—John Jefferies & Son (Cirencester), Garden Guide, and General Catalogue for 1875.—Grayson & Co. (West Suffolk Seed Establishment, Bury St. Edmunds), Illustrated Garden Guide and Seed Catalogue.—H. Cannell, F.R.H.S. (Station Road, Woolwich, S.E.), Amateurs', Gardeners' and Nurserymen's Annual Illustrated Floral Guide and Catalogue.—Pooley & Co. (23, Bush Lane, Cannon Street, London, E.C.), Wholesale Priced List. — William Potten (Sissinghurst, Staplehurst, Kent), Descriptive Catalogue of Vegetable, Farm, and Flower Seeds.—S. Nairn & Sons (62, Pilgrim Street, Newcastle-upon-Tyne), Catalogue of Vegetable and Flower Seeds, Gladioli, Dahlias, Hollyhocks, Pansies, &c.

COMMUNICATIONS RECEIVED. — F. B. - P. H. G. — An Old Subscriber.—T. C. D.—A. C. R.—R. M. (next week).—J. C. —D. T. F.—J. B.—J. G. B.—C. H.—C. L.—C. B. S.—T. W.—J. S. T.—R. B. (thanks).—O.

BIRTH.—January 29, at Stoneydeep House, Teddington Grove, the wife of Edward J. Beale, F.L.S., of a son.

MARRIED.—On the 2d inst., at the parish church, Wimbledon, by the Rev. Henry Barne, M.A., Vicar of Faringdon, MARTIN JOHN, eldest son of MARTIN HOPE SUTTON, Esq., of Cintra Lodge, Whitley, Reading, to EMILY OWEN, youngest daughter of Colonel HENRY FOQUETT (late B.N.I.), of Wimbledon, Surrey. No cards.

Markets.

COVENT GARDEN, February 4.

Business transactions continue somewhat limited for the season, and the supply of outdoor produce is ample. The only article that has improved in price is good hothouse Grapes, although a considerable quantity of inferior are offered. *Thos. Taylor, Wholesale Apple Market.*

—— Among the choicest descriptions of fruit and vegetables in the retail markets we may quote the following:—Pomeloes and Shaddocks, 2s. to 3s. each; Peas, 8s. to 20s. per quart; Asparagus, 8s. to 12s. per 100; Rhubarb, 1s. to 1s. 6d. per bundle; and new Potatos, 2s. per lb.

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Azaleas, p. 12 sprays	0 9–	2 0	Pelargoniums, 12 spr.	1 6–	3 0
Camellias, 12 blooms	2 0–	6 0	— Zonal, 12 spr.	0 9–	1 6
Carnations, 12 blooms	2 0–	4 0	Roman Hyacinths, per 12 spikes	2 0–	4 0
Cyclamen, 12 blooms	0 3–	0 6	Roses, indoor, p. doz.	2 0–	6 0
Epiphyllums, 12 bl.	1 0–	2 0	— French, do.	2 0–	3 6
Eucharis, per doz.	6 0–12 0		Stephanotis, 12 sprays	9 0–15 0	
French Lilac, p. bun.	6 0–10 0		Tuberoses, p. doz.	2 0–	4 0
Heliotropes, 12 sprays	0 6–	1 0	Violets, per 12 bun.	1 0–	3 0
Mignonette, 12 bun.	4 0–	6 0			

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Begonias, per doz.	6 0–12 0		Hyacinths, per doz.	4 0–12 0	
Bouvardias, do.	9 0–18 0		Lily of the Valley, 12 sprays	3 0–	9 0
Cineraria, per doz.	9 0–18 0		Mignonette, do.	4 0–	6 0
Cyperus, do.	6 0–12 0		Myrtles do.	3 0–	9 0
Dracæna terminalis	12 0–30 0		Pelargoniums, dble., per doz.	6 0–12 0	
— viridis, per doz.	12 0–24 0		— Scarlet, do.	6 0–	9 0
Epiphyllums, each	1 6–	3 6	Primula sinensis, do.	4 0–	8 0
Ficus elastica	1 6–	7 6	Solanums, do.	6 0–18 0	
Fuchsia, per doz.	6 0–12 0				
Heaths, in var., doz.	12 0–30 0				

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, per ½-sieve	1 0–	1 6	Melons, each	..	....
Chestnuts, per bush.	10 0–20 0		Nuts, Cob, p. lb.	1 6–	2 0
Grapes, English, p. lb.	4 0–10 0		Oranges, p. 100	8 0–12 0	
— Muscats, do.	6 0–10 0		Pears, p. doz.	4 0–	8 0
Lemons, per 100	8 0–12 0		Pine-apples, p. lb.	3 0–	6 0
Medlars, per doz.	....		Walnuts, p. bush.	16 0–	..

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, Fr., each	0 8–	..	Horse Radish, p. bun.	3 0–	5 0
Asparagus, English, per bundle	12 0–15 0		Leeks, per bunch	0 2–	0 4
— French, p. bund.	2 0–	..	Lettuces, per doz.	1 6–	..
Beans, French, p. 100	6 0–	..	Mushrooms, per pott.	1 0–	2
Beet, per doz.	1 0–	2 0	Onions, young, bun.	0 4–	0 6
Broccoli, p. bundle	0 9–	1 6	Parsley, per bunch	0 4–	0 6
Brus. Sprts., p. bush.	6 0–	..	Parsnips, p. doz.	0 9–	1 0
Cabbages, per doz.	1 0–	2 0	Peas, per quart	8 0–	..
Carrots, p. bundle	0 6–	0 9	Radishes, per bunch.	0 2–	0 4
Cauliflowers, per doz.	2 0–	6 0	— black, Turnip, do.	–	0 6
Celery, per bundle	1 6–	2 0	Seakale, per bundle	1 6–	2 0
Cucumbers, each	4 0–	6 0	Shallots, per lb.	0 3–	..
Endive, per doz.	1 0–	2 0	Salsify, per bundle	1 6–	..
Herbs, per bunch	0 2–	0 4	Tomatos, per doz.	1 0–	3 0
Potatos:—Early Shaws, 110s.			Turnips, per bundle.	0 6–	0 0
Regents, 120s.; and Early Dons, 120s per ton.			Early Myatts 110s.		

SEEDS.

LONDON: *Feb.* 4.—There is a good steady business now passing in agricultural seeds. A fair quantity of red Clover seed has during the past week changed hands at full prices. American and Continental markets are also very firm. The high rates now reached are drawing forth what little there is of choice purple home-grown seed. In Trefoils the late advance is well maintained. For Alsike the demand for the moment is slow. White Clovers are unchanged. On the whole the seed trade now looks very healthy; the sowing season is near at hand, stocks are comparatively light, and there has been an absence of that autumn speculation which during previous years so materially forced up values. In imported Italian and perennial Rye-grasses there is more doing. A few small arrivals of Canary seed have checked any further rise in this article. Hemp seed keeps moderate in price. In white Millet seed an advance must be noted at 2s. to 3s. per quarter. Spriog Tares continue in strong request, and the supply here is almost unprecedentedly small, and from Konigsberg no further quantity can be expected; the small variety as well as the large Gores must be quoted 1s. to 2s. per quarter dearer. Rapeseed is scarce and firm. Blue boiling Peas are a slow trade. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C.*

CORN.

At Mark Lane on Monday English Wheat, in slightly improved condition, was taken off slowly, at the rates of that day se'nnight. Secondary and badly conditioned parcels were unsaleable. Foreign Wheat was at last Monday's rates. Flour was dull and drooping in value. Barley, malting and grinding, ruled in favour of buyers. For Beans there was a fair inquiry at last week's reduction. Peas were 1s. per quarter lower; Oats were scarce, and prices were firm; and Maize was dull and easier.—The market on Wednesday was quiet, and the quotations underwent little, if any, change. The show of Wheat was fair, and its condition had somewhat improved, but there were few purchases effected in either English or foreign produce. Barley was dull; Oats were pretty firm; and Maize, Beans, Peas, and flour, supported in most instances the rates of Monday last.

CATTLE.

At the Metropolitan Market on Monday, in every department a want of animation prevailed. For British-fed beasts prices ruled fully 2d. per stone under the currency of Monday last; 6s. 2d. was quite the extreme quotation. The sheep trade was equally slow, and quotations suffered a similar depression of 2d. per stone. Calves were not numerous, but a reduction had to be conceded to effect sales. Pigs could not be quoted to the extreme rates of Monday week. Quotations:—Beasts, 3s. 10d. to 4s. 8d., and 5s. 4s. to 6s. 2d.; sheep, 5s. to 5s. 8d., and 6s. 4d. to 6s. 8d.; calves, 5s. to 5s. 4d., and 6s. 4d. to 6s. 8d.; pigs, 3s. 10d. to 4s. 2d., and 4s. 6d. to 4s. 10d.—On Thursday trade was exceedingly dull for beasts, and, notwithstanding a reduction in price, a clearance was not effected. For sheep the business was not so good as on Monday, but choicest qualities maintained their prices. Choice calves were scarce and dear, and there was little demand for milch cows.

HAY.

The trade at Whitechapel is reported as continuing dull, and the supplies as being ample. The following are the quotations:—Clover, best, 112s. to 118s.; inferior, 70s. to 80s; hay, best, 104s. to 112s.; inferior, 60s. to 70s.; and straw, 33s. to 40s. per load.—Cumberland Market quotations:—Superior meadow hay, 100s. to 118s.; inferior, 86s. to 95s.; superior Clover, 118s. to 126s.; inferior, 100s. to 108s.; and straw, 40s. to 44s.

POTATOS.

Increased supplies have been on sale at the Borough and Spitalfields markets, and the trade dull at drooping prices. Regents, 70s. to 100s. per ton; Victorias, 110s. to 130s.; rocks, 65s. to 70s.; flukes, 110s. to 130s.—Last week's imports amounted to 1082 tons and 2113 bags from Dunkirk, 272 tons and 16,788 bags from Antwerp, 474 sacks from Boulogne, and 103 bags from Rotterdam.

COALS.

The market on Monday was unaltered for house coal, but Hartleys were 6d. per ton higher. Dulness characterised business on Wednesday, and house coals fell 1s. per ton. Quotations:—Bebside West Hartley, 21s. 9d.; Walls End—Hetton, 24s.; Hetton Lyons, 21s. 9d.; Lambton, 23s. 6d.; Newbottle, 21s.; Tunstall, 21s. 9d.; East Hartlepool, 23s. 9d.; Kelloe, 22s. 6d.; Hartlepool, 23s. 3d.; Original Hartlepool, 24s.; Tees, 23s. 9d.

LONDON AND COUNTY BANKING COMPANY.

Established in 1836, and Incorporated in 1874 under "The Companies Act, 1862."

Subscribed Capital, £3,750,000, in 75,000 Shares of £50 each.

REPORT ADOPTED AT THE ANNUAL GENERAL MEETING, FEB. 4, 1875.

The Directors have much pleasure in laying before the Proprietors the Balance-sheet of the Bank for the Half-year ended on December 31 last, which shows that, after paying Interest to Customers and all charges, allowing for Rebate and making provision for Bad and Doubtful Debts, and for Interest accrued on New Shares, the Nett Profits amount to £124,656 15s. 1d. This, added to £29,279 14s. 4d., brought from the last account, makes a total of £153,936 9s. 5d., from which they have transferred the sum of £15,000 to the credit of Premises Account.

The Directors recommend the payment of a Dividend of 10 per cent. for the half-year, free of Income-tax, which will absorb £120,000; and that the balance of £18,936 9s. 5d. then remaining be carried forward to Profit and Loss New Account.

The present Dividend, added to that paid to June 30, will make 20 per cent. for the year 1874.

The Directors announce the retirement from the board of Frederick Voule, Esq., and the election of William Henry Stone, Esq., in his place.

The Directors retiring by rotation are:—Nathaniel Alexander, Esq., Thomas Tyringham Bernard, Esq., and William Nicol, Esq., who, being eligible, offer themselves for re-election.

The continued increase in the business of the Bank having made it imperatively necessary to enlarge the Head Office, the Directors have accepted the freehold of adjoining properties, which they have arranged to rebuild and incorporate with their existing premises. They have further acquired the leasehold interest for a long term of premises in Abchurch Lane, in direct communication with the Bank, and have already entered on their occupation.

The Proprietors were informed at the Meetings in February and August last that the Directors had under consideration a scheme for granting retiring and other allowances to Officers of the Bank. A resolution will be submitted to the meeting authorising the Directors to carry out this intention, under such rules and regulations as may be deemed by them desirable.

The Dividend, amounting to £2 per share, free of Income-tax, will be payable at the Head Office, or at any of the Branches, on or after Monday, the 15th instant.

BALANCE SHEET OF THE LONDON AND COUNTY BANKING COMPANY, DECEMBER 31, 1874.

DR.	£ s. d.	£ s. d.
To Capital paid up	1,200,000 0 0	
Instalment received in respect of New Shares ..	148,210 0 0	
		1,318,210 0 0
Reserve Fund	600,000 0 0	
Instalment received in respect of New Shares ..	74,105 0 0	
		674,105 0 0
Amount due by the Bank for Customers' Balances, &c.	19,892,586 10 11	
Liabilities on acceptances, covered by Securities ..	2,780,005 8 8	
		22,672,591 19 7
Profit and Loss Balance brought from last Account	29,279 14 4	
Reserve to meet Interest accrued on New Shares..	468 15 0	
Gross Profit for the Half-year, after making provision for Bad and Doubtful Debts	414,368 5 4	
	444,116 14 8	
Less amount transferred to Premises Account ..	15,000 0 0	
		429,116 14 8
		£25,124,023 14 3

CR.	£ s. d.	£ s. d.
By Cash on hand at Head Office and Branches, and with Bank of England ..	2,461,448 7 6	
Cash placed at Call, and at Notice, covered by Securities	3,050,922 9 11	
		5,512,370 17 5
Investments, viz.:—		
Government and Guaranteed Stocks	1,989,954 16 9	
Other Stocks and Securities	93,515 6 11	
		2,083,470 3 8
Discounted Bills, and advances to Customers in Town and Country ..	14,113,465 8 6	
Liabilities of Customers for Drafts accepted by the Bank (as per contra) ..	2,780,005 8 8	
		16,893,470 17 2
Freehold Premises in Lombard Street and Nicholas Lane, Freehold and Leasehold Property at the Branches, with Fixtures and Fittings	423,077 19 8	
Less amount transferred from Profit and Loss ..	15,000 0 0	
		408,077 19 8
Interest paid to Customers		103,375 15 1
Salaries and all other Expenses at Head Office and Branches, including Income-tax on Profits and Salaries		123,258 1 3
		£25,142,023 14 3

DR. PROFIT AND LOSS ACCOUNT.	£ s. d.
To Interest paid to Customers, as above ..	103,375 15 1
Expenses, as above	123,258 1 3
Rebate on Bills not due, carried to New Account..	59,796 8 11
Dividend of 10 per Cent. for Half-year ..	120,000 0 0
Reserve to meet Interest accrued on New Shares	3,750 0 0
Transferred to the credit of Premises Account	15,000 0 0
Balance carried forward	18,936 9 5
	£444,116 14 8
CR.	
By Balance brought forward from last Account	29,279 14 4
Reserve to meet Interest accrued on New Shares	468 15 0
Gross Profit for the Half-year, after making provision for Bad and Doubtful Debts ..	414,368 5 4
	£444,116 14 8

We, the undersigned, have examined the foregoing Balance Sheet, and have found the same to be correct.

(Signed) WILLIAM NORMAN, RICHARD H. SWAINE, STEPHEN SYMONDS, } *Auditors.*

London and County Bank, January 28, 1875.
By Order, GEO. GOUGH, *Secretary.*

London and County Banking Company.

NOTICE IS HEREBY GIVEN that a DIVIDEND on the CAPITAL of the COMPANY, at the rate of 10 per cent. for the half-year ended December 31, 1874, will be paid to the Proprietors either at the Head Office, 21, Lombard Street, or at any of the Company's Branches, on or after MONDAY, the 15th instant.
By order of the Board,
W. McKEWAN, WHITEHEAD TOMSON } *Joint General Managers.*
21, Lombard Street, February 5, 1875.

WANTED, a HEAD GARDENER.—A Gentleman residing in the neighbourhood of Windsor, requires a Working Head Gardener who thoroughly understands Vines, Fruit, Flowers, &c. Cows kept. A married Man, whose Wife could undertake to help in the Laundry, preferred. Good house. Three kept in garden.—K. F., Post Office, Englefield Green, Staines.

WANTED, a HEAD WORKING GARDENER, unmarried, to live in the house—three Men under him. Greenhouse, Vinery, and Stove. None but thoroughly practical Men, with first-rate characters, need apply.—A. B., Post Office, Solihul, Warwickshire.

WANTED, in Shropshire, a WORKING HEAD GARDENER, to take charge of a good sized Walled Garden, small Vinery, Greenhouse, &c., with two Men under him. Wages £1 1s. per week and a cottage rent free.—H. P., care of Messrs. Houghton & Co., New Bond Street, London, W.

WANTED, near London, a HEAD WORKING GARDENER, married, without children. Must thoroughly understand Vines, In and Outdoor Flowers, Fruit, &c. Three Assistants kept. Advertiser actively employs his leisure time in superintending his garden, therefore no one need apply who objects to this. Unexceptionable references required. Wages 25s. per week, with house, fuel, and garden vegetables. — W. A., Abbott's Advertising Office, Eastcheap, London, E.C.

FISHER, HOLMES AND CO. are in WANT of a MAN who has a knowledge of Herbaceous Plants, and who has had some experience in Growing Culinary Plants for Market. Wages to commence at 22s. per week. Applicants to give reference as to ability and sobriety.—Handsworth Nurseries, Sheffield.

WANTED IMMEDIATELY, a GENERAL NURSERY FOREMAN; must be a good Budder, Grafter, and Propagator. Preference given to a married Man. No one need apply whose character will not bear strict investigation.—S. DYER, The Nurseries, Bridgwater.

WANTED, an experienced PLANT GROWER, thoroughly qualified to take the entire Superintendence of a large quantity of Glass, and assist as Salesman. Testimonials as to character and capabilities to bear strict investigation. State age and amount of wages required.—J. A., *Gardeners' Chronicle* Office, W.C.

WANTED, a thorough practical, steady, industrious MAN, well up in Growing all good stuff, both Hard and Soft-wooded, expressly for the London Markets. No one need apply unless well qualified to fill the situation.—F. BAKER, Plumstead Nursery, Kent.

WANTED, TWO or THREE good and steady MEN, who thoroughly understand Nursery-work in its various branches.—Apply, stating wages required and where last employed, to JOHN PRETTINGHAM, Stapleford Nurseries, Nottingham.

FARM BAILIFF.—A married Couple, without incumbrance, required—the Husband to act as Farm Bailiff, the Wife to undertake the Dairy and Domestic work. Combined salary to commence at £70 per annum, with board, lodging, and washing.—Apply, stating age, previous employment, &c., to the SUPERINTENDENT, County Asylum, Prestwich, Manchester.

WANTED, as GROOM and GARDENER, and to do all the Work of a Suburban House at Kilburn, a Man and his Wife, or Widow and Son, or General Servant and Brother; strong and active. Good characters. Country persons preferred.—Mr. TAYLOR, 80, Euston Road, N.W.

WANTED, an ASSISTANT SHOPMAN for a retail Seed Shop; must have a good knowledge of the Trade, and be quick and accurate at the counter. State age and experience, with terms. — RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

WANTED, an ASSISTANT SHOPMAN. Must be thoroughly experienced and have first-class references.—Apply, stating age, experience, wages required, &c., to DANIELS BROS., Royal Norfolk Seed Establishment, Norwich.

WANT PLACES.

To Gardeners in Want of Situations,

WHOSE CHARACTERS WILL BEAR STRICT INVESTIGATION.

THE PINE-APPLE NURSERY COMPANY devote special attention to this important matter—proper Men to suitable Situations. For a GARDENER, or for a SITUATION, please send full particulars to Mr. JOHN BESTER, the Pine-Apple Nursery Company, Maida Vale, London, W.

B. S. WILLIAMS, having at the present time several very excellent GARDENERS upon his Register, is desirous of placing them in Situations where great experience and trust are required. B. S. W. would at the same time beg to intimate that when a Gardener is applied for that the filling of the situation should be left with him, as that would prevent unnecessary correspondence and delay.—Victoria and Paradise Nurseries, Upper Holloway, London, N.

Head Gardeners.

JOHN LAING can at present recommend with every confidence several energetic and practical Men, of tested ability and first-rate character. Ladies and Gentlemen in WANT of GARDENERS and BAILIFFS, or GARDENERS for First-rate Establishments or Single-hand situations, can be suited, and have full particulars by applying at Stanstead Park and Rutland Park Nurseries, Forest Hill, London, S.E.

GARDENER (HEAD), to any Nobleman or Gentleman.—The Dowager Lady SONDES will be very glad to highly recommend WILLIAM SMYTHE, who has had charge of the Gardens at Elmham Hall for nineteen years. He is leaving through the death of the late Lord Sondes, and will be disengaged early in April.—W SMYTHE, The Gardens, Elmham Hall, East Dereham.

GARDENER (HEAD), where one or two Assistants are kept.—Married. Can have fully six years' good character from present employer, who inserts this advertisement.—H. J., Post Office, Chislehurst Common, Kent.

GARDENER (HEAD), where three or more are kept.—Good practical experience.—C. S., The Gardens, Elvedon Hall, Thetford.

GARDENER (HEAD), where four or more are kept.—Age 25; good practical experience in the Cultivation of Vines, Pines, Cucumbers, Melons, Orchard Houses, Early and Late Forcing, Orchids, Stove and Greenhouse Plants, and Flower, Fruit, and Kitchen Gardening. Ten years' experience. Three years' good character from last place. — J. HART, J. Boustead, Esq., Cannizaro House, Wimbledon Common, Surrey, S.W.

GARDENER (HEAD).—Age 27, single; thoroughly understands the Management of Pines and Vines, also Stove and Greenhouse Plants, Early and Late Forcing, and the general routine of Gardening. First-class references.—J. W. GOWER, Eaton, Hereford.

GARDENER (HEAD).—Age 33, married; understands Forcing Vines, Stove and Greenhouse Plants, Flower and Kitchen Gardening, &c.; Land and Stock, if required. Six years' personal references.—H. Y., 2, Berry Grove Cottages, Hamilton Road, Lower Norwood, Surrey.

GARDENER (HEAD).—Age 33, married, one child; has a thorough experience of Early and Late Forcing in all its branches, and Flower and Kitchen Gardening. Fifteen years' experience—five years as Head Gardener. Good character.—D. HEAD, The Châlet, Lindfield, Sussex.

GARDENER (HEAD), age 38, married.—A GENTLEMAN would be pleased to recommend his late Gardener, a Man of good abilities, and in whom confidence can be placed, to any Nobleman or Gentleman where liberal encouragement is given.—X. Y. Z., 8, Queen's Road, Teddington, S.W.

GARDENER (HEAD).—Age 39, married, no incumbrance; twenty-five years' experience in forcing all kinds of Fruits, Flowers and Vegetables; is also a good Kitchen and Flower Gardener.—D., 13, Church Road, Hammersmith, W.

GARDENER (HEAD).—Age 40, married; twenty-five years' thorough practical experience of Gardening in all its branches, including Early and Late Forcing of Fruit, Vegetables, Flower and Kitchen Gardening, also the Management of Land and Stock. Three and a-half years' good character.—J. C., Millfield House, Stoke Cobham, Surrey.

GARDENER (HEAD).—Age 49, married, one child; experienced. Wife can take Charge of a Gentleman's House in the absence of the family, if required.—A. B., The Gardens, Sheepwash, Morpeth, Northumberland.

GARDENER (HEAD).—Married, three children; has a thorough knowledge of the profession in all branches, Early and Late Forcing of Flowers, Fruit, and Vegetables. Four and a-half years' good character from last employer.—4, Plough Cottages, Little Ealing, Middlesex.

GARDENER (HEAD), or GARDENER and STEWARD.—Age 38, married; thoroughly understands the Forcing of Pines, Vines, Peaches, &c., and is also a good Flower, Fruit, and Kitchen Gardener. Twelve years' character from the Gentleman he has just left.—W. H., 1, Holltom Place, West Ham, Essex.

GARDENER (HEAD).—£4 will be given to any one instrumental in getting a situation as above for the advertiser; aged 27, well educated, and has had twelve years' experience in every department of the profession. Can refer to or produce testimonials (for eight years) from Stewards and Gardeners to three Noblemen.—A. B., 1, Stanley Street, Paddington, London, W.

GARDENER (HEAD, WORKING).—Age 27; understands the Forcing of Vines, Melons, Cucumbers, Fruit, and Flower and Kitchen Gardening.—G. M., Quorndon, Loughborough.

GARDENER (HEAD, WORKING).—Age 30, married; well up in all the departments of In and Outdoor Gardening, and thoroughly trustworthy. Fifteen years' experience. Excellent references.—C., Mr. Stansfield, Kersal Moor Nurseries, Manchester.

GARDENER (HEAD, WORKING).—Age 30, married, no family; thoroughly understands Vines, Greenhouses, Flower and Kitchen Gardening, &c. Good character.—G. W. K., Highfield Grove Lodge, Wolverhampton Road, Stafford.

GARDENER (HEAD, WORKING).—Age 32, married, no family; twenty years' practical experience of Gardening in all its branches, including Early and Late Forcing of Fruit, Flowers, and Vegetables, and Kitchen Gardening. Has been a successful Exhibitor at several local shows. Four years' good character.—S. A., Powis Lodge, Beddington Lane, Mitcham Common, Surrey.

GARDENER (HEAD, WORKING).—Age 41, married, no family; thoroughly understands Early and Late Forcing, also Stove and Greenhouse Plants, Kitchen, Fruit, and Flower Gardening, also Land and Stock. Fourteen years' first-class character from late employer, and five years' from the one he is just leaving.—Address, stating, wages, &c., to ALFRED THOMAS, Marks Tey Post Office, Colchester, Essex.

GARDENER (HEAD, or SINGLE-HANDED).—Age 38, married; understands Vines and Flower and Kitchen Gardening. Good character.—S. T., 1, Prince of Wales' Avenue, Kentish Town, N.W.

GARDENER (HEAD, or SINGLE-HANDED).—Age 39, married, no family; understands Growing Vines, Orchids, Stove and Greenhouse Plants, and Flower and Kitchen Gardening. Good character.—A. B., 17, Kew Road, Richmond, S.W.

GARDENER (SINGLE-HANDED, or where one or more are kept).—Age 29, married; understands the profession in all its branches. Good character.—T. P., 14, Bartlett's Cottages, Caterham Junction, near Croydon.

GARDENER (SINGLE-HANDED, or where one or two are kept).—Married, no incumbrance; understands the Management of Vines, Melons, Peaches, Cucumbers, Greenhouse and Conservatory, likewise Flower and Kitchen Gardening. Disengaged on February 20. Good character from present and previous employer.—G. JONES, Birch Mount, Sydenham Hill, S.E.

GARDENER (UNDER), in a good Establishment, where a good Foreman is kept.—Age 20. Good reference.—S. W., Fairlawn Park, Tunbridge, Kent.

GARDENER (UNDER), where he can procure a good knowledge of Kitchen Gardening, and assist in the Houses, if required.—Age 19. Good character.—H. W., The Gardens, Bramham Park, Tadcaster.

GARDENER (SECOND). — Single. Good character. Can be well recommended.—B. B., Lanelay Gardens, Llantrissant, Glamorganshire.

GARDENER (SECOND). — Married, one child. Good experience and references. — W. C., Lanelay Gardens, Llantrissant, Glamorganshire.

MANAGER, or NURSERY FOREMAN.—Mr. GEO. CALLANDER, who has been the last seventeen years at the Knap Hill Nursery with Mr. A. Waterer as Foreman, Salesman, &c., is now open to an engagement in either of the above capacities. He is well acquainted with the Wholesale and Retail Trade.—1, Elcom Street, Kensal Road, Westbourne Park, London, W.

INDIA.—Healthy Man, age 24, bred in Nurseries on the Continent and Britain, now Foreman, wishes a Situation in India. High recommendations.—INDIA, Messrs. Robertson & Scott, Advertising Agents, Edinburgh.

To Nurserymen, &c.

PROPAGATOR (GENERAL), or FOREMAN.—Age 33, married. Twenty-one years' experience. Good reference.—W. E., North Road House, Hertford, Herts.

FOREMAN (GENERAL), in a large Establishment.—Age 27; eleven years' experience in first-class places. Good character.—J. R., The Gardens, Tatton Park, Knutsford.

PROPAGATOR of ROSES, CONIFERS, and Soft-wooded; used to Grow for Market—Age 31 First-class references.—E. L., Post Office, Whitfield, Dover.

SHOPMAN (ASSISTANT).—A young Man, of character and ability in the Seed Trade. Can be highly recommended.—A. W., Paul's Nurseries, Waltham Cross, N.

IMPROVER, age 18.—G. KING, Wolsey Grange, Esher, can thoroughly recommend a young Man who has had four years' good training.—For reference and particulars apply as above.

JOURNEYMAN—Age 22; accustomed to Forcing Vines, Pines, Cucumbers, Melons, &c. Six years' good character from last situation.—G. E., Norton, near Daventry, Northamptonshire.

GARDEN LABOURER. — Middle-aged, married, without family. No objection to Cows. Good character.—Please state wages, &c., to J. WEBB, Post Office, Chislehurst, Kent.

FORESTER, WOOD RANGER, or PARK KEEPER.—Age 35, married. Five years in present situation. Satisfactory references. — JAMES BELL, St. Michael, Penkivel Probus, Cornwall.

BETTERIDGE'S PRIZE ASTERS,

All saved by Mr. BETTERIDGE this season, and including every variety sent out by him, as see copy of letter by Mr. BETTERIDGE enclosed with each packet supplied through

READING, Suttons Sons BERKS.

BETTERIDGE'S NEW VARIETIES,

Duke of Edinburgh,
Grand Duchess Marie, Cantab,
and Improved Oxonian.

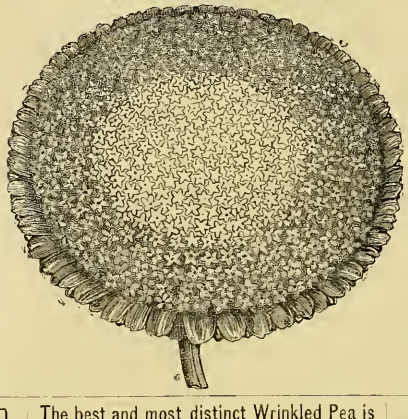
These superb varieties, which were sent out by us last year for the first time, have given great satisfaction, notwithstanding the unfavourable season. Each variety is perfectly symmetrical in form, with a delicately-quilled centre, surrounded respectively by crimson, pink, light blue, and dark blue guard-petals.

	Per packet.—s. d.
DUKE of EDINBURGH	2 6
GRAND DUCHESS MARIE (Duchess of Edinburgh)	2 6
CANTAB	2 6
IMPROVED OXONIAN	1 6
The COLLECTION of Four Varieties	8 0

From Mr. BETTERIDGE *to* Messrs. SUTTON: *Nov.* 6, 1874.
"The eighteen varieties we have improved by discarding one light blue and adding a fine pure crimson with very light guard-petals (a splendid Aster)."

This is included in every Collection of eighteen varieties, for 3*s.* 6*d.* sent out by Messrs. Sutton.

Silver and Bronze Medals, with valuable Money Prizes, will be offered by Messrs. Sutton at the Royal Horticultural Society's Meeting on September 1, 1875, for the best Collection of Asters. Full particulars on application.



BETTERIDGE'S INTERNATIONAL

PRIZE COLLECTIONS OF ASTERS.

These well-known Collections of Asters have this season fully sustained their reputation of being the finest Quilled Asters in cultivation, and they cannot be too highly recommended.

Mr. Betteridge has again consigned to us a full supply of new seeds, which we offer to our customers with every confidence.

	s. d.
Eighteen beautiful varieties	3 6
Twelve ditto	2 6
Six ditto	1 6
Mixed .. .. .. per packet	1 0

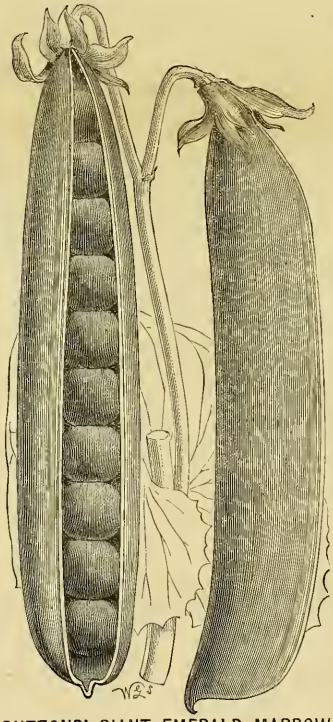
N.B.—Purchasers of the above will obtain every sort sent out by Mr. Betteridge this season. The Collection of eighteen varieties for 3*s.* 6*d.* is much improved, and includes the new and beautiful Crimson, with pale guard-petals, sent out this year for the first time. See Mr. Betteridge's letter.

Please observe our Trade Mark on every parcel, and copy of Mr. Betteridge's letter accompanying the same.

This Collection is specially suited to a moderate-sized Gentleman's Garden, and contains—

Peas, Suttons' Ringleader and other best sorts ..	10 qts.
Beans, best sorts ..	4 qts.
French Beans ..	3 pts.
Beet, Suttons' Improved Dark Red and others	2 pkts.
Borecole or Kale, best sorts	3 pkts.
Brussels Sprouts, Suttons' Matchless ..	1 large pkt.
Broccoli, Suttons' Superb Early White and other best sorts	5 pkts.
Cabbage, Suttons' Imperial and others ..	5 pkts.
Savoy, best sorts ..	2 pkts.
Carrot, best sorts ..	7 oz.
Cauliflower, best sorts	2 pkts.
Celery, Suttons' Sulham Prize and others	2 pkts.
Couve Tronchuda ..	1 pkt.
Endive	2 pkts.
Cress .. 8 oz and	2 pkts.
Leek, Musselburgh ..	1 pkt.
Cucumber, best sorts ..	3 pkts.
Lettuce, Suttons' Superb White Cos and others	3 pkts.
Mustard	1 pint.
Melon	2 pkts.
Onion, Suttons' Improved Reading, &c.	5 oz.
Parsley, Suttons' Imperial Curled ..	1 oz.
Parsnip, Suttons' Student and others ..	3 oz.
Radish, finest sorts ..	8 oz.
Spinach	1½ pts.
Salsafy	1 pkt.
Scorzonera	1 pkt.
Turnip, Suttons' Snowball, &c. ..	6 oz.
Vegetable Marrow	1 large pkt.
Sweet and Pot Herbs	4 pkts.
Rampion	1 pkt.
Tomato	1 pkt.
Capsicum	1 pkt.
Corn Salad	1 pkt.
Orache	1 pkt.

The best and most distinct Wrinkled Pea is



SUTTONS' GIANT EMERALD MARROW,
Price, 5s. per Quart.

From the "GARDENERS' CHRONICLE," *Jan.* 16, 1875.
"THE GREATEST NOVELTY IN PEAS IS THAT CALLED SUTTONS' GIANT EMERALD MARROW."

This Collection is specially suited to "The Amateur's Garden, and contains all the best and most productive kinds—

Peas, Suttons' Ringleader and other best sorts	12 pts.
Beans, the best sorts	3 pts.
" French	1½ pts.
Beet, Suttons' Improved Dark Red ..	1 pkt.
Borecole or Kale, best sorts	2 pkts.
Brussels Sprouts, Suttons' Matchless ..	1 pkt.
Broccoli, Suttons' Superb, Early White and other best sorts	3 pkts.
Cabbage, Suttons' Imperial and others ..	3 pkts.
Savoy, best sort ..	1 pkt.
Carrot, do.	3 oz.
Cauliflower, do. ..	1 pkt.
Celery, Suttons' Sulham Prize and others	2 pkts.
Couve Tronchuda ..	1 pkt.
Endive	1 pkt.
Cress .. 3 oz. and	1 pkt.
Cucumber, best sorts	2 pkts.
Leek, Musselburgh ..	1 pkt.
Lettuce, Suttons' Superb White Cos and others	2 pkts.
Mustard	4 oz.
Melon	1 pkt.
Onion, Suttons' Improved Reading and others	3 pkts.
Parsley, Suttons' Imperial Curled ..	1 pkt.
Parsnip, Suttons' Student	1 oz.
Radish, finest sorts ..	3 oz.
Spinach	4 oz.
Turnip, Suttons' Snowball and others ..	3 oz.
Vegetable Marrow ..	1 pkt.
Sweet and Pot Herbs	2 pkts.
Tomato	1 pkt.

Other Collections, 12*s.* 6*d.*, 15*s.*, 31*s.* 6*d.*,* 63*s.** and 105*s.** each.
* Carriage Free.

The most Practical Work on Gardening yet published is "Suttons' Amateur's Guide." Price 1*s.*, *post free; gratis to customers.*

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

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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Agent for Manchester—JOHN HEYWOOD. Agents for Scotland—Messrs. J. MENZIES & Co., Edinburgh and Glasgow.

THE

GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

No. 59.—Vol. III. { New Series. } SATURDAY, FEBRUARY 13, 1875. { Registered at the General Post Office as a Newspaper. } Price 5d. Post Free, 5½d.

CONTENTS.

SALES BY AUCTION.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, February 15, at half-past 12 o'Clock precisely, an Importation from North America of the exceedingly scarce LILIUM CANADENSE; a large quantity of OSMUNDA CINNAMOMEA and INTERRUPTA, GOODYERA PUBESCENS, red and white TRILLIUMS, CYPRIPEDIUMS, &c., with various choice LILIES from California, Japan, and other countries.

Periodical Sale of Poultry and Pigeons.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, February 16, at half-past 12 o'Clock precisely, 350 pens of choice POULTRY and PIGEONS, from the yards and lofts of well-known breeders and exhibitors.

On view the morning of Sale, and Catalogues had.

Consignment of Plants from Ghent, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, February 17, at half-past 12 o'Clock precisely, a collection of CAMELLIAS, AZALEAS, PALMS, &c., from Ghent; FRUIT TREES, ROSES, SHRUBS, HERBACEOUS PLANTS, GLADIOLI, &c.

On view the morning of Sale, and Catalogues had.

City Auction Rooms, 38 and 39, Gracechurch St., E.C.

IMPORTANT SALE of 200 very handsome English-grown CAMELLIAS and AZALEA INDICA, beautifully set with bloom-buds; a superb assortment of 500 Standard and Dwarf ROSES; selected FRUIT TREES, hardy CONIFERÆ, SHRUBS, and AMERICAN PLANTS, EPACRIS, ERICAS, CYCLAMENS, DAHLIAS, choice LILIUMS of sorts, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on TUESDAY, February 16, at 12 o'Clock precisely.

On view the morning of Sale. Catalogues at the Rooms, and of the Auctioneers and Valuers, 98, Gracechurch Street, E.C., and Leytonstone, E.

Edmonton.

CLEARANCE SALE of STOVE and GREENHOUSE PLANTS and OUTDOOR EFFECTS.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Jaffa & Co. to SELL by AUCTION, without reserve, on the Premises, Bury Nursery, Bury Street, Edmonton, Middlesex, N., five minutes' walk from the Low Level Station, on WEDNESDAY, February 17, at 12 for 12 o'Clock precisely, the whole of the choice STOVE and GREENHOUSE PLANTS, consisting of two specimen Stephanotis, a very handsome specimen Double White Camellia, in tub, 9 feet by 8 feet, and another, Double Red, equally large; 2600 Ericas and Epacris, large quantities of Cyclamens, Primulas, Callas, Spiræa japonica, and Lily of the Valley in pots; thousands of scarlet and variegated Geraniums, Pelargoniums, hardy Ferns, &c.; together with a useful Cart, Horse, Harness, Barrow, Chaff-cutting Machine, sundry Hot-water Piping, Pumps, 300 feet Slate Shelving, Hand-lights, Garden Tools, and numerous other effects. The stock is now on view.

Catalogues may be had on the Premises, and of the Auctioneers and Valuers, 98, Gracechurch Street, City, E.C., and Leytonstone, E.

The NURSERY TO BE LET, apply to the Auctioneers.

Kingston-on-Thames.

IMPORTANT CLEARANCE SALE of NURSERY STOCK, GREENHOUSE PLANTS, GREENHOUSES, UTENSILS in TRADE, &c.

MESSRS. PROTHEROE AND MORRIS are instructed by the Executrix of the late Mr. Bruce to SELL by AUCTION, without reserve, on the Premises, Park Nursery, Richmond Road, Kingston, Surrey, three minutes' walk from Kingston Station, London and South-Western Railway, on THURSDAY and FRIDAY, February 18 and 19, at 12 for 12 o'Clock precisely each day, the whole of the valuable NURSERY STOCK, consisting of a considerable number of fine specimen Coniferæ, in variety; small Thuja aurea and elegantissima, &c.; a quantity of large Fruit Trees, in bearing condition; fine Yucca gloriosa, &c.; also many thousands of choice Greenhouse Plants, consisting of 6000 Ericas of sorts, a valuable collection of Succulents, also Twelve Greenhouses, measuring from 25 to 65 feet long by 10 to 14 feet wide; 2000 feet of 2, 3, and 4-inch Hot-water Piping, Four Boilers, 250 feet of Slate Shelving, quantity of Bricks, Spring Van, Tumbril Cart, useful Horse, Barrows, Ladders, Two Stacks of Firewood, Lights, Chaff-cutter, Ninety Bell-Glasses, and quantity of Loam, Peat, and Manure, &c.

May be viewed any day prior to Sale. Catalogues had on the Premises; of R. B. WHEATLEY, Esq., Solicitor, 7, New Inn, Strand, W.C.; of the Auctioneers and Valuers, 98, Gracechurch Street, E.C., and Leytonstone, E.

N.B.—Messrs. P. & M. respectfully announce that they have been instructed to offer by AUCTION, at the Auction Mart, Tokenhouse Yard, City, E.C., at an early date, the valuable FREEHOLD ESTATE, situate as above, consisting of about 4 acres 2 roods of very eligible Building Land.

Tooting, S.W.

IMPORTANT SALE of THRIVING NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. R. Parker to SELL by AUCTION, without reserve, on the Premises, Exotic Nursery, Tooting, S.W., on TUESDAY, February 23, at 12 for 12 o'Clock, a large quantity of EXTRA NURSERY STOCK, remarkably well grown, and in excellent condition for removal, comprising some thousands of Border Shrubs, consisting of the choicest Evergreens and Coniferæ in cultivation, and admirably adapted for effective planting; likewise a quantity of beautifully furnished Thuja aurea, and unusually handsome Yucca recurva for potting; Laurels, fine bushy Rhododendrons, well set, and numerous others; a rich assortment of Ornamental Trees, Acer Negundo var., &c.; some fine Fruit Trees, Standard and Dwarf Roses of sorts, and a quantity of Hardy Climbers in pots, &c.

May be viewed prior to the Sale. Catalogues had on the Premises, and of the Auctioneers and Valuers, 98, Gracechurch Street, E.C., and Leytonstone, E.

Frimley, Surrey.

CLEARANCE SALE of VALUABLE NURSERY STOCK, a portion of the Land being required for Building Purposes.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. J. Holder to SELL by AUCTION, without reserve, on the Premises, Frimley Park Nursery, Frimley, on THURSDAY, February 25, at 11 for 12 o'Clock precisely, a large quantity of well-grown NURSERY STOCK, consisting of a general assortment of thriving Evergreens, Coniferæ and Deciduous Shrubs, including 10,000 Common Laurels, 1 to 4 feet; quantities of Privet, Arbutus, Yews, Arbor-vitæ, Pinus of sorts, Wellingtonias, Thujopsis, and Cupressus, &c., a considerable number of Ornamental and Forest Trees, also some Standard Rhododendrons and selected Fruit Trees, together with a beautiful assortment of Standard and Dwarf Roses, and a quantity of strong Quick.

May be viewed prior to the Sale. Catalogues had on the Premises, and of the Auctioneers and Valuers, 98, Gracechurch Street, E.C., and Leytonstone, E.

Near Liverpool.

PRELIMINARY NOTICE of a very important SALE.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to offer by PUBLIC AUCTION, on TUESDAY, March 23, in one Lot, the valuable FREEHOLD ESTATE known as Meredith's Vineyard, Garston, near Liverpool, comprising 6 acres, 1 rood, 32 poles of valuable Building Land, with the convenient modern detached Dwelling-house; also the extensive ranges of Forty Greenhouses, Vineries, &c., heated with three miles of piping on the best modern hot-water principles; also the whole of the luxuriant fruiting Vines, &c.; full particulars of which will appear in future advertisements.

N.B.—The whole of the choice STOVE, GREENHOUSE and BEDDING PLANTS will be SOLD by PUBLIC AUCTION on the Premises as above, due notice of which will be given.

Auction and Estate Agency Offices, 98, Gracechurch Street, City, E.C., and Leytonstone, E.

Hanwell, Middlesex.

To NURSERYMEN, FLORISTS, and OTHERS.

MR. J. DOMONEY has received instructions to OFFER for SALE by AUCTION (in consequence of the death of the late Proprietor), at the Mart, Tokenhouse Yard, E.C., on THURSDAY, February 18, at 12 o'Clock punctually, a valuable FREEHOLD PROPERTY, consisting of a Dwelling-house, known as "Floral Villa," with Nursery, Garden, Hothouses, Greenhouses, Lights, Grape Vines, &c. Three-fourths of the Purchase Money may remain on Mortgage at 5 per cent.

Particulars and conditions of Sale to be had of Mrs. OATES, on the Premises; of Mr. REGINALD VINING, 16, Furnival's Inn, E.C.; at the Mart, and the Auctioneer, 16, Furnival's Inn.

PROTHEROE AND MORRIS, Horticultural and Market Garden Auctioneers and Valuers, 98, Gracechurch Street, City, and at Leytonstone, E. Monthly Horticultural Register had on application.

RODERICK NICHOLSON, Advertising Agent and General Commission Agent, 112, Fleet Street, E.C.

Window Glass, Sheet Lead, Paints, &c.

THOMAS MILLINGTON AND CO., Importers and Manufacturers. New LIST of PRICES, very much reduced, on application.
87, Bishopsgate Street Without, E.C.

WILLIAM ROE, LANDSCAPE GARDENER, 42, Paternoster Row, St. Paul's, London, E.C., and Osborne Terrace, Lordship Road, Birmingham. Designs prepared, the Work superintended if required, or Estimates given.

TO BE LET, about 30 Acres of FREEHOLD LAND, in the Parish of Streatham, annually or upon Lease, if preferred, situated about six miles from London, and particularly adapted for a Market Garden, having many breaks and a small stream running through the centre.
A. B., 5, Regency Square, Brighton.

Freehold, 28 Miles S.W.

FOR SALE, a beautiful ESTATE of 240 Acres, with elegant Swiss Villa, and capital Stabling, gravelly soil, fine views, and extensive frontages. Free from Tithe and Land-tax; two-thirds on Mortgage. The Furniture may be taken at a valuation. A Plot of about 30 Acres, planted with fine Evergreens, Fruit, and other Trees would be Sold separately; also a Plot of 20 Acres. Apply to
W. TARRY, Bailiff, "Golden Farmer," Bagshot.

A GENTLEMAN, residing near London, giving up his house, wishes to DISPOSE of his STOVE and GREENHOUSE PLANTS.
DELTA, City of London Club, Old Broad Street, E.C.

BERBERIS DARWINII.—Fine Shrubbery and Cover plant, a beautiful Hedge plant, and highly ornamental as a single specimen. Price 8s., 10s., 12s. 6d., and 16s. per 100.
RODGER, McCLELLAND AND CO., 64, Hill Street, Newry.

FOR SALE, a large quantity of Antwerp and Fastolf RASPBERRY Canes; about 20,000 Dutch RED CURRANTS; also a large quantity of President and Elton Pine STRAWBERRY. To be sold very cheap.
JOSIAH H. BATH, Manor Farm, North Cray, Kent.

Eucalyptus globulus (Australian Blue Gum).

JOHN WILSON, SEEDSMAN, Whitehaven, expects to receive in a few days a consignment of SEED of this well-known EUCALYPTUS, from Messrs. Thomas Lang & Co., Nurserymen and Seedsmen, Melbourne. Prices on application.

Superb Ranunculuses, &c.

C. TYSO, FLORIST, &c., Wallingford, Berks, is offering Assortments of this BEAUTIFUL HARDY FLOWER at 3s. and 5s. per dozen sorts, post free for cash with order. He will send a Description of a Collection of Fifty Named Sorts on application; also, "Treatise on Culture," price 6d. to purchasers of 10s. worth.

CHOICE ANEMONES, 2s. 6d. to 3s. per dozen named sorts, with full instructions for culture.

GERMAN and OTHER ANNUAL FLOWER SEEDS in variety. Post free, Twelve sorts, 2s. 6d.; Twenty-five sorts, 5s.
Root and Seed CATALOGUES Gratis.

New Grape.

VENN'S BLACK MUSCAT.—This splendid Grape has all the good qualities of the Black Hamburgh with the rich full flavour of the Muscat of Alexandria. Good well ripened Canes, 31s. 6d. each. Usual allowance to the Trade. Post Office Orders payable to
WILLIAM DODDS, Gladstone Villa, Bishopston, Bristol.

VINES, extra strong leading sorts, close-jointed and well ripened; SEAKALE, ASPARAGUS, and RHUBARB, extra strong, for forcing; ROSES, FRUIT, FOREST, and ORNAMENTAL TREES, STOVE and GREENHOUSE PLANTS, &c.
Priced Descriptive CATALOGUE, post free.
DICKSON AND ROBINSON, 23, Market Place, Manchester.

JOHN NELSON, NURSERYMAN, Heeley, near Sheffield, begs to offer the following at per 100:—

CHERRIES, Standard, extra strong	£6 10
.. Maiden, extra strong	2 10
PEARS, Standard and Pyramid, extra strong ..	6 10
APPLES, Standard, extra strong	5 0
GENTIANA ACAULIS, nice clumps, ...	1 10

A liberal allowance to the Trade.

WELLINGTONIAS:—

100, 3 feet high	3s. 6d. each
50, 5 to 6 feet high	9s. each
20, 7 to 8 feet high	12s. 6d. each
10, 9 to 10 feet high ..	15s. each.

All well formed plants, from seed, and constantly removed; grown by a gentleman who has more than he requires. Address
H. GAMBELL, Sharsted Court, Sittingbourne.

Pines, Pines, Pines.

THE SUBSCRIBER has a splendid Stock of Smooth Cayenne, Black Jamaica, Queen, Charlotte Rothschild, Prince Albert, and Prickly Cayenne Pine Plants in all stages of growth. Warranted clean. Prices very moderate, and may be had on application to
WM. THOMSON, Tweed Vineyard, Clovenfords, N.B.

Pansies—Show, Fancy, and Bedding.

THOMAS S. WARE'S new Spring CATALOGUE of the above, and other Florist Flowers, is now ready, and will be sent on application. Twenty thousand Pansies, established in pots, will be sure to bloom well if planted at once. The Trade supplied.
Hale Farm Nursery, Tottenham, London, N.

New Roses for 1875.

HENRY BENNETT has 10,000 PLANTS of the above to offer, of his usual matchless quality, at the reduced price made by several large Establishments in 1874. Ready early in March.
DESCRIPTIVE LIST ready, and post free.
Manor Farm Nursery, Stapleford, Salisbury.

Pelargoniums for the Million.

JAMES HOLDER'S unrivalled COLLECTION of Show, French, and Fancy Varieties, strong Plants, distinct sorts, at 40s. per 100; 25s. for 50; or 15s. for 25. Hamper and packing included. Extra strong plants at 9s. and 12s. per dozen. Cash. CATALOGUES free on application.
Crown Nursery, Reading.

Marechal Niel and other Roses from Paris.

LEVEQUE AND SON, NURSERYMEN, Ivry-sur-Seine, near Paris, beg to offer good and strong plants of MARÉCHAL NIEL, dwarf, from the ground, £2 10s. in pots £2 16s., per 100; Standards, £5; and other TEA ROSES, Standards, £5; Dwarfs, £2 16s. PAUL NERON, Dwarfs, £2 8s.; Standard Perpetuals, our own selection, splendid heads and plants, £4 to £5; Dwarf Perpetuals, our own selection, strong plants, £2 to £2 8s. per 100. SOUVENIR DE LA MALMAISON, on own roots grown in pots, £2 per 100.

Gladioli from Paris, per Names and Seedlings.

LEVEQUE AND SON, NURSERYMEN, Ivry-sur-Seine, near Paris, beg to offer splendid, healthy, and good flowering bulbs of GLADIOLI, to the prices:—Gladioli, seedling, first-rate, 8s. per 100, £3 per 1000; mixed white, 12s. per 100; do. red, 12s. per 100; do. yellow, 24s. per 100; do. rose, 12s. per 100; per names, 100, 10 sorts, 8s. per 100; 25 sorts, 14s. per 100; 50 do., £1 to £2; 100, £2 to £6, and upwards, according to the novelty of the sorts, all in good flowering bulbs. English Cheques or Post Office Orders on Paris accepted for payment.

Fibrous Peat.

BROWN FIBROUS PEAT, best quality, for Orchids, Stove Plants, and Potting, £6 6s. per Sixton Truck-load. BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, New Holland Plants, &c., £5 5s. per Six-ton Truck-load. Delivered on rail at Blackwater, South-Eastern Railway, or Farnborough, South-Western Railway.
WALKER AND CO., Farnborough Station, Hants.

Sphagnum, or Peat Moss, for Orchids.

FRESH SPHAGNUM MOSS, 10s. 6d. per sack.
WALKER AND CO., Farnborough Station, Hants.

PEAT for SALE, in Large or Small Quantities, at Chiselhurst, Kent. Can be put on the South-Eastern or London, Chatham and Dover Railways. Apply to Mr. T. LANSBURY, Hook Farm, Burnley Common, Kent.

Propagating.

COCOA-NUT FIBRE REFUSE, at this season, is invaluable to all gardeners. Reduced price, £1 5s. per 100 bush., delivered free to any railway. Samples free.
JAMES STEVENS, Fibre Works, High St., Battersea, S.W.

COCOA-NUT FIBRE REFUSE.—10,000 bushels, ready bagged, must be cleared. Price on application. Large truck, holding 300 bushels, free on to any rails, £2 10s.
H. WRIGHT, Fibre Merchant, 4, Peterborough Terrace, King's Road, Fulham, S.W.

To Propagators and Plant Growers.

The most useful material for the attainment of successful and rapid culture is

COCOA-NUT FIBRE REFUSE.—Price 1s. per bushel, or 6d. per bushel for quantities of 20 bushels and over.
DAGNALL AND TILBURY, Steam Cocoa-nut Fibre Works, Farm Lane, Walham Green, S.W.

MR. LAXTON'S NEW PEAS, 1875.

HURST & SON

Have pleasure in offering the following four varieties of MR. LAXTON'S NEW PEAS, all of which have been selected for their high quality, flavour and distinctness, three of them having received First-class Certificates from the Royal Horticultural Society after the great Chiswick trial in 1872:—

UNIQUE.

This is a very handsome and prolific Dwarf Early Pea, with long, deep-green coloured pods, of the same habit and coming into use at the same time as Little Gem, and may be briefly described as a Dwarf William the First. Received a First-class Certificate.

Price 7s. 6d. per sealed quarter-pint packet.

DR. HOGG.

"A very handsome Pea. The earliest green wrinkled Marrow, very sweet and of excellent quality, pods being very well filled and of a beautiful deep green colour, like the Ne Plus Ultra."—*Vide Proceedings of the Royal Horticultural Society for* 1872.

"No higher recommendation could be given to it than to introduce it as a competitor of Ne Plus Ultra." "To sum up the whole it is a fine Ne Plus Ultra, coming in one week after Dillestone's."—*Hogg's Gardener's Year Book for* 1873.

Height 3 feet, habit and type of Sangster's No. 1. Awarded a First-class Certificate and received its name at the instance of the Fruit Committee of the Royal Horticultural Society.

Price 7s. 6d. per sealed quarter-pint packet.

SUPPLANTER.

"A cross between Veitch's Perfection and Little Gem—the earliest of the Veitch's Perfection type; plant very robust and vigorous, producing very large broad pods in pairs. A large, handsome, and very prolific Pea, which received a First-Class Certificate."—*Proceedings of the Royal Horticultural Society for* 1872.

"Appropriately named, for it is a large, handsome, and very prolific Pea, and will take the place of many others."—*Hogg's Year Book*, 1873.

This Pea is of fine quality, and is also first-rate for exhibition, having been shown by Mr. R. Gilbert during the past season, in three of his Prize Collections of Peas. Height 3 feet.

Price 5s. per sealed quarter-pint packet.

CONNOISSEUR.

A remarkably distinct and very late wrinkled, bright green seeded Pea, raised from Ne Plus Ultra, pronounced by the Royal Horticultural Society to be of very excellent quality. Height 6 feet.

Price 5s. per sealed quarter-pint packet.

HURST AND SON can also supply:

FILLBASKET.—Unquestionably the most prolific and best Market Pea yet introduced. First-class Certificate Royal Horticultural Society.

Price 2s. 6d. per sealed half-pint packet.

LAXTON'S No. 1.—The earliest blue wrinkled Marrow.

Price 2s. 6d. per sealed half-pint packet.

☞ *£10 will be offered in Four Prizes at the Royal Horticultural Society's Show on July 7 next, for Six Varieties of Mr. Laxton's New Peas sent out by us in 1872, 1873, and 1874, 50 pods of each. Further Prizes will be announced next week.*

HURST & SON,
6, LEADENHALL STREET, LONDON, E.C.

SUTTONS' CHOICE GLADIOLI.

FROM THE BEST FRENCH RAISERS.

FROM THE BEST ENGLISH GROWERS.

SUTTONS'

NEW COLLECTIONS OF GLADIOLI.

These collections have been specially selected with the greatest care, so as to include as many colours as possible.

FINE VARIETIES, Suitable for Garden Decoration.

100 roots, in 50 beautiful varieties	..	..	£5	0	0
50 ,, 50 ,,	..	..	2	10	0
25 ,, 25 ,,	..	..	1	5	0
12 ,, 12 ,,	..	..	0	12	0
6 ,, 6 ,,	..	..	0	6	0

CHEAPER, but SHOWY VARIETIES.

25 roots, in 25 choice varieties	..	..	£0	17	6
12 ,, 12 ,,	..	..	0	9	0

In addition to these assortments for ordinary uses, we have prepared the following Collections, which include the finest show varieties only:—

SUTTONS' CHOICE EXHIBITION VARIETIES.

25 splendid varieties, our selection	..	..	£2	0	0
12 ,, ,,	..	..	1	0	0
6 ,, ,,	..	..	0	10	0

FINE MIXED SEEDLINGS.

Finest Mixed, from Mr. Banks' Prize Collection	per dozen, 5s.;	per 100	£1	15	0
Fine Mixed French Seedlings ..	per doz., 3s.;	per 100	1	1	0
Good Mixed ..	per dozen, 2s.;	per 100	0	12	6

SUTTON & SONS,
THE QUEEN'S SEEDSMEN, READING.

SUTTONS' CHOICE SEED POTATOS

For Planting.

SUTTONS' DESCRIPTIVE LIST

Is now ready, and may be had Gratis and Post Free.

N.B.—Potatos as well as Seeds Carriage Free.

SUTTON & SONS,
THE QUEEN'S SEEDSMEN, READING.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS; also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application. Mr. WEBB, Calcot, Reading.

Lombardy and other Poplars.

THOMAS S. WARE can supply the above from 10 to 18 feet, well furnished trees; also BALSAMS. New Silver, and Black Italian, 10 to 12 feet. Prices on application.
Hale Farm Nursery, Tottenham, London, N.E.

Notice.

SEEDS, SEEDS.—Now on view, SAMPLE GROWTHS of 1874, at TANTON'S SEED WAREHOUSE, Borough End, London Bridge, S.E. CATALOGUES free.
Five per cent. discount and carriage free.

Wonersh Nurseries, near Guildford, Surrey.

MESSRS. W. VIRGO and SON can still supply large quantities of all kinds of FRUIT TREES, EVERGREEN SHRUBS, and LARGE TREES for Belting; extra strong QUICKS, SCOTCH, LARCH, ASH, HAZEL, OSIER, BIRCH, &c.
Standard ROSES, 75s. p. 100; Half-standard do., 50s. p. 100.

Verbenas, Verbenas, Verbenas.

WILLIAM BADMAN offers Purple, White, Scarlet, Crimson, and Rose Verbenas—good Plants from single pots, 12s. per 100; rooted cuttings, clean and healthy, 6s. per 100, 50s. per 1000, package included. Terms cash. Cemetery Nursery, Gravesend.

FRUIT TREES.—Standard and Pyramid CHERRIES, APPLES, PEARS, and PLUMS, from 75s. per 100. GOOSEBERRIES, 3-yr. and 4-yr., from 10s. to 15s. per 100. CURRANTS, 3-yr, and 4-yr., from 6s. to 10s. per 100. Catalogues on application to T. EVES, Gravesend Nurseries. Established 1810.

Herbaceous and Alpine Plants.

THOMAS S. WARE'S Illustrated CATALOGUE of NEW, RARE, and CHOICE PERENNIALS for 1875 is ready, and will be sent on application.
Hale Farm Nursery, Tottenham, London, N.

New Dwarf Silver-variegated Geranium, Little Trot.

WM. POTTEN is BOOKING ORDERS for the above, as advertised in the *Gardeners' Chronicle*, January 30. Those who wish to secure good plants should Order Early. See report of Chiswick trials in the *Gardeners' Magazine*, January 30.
Camden Nursery, Sissinghurst, Staplehurst, Kent.

Vines, Vines, Vines.

VINES.—Fruiting and Planting Canes, strong, well-ripened, short jointed, and with fine plump eyes, of Black Hamburgh, Black Alicante, Muscat of Alexandria, Lady Downe's, Foster's Seedling, Gros Colman, Madresfield Court, Mrs. Pince, Bowood Muscat, White Tokay, West's St. Peter's, Trentham Black, White Frontignan: 2s. 6d. to 5s. each; a few extra strong canes, 6s. 6d.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

Phlox (Herbaceous), Pæonies, Pyrethrums.

SPECIAL OFFER.

THOMAS S. WARE'S new Spring CATALOGUE of the above, and other Hardy Florist Flowers, is now ready, and will be sent free on application.
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Orchids.

AMATEUR'S COLLECTIONS, adapted to those beginning the culture of this class of Plants, or to those already having a good collection, can be supplied in strong, healthy specimens, at 42s., 63s., 84s., and 126s. per dozen. Package and delivery to London free, on receipt of cash with order.
J. H. LEY, Royal Nursery, Croydon.
N.B.—Plants put in, gratis, to compensate for carriage beyond London.

Roses, Fruit Trees, &c.

WM. CUTBUSH AND SON'S stock of ROSES, FRUIT TREES, &c., is unusually fine this season. A visit to the Nurseries would well repay intending purchasers. CATALOGUES post free.
Highgate Nurseries, London, N.

Planting Season, 1874-75.

MESSRS. JOHN STANDISH AND CO. invite the attention of intending Planters to their large and valuable Stock, consisting of all the newest and best varieties of the Japanese Importations, as well as a vast quantity of SPECIMEN CONIFERÆ, HOLLIES, LAURELS, DECIDUOUS and EVERGREEN PLANTS, ROSES, FRUIT TREES, &c., all of which are in excellent condition for removal.
Their NEW CATALOGUE is now ready, and will be sent, post free, on application.
Royal Nurseries, Ascot, Berks.

GRAPE VINES from EYES.—Well ripened, short-jointed, fruiting and planting Canes of most of the best kinds, including Black Hamburgh, Victoria Hamburgh, Gros Colman, Lady Downes, Muscat of Alexandria, Mrs. Pince's Muscat, Duchess of Bucclench, Madresfield Court, &c. Price 3s. 6d. to 7s. 6d. each.
T. JACKSON AND SON, Nurseries, Kingston, Surrey.

Caution.

A. G. GILMORE, being NO LONGER in the SERVICE of J. H. LEY, Royal Nursery, Croydon, it is requested that NO ACCOUNTS be PAID to HIM, and that all Letters be Addressed to J. H. LEY.

Caution.

A. G. GILMORE, having LEFT the EMPLOY of J. H. LEY, Royal Nursery, London Road, Croydon, REQUESTS that NEITHER CORRESPONDENCE nor CASH be addressed or forwarded to him there, but to his (A. G. Gilmore's) Private Address, 1, Longley Road, Croydon

NEW AMERICAN POTATOS—(*CONTINUED*).

The Committee for awarding the premiums offered by us in the Spring of 1874 to the six largest products from 1 lb. of the tubers of the Extra Early Vermont, Brownell's Beauty, and Compton's Surprise, after a careful examination of the reports of the various competitors, report as follows:—

BROWNELL'S BEAUTY, the newest of the three, has made a most splendid record. Not only has it given much the largest returns, from the single pounds as well as from the quarter acres, but it has also elicited the unanimous praise of all cultivators, and cannot fail to become soon a leading market Potato.

The EARLY VERMONT seems to have gained legions of new friends this year, while it has lost none of its old ones. All are satisfied as to its superiority as an early Potato, for market as well as for the table. In many localities where other early varieties have failed entirely, the Early Vermont has given most satisfactory returns, leaving its rank undisputed as the earliest and best early Potato in cultivation.

COMPTON'S SURPRISE has given not less satisfaction as a Potato of the highest quality. In many reports we find that "no praise can do justice to its excellent quality."

For Largest Quantity "Brownell's Beauty" from One Pound of Seed.

No. of Prize.	Lb.	
1.—H. C. Pearson, Pitcairn, N.Y.	1018	$100
2.—A. Loveless, White Mills, Penn.	811	50
3.—J. I. Salter, St. Cloud, Minn.	782	40
4.—Robert Lewis, Castleton, N.Y.	749	30
5.—Henry Bullis, Canton, N.Y.	720½	20
6.—Charles Whiting, Jasper, N.Y.	696½	10

For Largest Quantity "Extra Early Vermont" from One Pound of Seed.

No. of Prize.	Lb.	
1.—Alfred K. Titus, Wilmington, Vt.	708	$100
2.—J. I. Salter, St. Cloud, Minn.	698	50
3.—Robert Lewis, Castleton, N.Y.	690	40
4.—C. W. Walker, Washington, Kas.	674	30
5.—A. W. Titus, Wilmington, Vt.	629½	20
6.—S. R. De Wolfe, Parrsboro, Nova Scotia	615½	10

For Largest Quantity "Compton's Surprise" from One Pound of Seed.

No. of Prize.	Lb.	
1.—P. C. Wood, Esther, Ill.	900	$100
2.—Robert Lewis, Castleton, N.Y.	874	50
3.—A. Loveless, White Mills, Penn.	832	40
4.—J. I. Salter, St. Cloud, Minn.	811	30
5.—C. W. Walker, Washington, Kas.	684	20
6.—Chas. Whiting, Jasper, N.Y.	588½	10

Our Illustrated Descriptive POTATO CATALOGUE, 24 pages, containing a List of 200 varieties, with Report of Committee and Culture of successful Competitors in 1874, will be mailed free and post paid to all applicants.

Address: B. K. BLISS & SONS, Seed Merchants, 34, Barclay Street, New York, U.S.A.

FIFTY GUINEAS IN PREMIUMS.

OFFERED BY HOOPER & CO., COVENT GARDEN, LONDON, W.C.

Wishing to have the above New Varieties of Potatos fairly tested in Europe, HOOPER & Co. offer Special Premiums, amounting to Fifty Guineas, to European Cultivators only, which will be awarded to Growers of the largest quantity from One Pound of "Snowflake" and "Eureka;" Twenty-five Guineas to each variety, to be awarded as follows:—

Twenty-five Guineas for SNOWFLAKE.

For the largest quantity of Snowflake Potatos grown from 1 lb. of seed	10 Guineas
For the second largest " " "	5 "
For the third largest " " "	4 "
For the fourth largest " " "	3 "
For the fifth largest " " "	2 "
For the sixth largest " " "	1 "

Twenty-five Guineas for EUREKA.

For the largest quantity of Eureka Potatos grown from 1 lb. of seed	10 Guineas
For the second largest " " "	5 "
For the third largest " " "	4 "
For the fourth largest " " "	3 "
For the fifth largest " " "	2 "
For the sixth largest " " "	1 "

Competitors for the Prizes will be required to give date of planting, date of digging, with a written statement of their mode of culture, characteristics of the soil—whether clay, alluvial, sandy, or loam—nature of the subsoil, whether underdrained or not; also, the kind and quantity of fertilisers used, how and when applied, with the weight of the crop when dug, and the number of square feet occupied by the crop, which must be witnessed and sworn to before a Justice of the Peace, Notary, or any other one competent to administer the oath, which statement must be sent to the Firm of whom they purchased their stock (if procured elsewhere than of us), who are requested to certify that the Seed was purchased of them, and that they have full confidence in the report of the Grower, and forward the report to our address previous to November 1, 1875. The reports will be examined and premiums awarded by a committee of gentlemen well known in the agricultural community (either in England or America), and will be printed, and a copy posted to each competitor. A list of the successful competitors will also be published in the leading agricultural papers of Great Britain. Competitors for premiums will be placed under no restrictions as to their mode of culture, excepting that they must not be grown from slips, or forced by artificial heat, our object being to ascertain their respective merits with such culture as is usually given to crops in a well managed vegetable garden or farm. Persons intending to compete should, in buying their seed of us, inform us of the fact, in order that their names may be registered.

HOOPER & CO., Seedsmen, Covent Garden, London, W.C.

NEW HYBRID BEGONIAS.

THE FOLLOWING NEW BEGONIAS belong to the handsome-flowered, bulbous-rooted section, and are most desirable acquisitions, as they succeed and bloom well in an ordinary Greenhouse. The Bulbs being similar to those of Gloxinias, and now dormant, can be sent by Post:—

ANACREON, deep crimson, a beautiful flower, very long petals, 7*s.* 6*d.*
BRILLIANT, very rich bright orange, a fine showy flower, 7*s.* 6*d.*
CARDINAL, magnificent variety, fine large flowers of a rich deep magenta-rose, 7*s.* 6*d.*
CAROLINE, deep rosy pink, with broad petals, 5*s.*
CLIMAX, deep rich rosy carmine, broad outer petals, 5*s.*
CORSAIR, rosy salmon, profuse bloomer, 5*s.*
ENSIGN, bright pink, a very elegant variety, 5*s*
GEM, cream colour, the reverse of the petals pink, 5*s.*
GLITTER, vivid orange-scarlet, extremely showy, 7*s.* 6*d.*
HERMINE, bright orange cinnamon, very distinct, 5*s.*
LOTHAIR, deep rose, a fine flower, with short broad petals, 7*s.* 6*d.*
LUCINDA, fine flowers with long petals, of a deep rose colour, 7*s.* 6*d.*
MAGNET, light pink, the reverse of the petals deep pink, 5*s.*
MAZEPPA, light cream colour, tinted with orange-pink, 5*s.*
PHYLLIS, delicate sulphur colour tinted with pink, 5*s.*
SERAPH, soft pink suffused with rose, 5*s.*
SURPRISE, bright pink, a very pretty colour, 5*s.*
TROJAN, light rosy pink, very distinct, 5*s.*

The entire Collection of the above Eighteen Varieties for Four Guineas.

Seed of the above New Begonias, separate kinds, 2*s.* 6*d.* per packet; mixed, 3*s.* 6*d.* per packet.

WILLIAM BULL, F.L.S.,
ESTABLISHMENT FOR NEW AND RARE PLANTS,
KING'S ROAD, CHELSEA, LONDON, S.W.

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This interesting Work is now ready. Price 1s., post free.

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Not the Handsomest, Not the Largest,

But a useful one of Forty Pages,

Is now published, and will be sent free on application to

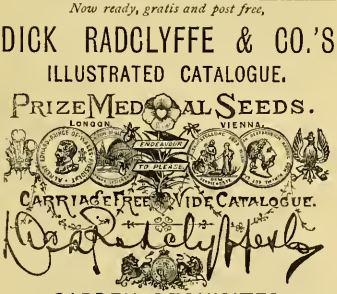
HARRISON & SONS,
SEED GROWERS, LEICESTER.

Now ready, gratis and post free,

DICK RADCLYFFE & CO.'S

ILLUSTRATED CATALOGUE.

PRIZE MEDAL SEEDS.



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Vegetable & Flower Seeds
Seed Potatos, Garden Tools &c.
Superior quality. Carriage free
Descriptive Priced list post free,
James Dickson & Sons
"Newton" Nurseries and
108, Eastgate Street,
Chester.

SPRING SEED GUIDE, 1875.—MESSRS. LITTLE AND BALLANTYNE, The Queen's Seedsmen, Carlisle, have now issued their handsomely Illustrated GUIDE, and a copy can be had on application.

London Office, 36, Mark Lane, E.C.; and Seed and Nursery Establishments, Carlisle.

ROYAL HORTICULTURAL SOCIETY, 1875.

SIXTEEN

Gold, Silver, and Bronze Medals,

With Valuable Money Prizes,

WILL BE OFFERED BY

Messrs. SUTTON & SONS,

At the various Royal Horticultural Society's Meetings during 1875, for

THE BEST SPECIMENS OF

New Varieties of Vegetables, Flowers, and Fruits

Introduced by Messrs. SUTTON in 1875.

Further Particulars may be had on application to
SUTTON & SONS,
THE QUEEN'S SEEDSMEN, READING.

FRANCIS & ARTHUR DICKSON & SONS.

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Illustrated Catalogue of Vegetable & Flower Seeds,

Post free on Application.

Quality unsurpassed.

TO BE SOLD, a great bargain, in order to clear the ground :—

20,000 SILVER FIRS, 1 foot high, 2s. per 100.
50,000 „ „ 1½ feet high, 2s. 6d. per 100.
70,000 „ „ 2 to 3 feet high, 5s. per 100.
50,000 „ „ 3 feet high, 7s. per 100.

For particulars apply to The AGENT, Gunton Park, Norwich.

ROBERT NEAL begs to offer to the notice of Gentlemen and the Trade his extensive Stock of HARDY SHRUBS, FRUIT, FOREST, and ORNAMENTAL TREES, ROSES, RHODODENDRONS, CLIMBING PLANTS, &c., which are now in first-class condition for removal. CATALOGUES may be had on application.

The Nurseries are within a few minutes' walk of the Clapham Junction and Wandsworth Common Railway Stations.

ASPARAGUS.—Special offer of 2-yr., 3-yr., and 4-yr. old. Price per 100 or 1000 on application.

ROBERT NEAL, The Nurseries, Wandsworth Common, S.W.

LILIUM AURATUM, by the dozen, hundred, or thousand, price 1s., 1s. 6d., and 2s. each; magnificent extra-sized roots, 3s. 6d. and 5s. each. The Bulbs imported from Japan this year are in the finest possible condition, quite as plump and sound as English-grown Bulbs.

Mr. WILLIAM BULL, being the largest Importer of Lilies direct from their native habitats, can offer good and varied selections at 18s., 30s., and 42s. per dozen. Special quotations by the 100 or 1000.

ESTABLISHMENT for NEW and RARE PLANTS, King's Road, Chelsea, London, S.W.

CONNOVER'S COLOSSAL ASPARAGUS.—This Giant American Asparagus is described as producing heads from ½ to 1½ inch in diameter.

"I have now much pleasure in saying that in point of size this is a colossal variety; it far exceeds the Giant or Battersea." —Vide *Gardeners' Chronicle*, May 9, 1874.

Good plants, 3s. 6d. per 100; extra strong, 5s. per 100.

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Genuine New Seeds.

WILLIAM FROMOW'S Descriptive CATALOGUE of VEGETABLE AND FLOWER SEEDS, GENERAL GARDEN REQUISITES, &c., is now ready, and may be had post-free on application; also LISTS of ROSES, CLIMBERS, NURSERY STOCK, &c.

Sutton Court Nursery and Seed Establishment, Turnham Green, London, W.

NEW APPLE—PEASGOOD'S NONESUCH.—Handsomest, and one of the largest autumn Apples in cultivation (Sept. to Dec.). First-class Certificate, Royal Horticultural Fruit Committee, Sept. 18, 1872; First-class Certificate, Crystal Palace Show, Sept. 8, 9, and 10, 1874. Strong Maidens, 7s. 6d. each; Dwarf-trained, 10s. 6d. each. Trade terms on application.

W. AND J. BROWN, Nurserymen, Stamford.

Elms for Avenues.

WOOD AND INGRAM offer fine Huntingdom ELMS, 12 to 14 feet, 18s. per dozen, 130s. per 100; 14 to 16 feet, 24s. to 30s. per dozen.

The Nurseries, Huntingdon.

Surplus Nursery Stock.—Wholesale Prices.

WOOD AND INGRAM beg to offer :—

ROSES, Standard, their selection, in great variety, 12s. per dozen, 80s. per 100.
„ Dwarf, worked, selection, 6s. per dozen, 40s. per 100.
MAPLE, English, 4 to 6 feet, 4s. per 100.
ELM, English, 2-yr. seedling, 5s. per 1000; 2 to 3 feet, 20s. per 1000; 3 to 4 feet, 25s. per 1000; 4 to 5 feet, 4s. per 100.
APRICOTS, Moorpark, Standard-trained, extra strong, 5 to 6½ feet stems, heads 4 to 6 feet across, 7s. 6d. each.

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To Planters and the Trade.

MESSRS. MASTERS AND KINMONT beg to call the attention of Planters and the Trade to their stock of the following trees, which can be furnished at low prices :—

LIMES, 7 to 9 feet, clean grown.
THORNS, of sorts, Standard and Pyramid, including Paul's new Double Scarlet.
ASH, Weeping, 6 to 10 feet stems, good heads. [nock.
WILLOWS, Weeping, American, Babylonian, and Kilmar-
ELMS, of sorts, grafted, 5 to 7 feet, including Huntingdon, fastigiated, and cork-barked.
BIRCH, 8 to 10 feet.
PHILADELPHUS, of sorts.
VIBURNUM, of sorts.
LILAC, of sorts.
OAK, Scarlet, 6 to 8 feet.
YUCCA RECURVA, very fine.
ROSES, Standard and Half-Standard.
„ Dwarf, on Manetti.
CURRANTS, Black.
GOOSEBERRIES, of sorts.
ABIES CANADENSIS, 3 to 5 feet.
AUCUBA JAPONICA, 1 to 2 feet.
CUPRESSUS SEMPERVIRENS, 2½ to 4 feet.

Exotic and Vauxhall Nurseries, Canterbury.

CHARLES NOBLE begs to remind all engaged in Planting that in clearing a large portion of his Nursery Grounds he is offering, at very reduced prices, an immense stock; amongst other things the following may be worth notice :—

Spiræa palmata	Poplar, Black Italian
Rhododendrons	Sycamore, Purple and variegated
Andromeda floribunda	Laburnum, Purple and common
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Skimmia japonica	Sorbus domestica and hybrida
Picea Nordmanniana	Almond, fruiting
Arbor-vitæ, American	Birch, Silver, 8 to 14 feet
Cupressus Lawsoniana	Thorn, Paul's new double scarlet
Fir, Spruce, 3 to 8 feet	Deutzia crenata flore-pleno
Berberis Darwinii	Broom, white, 3 to 4 feet
Mahonia Aquifolia	Briar, sweet, 2 to 3 feet
Roses, dwarf hybrid perpetual	Sedum spectabilis
„ climbing	Peaches, Pears, and Plums
Elm, English and American	Gooseberries, in best varieties
Oak, English and Turkey	Currants, in best varieties
Poplar, new Silver	
„ Lombardy	

Special quotations for small or large quantities on application.

CLEMATIS, all the best known kinds.

A few thousand QUINCE STOCKS at 50s. per 1000.

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CHEAP FRUIT TREES, &c.—Fine 3-yr. and 4-yr. Pyramid Apples, 9s. per dozen, 60s. per 100; ditto Pears, Plums, and Cherries, 10s per dozen, 75s. per 100; strong Black and Red Currants, 8s. per 100, 60s. per 1000; fine bushy Austrian Pines, 2½ to 3½ feet, 6s. per dozen, 40s. per 100; Scotch Fir, 3 to 4 feet, 8s. per 100; Berberis Aquifolia, 2 to 3 feet, 8s. per 100. All kinds of Evergreens, Flowering Shrubs, Forest Trees, &c., cheap and good. Catalogues on application.

R. THORNHILL, Bowdon Nurseries, Bowdon, Cheshire.

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DESCRIPTIVE CATALOGUE of BULBS. Address,

CRANSTON AND MAYOS, King's Acre Nurseries, near Hereford.

Cabbage Plants! Cabbage Plants!

TRUE to NAME.

MESSRS. W. VIRGO AND SON can now supply any quantity of strong—

ROBINSON'S DRUMHEAD .. .. 3s. 0d. per 1000
EARLY BATTERSEA .. .. .. 3s. 6d. „
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CALANTHE VEITCHII—the most beautiful of all winter-flowering Orchids. Bulbs, 7s. 6d. each, 60s. per dozen, £22 per 100.

DENDROBIUM DEVONIANUM.—Splendid plants, with well-ripened flowering pseudo-bulbs, from 3 to 5 feet long: 20s., 30s., and 40s. each, according to size of specimen.

BURGESS, KENT, AND SONS, Penkhull Nurseries, Stoke-on-Trent.

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FURNISH YOUR VILLA GARDENS with OUR COLLECTIONS of choice Ornamental Trees, Shrubs, Roses and Fruit Bushes.

No. 1 Collection includes—
20 EVERGREEN SHRUBS.
25 FLOWERING SHRUBS.
25 STANDARD and DWARF ROSES.
25 CURRANTS, of sorts.
25 GOOSEBERRIES, of sorts.
10 ORNAMENTAL TREES.
One hundred and thirty fine plants for £5 5s.

No. 2 Collection,
Double the above, with greater variety.
Two hundred and sixty fine plants for £10.
Carriage paid to London.

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GLADIOLI.—All the First Prizes, for Eleven Years in succession, in Open Competition, offered at the Royal Horticultural Society and the Crystal Palace Shows, have been awarded to

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who are the Only Raisers and Propagators for Sale in the United Kingdom.

CATALOGUES, describing all the varieties worth growing, with Instructions for Cultivation, gratis to applicants.

Selections left to us, 25 for 21s., 25 for 42s., 25 for 63s., 25 for 105s., 25 for 210s.

Blooming Bulbs of our unblooned seedlings, saved from the choicest varieties, 100s. per 100.

The Royal Nurseries, Langport, Somerset.

SEED OATS.—MESSRS. LITTLE AND BALLANTYNE have to offer some fine samples of Black Tartarian and White Potato Oats, Chevalier Barley, &c.

Royal Seed and Nursery Establishments, Carlisle.

"Genuine Seeds Only."

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	Per Packet—s. d.
ALONSOA LINIFOLIA (new)	1 0
BLUMENBACHIA CORONATA (new)	1 6
RICINUS GIBSONII (new)	1 6
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„ New Double-flowered	3 6
CALCEOLARIA, International Prize	2 6
CYCLAMEN PERSICUM	2 6
PRIMULA SINENSIS FIMBRIATA RUBRA	2 6
„ „ „ ALBA	2 6
„ „ „ mixed	2 6
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ASTER, Washington White	1 0
„ „ Peach-blossom	1 0
BALSAM, Veitch's superb strain	2 6
CELOSIA PYRAMIDALIS AUREA	1 0
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COCKSCOMB, Glasgow Prize	2 6
LOBELIA SPECIOSA, Veitch's selected	1 0
MYOSOTIS DISSITIFLORA	1 6
PANSY, show varieties	1 0
PETUNIA HYBRIDA, striped vars.	1 0
PHLOX DRUMMONDI GRANDIFLORA	1 0
POLYANTHUS, Gold-laced	1 0
RESEDA QUEEN VICTORIA	1 0
SILENE PENDULA COMPACTA	1 0
STOCK, East Lothian, three colours	Per collection 2 6
„ Intermediate Scarlet	1 0
SWEETWILLIAM, Bragg's Improved	1 0
WALLFLOWER, Harbinger	1 0

*** For Collections of the finest varieties of GERMAN ASTERS, STOCKS, ZINNIAS, and other choice SEEDS, see SEED CATALOGUE, forwarded post free on application.

Royal Exotic Nursery, King's Road, Chelsea, London, S.W.

SEED POTATOS—Wholesale and Retail, in any quantity. Prices and Sorts on application.

LITTLE AND BALLANTYNE, Seed Growers and Merchants, Carlisle.

The Lucombe Oak may be seen in perfection at

LUCOMBE, PINCE, AND CO.'S Exeter Nursery.—"It is," says the *Gardeners' Chronicle*, p. 82, "a tree that deserves to be planted more extensively. At the present time, after the cold weather we have experienced, it holds its foliage and looks as cheerful as at the beginning of autumn. The leaves are a bright glossy green, and otherwise like the ordinary Quercus Cerris, though they may be a trifle thicker."

MOUNT HOPE NURSERIES,

ROCHESTER, NEW YORK, U.S.A.

THESE NURSERIES, covering 600 Acres of Land, were founded by the present Proprietors thirty-five years ago, and contain the most extensive and complete COLLECTIONS of FRUIT and ORNAMENTAL TREES, &c., in the United States.

Orders for American varieties of Fruits and Hardy Ornamental Trees and Shrubs solicited.

CATALOGUES MAILED FREE ON APPLICATION.

ELLWANGER AND BARRY.

CAMELLIAS.

MESSRS. JAMES VEITCH & SONS

Invite Inspection of their fine Collection of the above, which is now in bloom.

ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, LONDON, S.W.

LOBELIA PUMILA MAGNIFICA.

THE

PINE APPLE NURSERY COMPANY

Will commence sending out this fine Lobelia on March 15 next.

Price 2s. 6d each, or 24s. per dozen for not less than half a dozen.

It received the Floral Certificate at the Royal Botanic Society, and a First-Class Certificate at the Royal Horticultural Society. It has been favourably noticed by all the gardening papers, and the *Gardeners' Magazine* of July 18 says of it :—"This dwarf bedding Lobelia, exhibited by the Pine-Apple Nursery Company, is unquestionably the most important of the many bedding Lobelias introduced of late years. The colour of the flowers is a deep indigo blue, and as there are no conspicuous eyes to mar the general effect, a solid mass or band will tell in a wonderful manner.

MAIDA VALE, LONDON, W.

SATURDAY, FEBRUARY 13, 1875.

A HOLIDAY IN NORWAY.

(*Continued from p.* 170.)

THE whole surface of the plateau seems to have been exposed to the crushing action of an enormous glacier, which in its passage ground the rock as a mill breaks grain in the first revolution of the stone, some portions being completely pulverised, the others being left in disjointed fragments. The rock masses exposed to view are all more or less rounded and worn. Sections of the mounds of *débris* through which the road has been carried exhibit boulders of gneiss, micaceous schist, granite, and various examples of metamorphic rock, imbedded in gravel and sand, offering in a limited space numerous specimens interesting to the mineralogist. After crossing this rather dreary but exceedingly interesting mountain, a gradual descent commences towards the south. The exposed sides of the hill still show the direction of the glacial river; the dislocated masses are larger and still varied, and afford examples of hornblende, red granite, striped gabbro, glimmer gneiss, and other forms of rock. Fir woods now line the road: the rude and wasteful way in which timber has been felled in this upland district shows how much its value is reduced by a sparse population and a difficult or non-existent water carriage; but waste is inexcusable—cut off 3 feet from the ground the stump is left to rot, while trees lie rotting on all sides. The forest in parts seemed sadly to require provident official supervision.

The small new station of Gravedalen, conveniently situated on the hill-side, gave me an opportunity of changing horses. Although taken from the grazing ground amongst the rocks, and utterly ignorant of the taste of corn, the willing animal dashed along at a great rate: his speed was almost tantalising, for he shot with uncontrollable rapidity past fine scenery—beautiful masses of rock, glittering with mica, plants, mosses, and lichens. The water that rested in placid pools on the plateau of the mountain escapes on its southern face, and, forcing its way at first down a narrow tortuous channel, gradually increases in volume, sometimes tumbling in cascades where the rock is precipitous, sometimes brawling and foaming down the rocky bed, swift and destructive. At one place the stream roars through a narrow pass cut through the hard granite rock, where it is spanned by a bridge. Nothing can be finer than the rocky banks of the river at this place. The road is excellent all the way, and leads by easy inclines far down into a valley, where houses and fields and signs of cultivation appear. The river, no longer tumultuous, flows peacefully and broadly through green meadows, which are an agreeable relief from the scenes so recently passed, displaying so strongly the stern examples of untrammelled Nature, and which are indeed instructive to look upon sometimes. The road again winds by wooded heights, on which huge blocks of rock lie tossed in confused masses. Emerging from the serried ranks of Spruce that form the staple of the forest, an open and cultivated valley lies before us, through which a stream passes. Turning from the high-road we approach a cluster of buildings, the most prominent of which is the station of Tomlevolden. A very evident improvement takes place in the character of the houses of entertainment as we advance towards the southern capital—Tomlevolden is a present instance in its arrangements and accommodations; it is certainly a great improvement on establishments farther North. Having found the trout especially good, one of my first inquiries was invariably for *fisk*—and here, close by waters famous for fish, I was told there was none in the larder; and, I suppose, observing my disappointment, the landlord went off with a sack, and was not long before he returned with two fine fish—one a lake trout of 12 to 14 lb.

Fir woods spread widely over the country between this station and Christiania, giving it the appearance of a vast forest, occasional clearings occurring with tolerable regularity. Towards the lower part of the slope of the hill the individual trees appear to increase in vigour and altitude. Some lovely groups of Birch stood in clusters in the more open land below the station.

In our highly cultivated country it is rare to find forests that have escaped the controlling hand of man, or that have not been brought into existence by his means. It is all the more interesting to visit these wild Norwegian woods of Fir and Pine, in which we may see the slow but inevitable operation of the law that ordains the destruction of the weak, the survival of the strong, and where similar results in the production of timber are attained as when the energies and intelligence of man have been brought to bear upon the subject. In the one case the waste of life and material according to our view is excessive, as in the struggle for supremacy that is perpetually going on the old, the weak, the unhealthy are thrust on one side to perish—the result of their decay, assisted by insect agency, being to fertilise the ground. In the other case we direct, appropriate, and apply to economic purposes, apart from the sustenance of the forest, all that we deem in excess of an estimated proportion. Nature destroys to save. In these natural forests we find in various groups trees of every age and size attainable by the Fir tribe; the tall and vigorous trees that have fought out the problem of might overtopping the less robust seem to revel in the advantage they have gained. Trees of less altitude within this group show signs of languishing—they are gradually losing the free exposure they love and the soil that sustains them; others, again, of lesser growth, have already perished, and seedlings of a year old have sprung up, finding breathing space amidst the wreck of the decaying trees above them; and thus the great struggle for existence goes on unceasingly. Beneath the trees, and completely covering the ground, there is a great pile-carpet of moss, hypnum, sphagnum, and here and there Lycopodium clavatum, taking little from the ground but largely from the atmosphere: the decay of these mosses gives to the ground the vegetable *pabulum* required for fertility; and yet another influence is at work—colonies of the great ant have reared their habitations thickly through the forest. These creatures assist in the destruction of decaying vegetable matter, and in their turn enrich the land that supports them. Streaming like hair from every dead and living bough, the Pine moss, Usnea longissima, waves its long green tresses, and gives the wood a strange and weird appearance.

It would be difficult to overrate the economic value of the Birch tree to the people of Norway, as it would be impossible to enumerate all the purposes to which it is applied. It affords the requisite material for all descriptions of furniture and fancy articles; its boughs feed the stock during the winter; its bark roofs the houses, forming a durable and weather-proof covering—indeed, it is said to last forty years; its thinner shoots are twisted and replace cordage; it is used in harness; hobbles are made that no horse can break; it fastens the oar to the thole-

pin in boats, it binds up fences, it hinges gates. It is a circumstance to be remarked that the bark is exceedingly thick, much thicker than Birch bark is in England, and in its substance can be detected a gummy secretion, developed by the tree to a much greater extent than in countries less inclement. It would seem that trees, like animals, don a thicker covering to preserve the parts where the vital energies are most active.

The Spruce, Abies excelsa, has a wide range in Norway. Altitude does not altogether govern its distribution. Its occurrence and absence in certain districts are not easily explicable; exhaustion of the ground may in some instances explain its extinction. About Bergen it was largely felled by the people established by the Hanseatic League, and the forests have not been restored, although much required. The best and most vigorous trees that came under my observation were growing on the rocky slopes of mountains, where the broken and scattered masses of rock had arrested the waste that vegetation and atmospheric action gradually produces.

The trade in timber is of considerable importance — 40,000 tons of shipping are annually employed in its exportation from Drammen alone. Its employment in the smelting of iron is restricted, and wisely, as an abundant supply of wood is essential to the very existence of the nation.

Before I pass from this subject I may remark that a correspondent of the *Garden*, writing under the heading of "The Scotch Pine," puts himself to the trouble of correcting what he supposes to be a mistake in my remarks regarding the relative magnitude of Pinus sylvestris in England and Norway. He unwittingly furnishes me with an additional illustration of what I said—which must be clear enough to any ordinary reader—that finer examples of both Pinus sylvestris and the Spruce Fir could be found in England than on their native hills—England being understood to mean the United Kingdom, and their native hills Norway. And this writer from the North, who is so irate at the supposed slight put upon his country, is probably unaware that Pinus sylvestris, or what is called the Scotch Pine, is indigenous to Norway, and, growing there, is strictly on its native hills. *William Ingram, Belvoir.*

(*To be continued.*)

New Garden Plants.

Polystichum lepidocaulon (Aspidium lepidocaulon, *Hooker, Sp. Fil.* iv. 12, t. 217; *Hooker and Baker, Syn. Fil.* 250).*

This remarkable Fern, which is a native of Japan and Tsus-Sima, has been recently introduced to our gardens by Mr. B. S. Williams, of Holloway, from whose plant our illustration (fig. 36) is taken. The plant has at first sight all the aspect of a Cyrtomium, and, in fact, it comes near to that genus in the occasional though rare and casual anastomosing of the veins, which are nevertheless so generally free that we prefer to place it in Polystichum. It is an evergreen Fern of moderate size, the fronds being a foot or more in length, narrow, but broadest at the base, and either acuminate at the apex, or prolonged and proliferous, as is the case with the form introduced by Mr. Williams. The pinnæ are narrow, lanceolate-falcate, with a sharp auricle, in this respect resembling P. falcinellum, but with the pinnæ more distant. The sori form a line on both sides of and near the rachis, supplemented sometimes by another exterior shorter line near the base. The dimorphous and fringed brown scales of the stipes are remarkable, and have suggested the name; similar scales are continued thickly up the rachis, and are also scattered more sparingly over the under surface of the frond.

This Fern will probably prove a hardy plant, or, if not, will certainly grow freely in a cold greenhouse. As a garden plant, it will surely be appreciated for its beauty, of which our figure gives a good representation, while its evergreen character will make it all the more desirable from a decorative point of view. *T. Moore.*

Vanda undulata, *Lindl.**

The flowers of this Vanda are nearly stellate. The very much undulated lanceolate sepals and petals make one think of some small Methonica; both those organs are rather fleshy, cream-white, the ends of the sepals green. The side laciniæ of the nearly boat-shaped lip is greenish, with brown stripes internally; the middle part of it has a purplish middle line, and some fresh stripes are to be seen in the internal basilar hollow, where are also some very short hairs. The flowers do not exceed those of a good variety of Odontoglossum nævium.

This plant is an extraordinary curiosity. For many years—since 1858—it was only known to the scientific world by Dr. Lindley's short description. He called it a fine addition; he had, however, never seen the plant—he only saw a drawing out of the Cathcartian collection, obtained by the kindness of Dr. Hooker. Thus matters stood for a very long time, when last year the unexpected plant appeared in England, in the garden of the Earl of Lovelace, East Horsley Towers, Ripley, Surrey, grown by Mr. R. Miller, who has been so kind as to send me, just now, an inflorescence and a leaf. Mr. Miller knows nothing about its origin, save that it comes from India. After all the plant is a great botanic curiosity, but not what amateurs like, though the shining foliage would appear rather nice. I have placed the species under Fieldia, which I accept as a separate genus; but I do not care to trouble amateurs with my private views, the more so as amateurs will ever be high Tories, keeping up a certain aristocratic conservatism. *H. G. Rchb. f.*

ROSE CULTURE AND OTTO OF ROSES.

It is much to be regretted that there exist no official records or trustworthy information on the culture of Roses for making "attar" or otto. Private enterprise, however, has to a certain extent lately supplied the want, and the following particulars, compiled from data furnished to Mr. Dupuis, Her Britannic Majesty's Vice-Consul at Adrianople, by Messrs. Pappazoglou Brothers, horticulturists and Rose oil merchants of Constantinople and Kazanjik, the latter being the centre of the Rose-growing district, may not be uninteresting to our readers.

The Rose plant is cultivated largely in the northern parts of Roumelia (ancient Thrace), at the foot of the Balkan Mountains, where it thrives in a sandy soil on sloping land well exposed to the rays of the sun. The process of planting takes place during spring and autumn, as follows:—

Young Rose twigs are torn (not cut) from the parent plant, so that each twig may carry with it a portion of the adhering roots. Parallel trenches are then dug about 5 feet apart and 1 foot in depth and breadth, in which the twigs are aid almost horizontally, so as to form a continuous row; the whole is covered with earth from the sides of the trenches, and well trodden down, care being taken to mix with the covering earth a fair proportion of manure.

The process of planting being thus completed, young shoots will, under favourable circumstances, appear at the end of about six months, and if the earth be then carefully loosened about their base they soon develope themselves rapidly. In twelve months the plants attain to a height of some 12 or 13 inches, and at the end of the second year yield a few blossoms, and begin to assume a bushy appearance; in the third year the yield of blossom is turned to account, and at the end of the fifth the plants attain their greatest vigour, having reached an average height of about 6 feet.

The Rose plant is not pruned as is the Vine, but care is taken to free it from dead and withered branches whenever they may chance to appear, and the earth about the roots is loosened and turned over about four times a year, the manure being renewed at least once in two years.

Harvesting commences in the month of May and lasts some twenty days, during which the process of distillation is carried on. The flowers are gathered in the early morning by hand, detaching each blossom from its stem without touching the unopened bud, and this operation is repeated day by day until the plants are entirely denuded of their flowers. When the crop is abundant, and the flowers cannot be gathered during the morning, it unfortunately happens that a great part of the blossoms is necessarily much exposed to the sun, in which case the yield, besides being inferior in quality, is hastened in the process of distillation, and a consequent deterioration in the essence ensues. Whereas if the flowers develope slowly, and the work is not unduly hurried, the reverse is the case.

The process of extracting the attar or Rose-oil is somewhat primitive, the appliances consisting mainly of a convex copper boiler, narrowed at the top to a neck surmounted by a head-piece fitting into it, from which a straight condensing tube passes through a tub of cold water into a receiver. The boiler contains probably about 240 lb. of water, and the principle consists in the distillation of this water mixed with a proportionate quantity of Roses, generally about 25 lb., the boiler being then about three-fourths full. The steam engendered by this process carries with it volatilised particles of the flowers, the result being a troubled and somewhat murky fluid, familiarly known to us as Rose-water. The process is then repeated until a quantity of liquid equal only in weight to the mass of Roses originally put in the boiler is obtained, when the residuum is emptied out, and the operation gone over again with a fresh gathering of flowers.

So far, however, Rose-water only is obtained, and in order to extract the essence this is subjected to further distillation, until the fluid is so far condensed that a yellowish liquid is perceived to be floating on its surface, which is the attar or essential oil of Roses, which is collected by means of a funnel-shaped spoon provided with a small aperture sufficient to allow the free passage of the water without permitting the oil to escape.

The yield of the Rose crop, and the quality of the Rose, of course vary greatly under favourable or unfavourable circumstances, but it may be stated that on an average it requires 7200 lb. of flowers to produce about 2¼ lb. of attar.

No precise information seems to exist in Turkey as to the true botanical name of the plant yielding the attar; it suffices for the growers to know that they possess the plant. But Dr. Hochstetter, of Vienna, in a report to the Geographical Society of that city in 1869, observes that the most important species of Roses planted in the Vilayet are the R. damascena, R. sempervirens and R. moschata, and that the last-named affords the chief ingredient of the attar. The natives are unable to determine for themselves the names of the three varieties, and doubts exist as to whether the R. sempervirens can be grown for the purposes of distillation. *C. P.* [Mr. Baker has recently determined that the Balkan specimens are mainly composed of Rosa damascena. See *Journ. Bot.*, n. s., iv. 8. Eds.]

ELEMENTARY LESSONS IN BOTANICAL GEOGRAPHY.

(*Continued from p.* 139.)

IV.—On the Botanical Characteristics of the Zones of Heat.

When we have ascertained what is technically called the habitat of a species, whether it be a roadside plant, or a swamp plant, or a parasite, or an inhabitant of woods or meadows, the next thing to do is to study the flexibility of its constitution in regard to heat. Over about half the area of the land, that is to say, within the torrid zone, and for a space beyond its limits, heat plays only a secondary part in plant distribution, because there is always as much heat anywhere as any plant needs to grow with, and there is no danger of its being checked in its growth or killed by cold. Within this tract moisture is the main determining agent in plant distribution, but, taking the earth as a whole, the distribution of heat is the most important element of influence.

Orders, genera, and species are very different in the flexibility of their constitution, and in the amount of change to which they can adapt themselves. Out of the 200 known natural orders, there is but a small proportion that are thoroughly at home in all the four zones of heat. We have examples of orders that sweep the whole range of the four zones in Compositæ, Leguminosæ, Cyperaceæ, Gramineæ, Ferns, Rosaceæ, Onagraceæ, Naiadaceæ, Scrophulariaceæ, Plantaginaceæ, Saxifragaceæ, Equisetaceæ, and Lycopodiaceæ—some of which are large orders, and some small, but all of them are thoroughly cosmopolitan, being represented in all latitudes and longitudes. Out of the 10,000 known genera the number that sweep the whole range is very small. We have examples of such in Senecio, Lotus, Rubus, Polygala, Potamo-

* *Polystichum lepidocaulon.*—Fronds elongate-ovate, lengthened, and often proliferous at point, pinnated, subcoriaceous; pinnæ rather numerous, almost sessile, auriculate on the anterior side; the auricle triangular, tapered off below, 2—3 inches long, falcately lanceolate, acuminate, entire or obscurely crenate; upper pinnæ diminishing, and at length confluent into the pinnatifid apex; sori mostly in two rows near the midrib; stipes and rachis densely clothed with large, broad, ovate-acuminate, ciliated dark brown scales, intermixed with large subulate spreading ones.

* *Vanda undulata*, Lindl.—Foliis ligulatis valde coriaceis apice obtuse ac inæqualiter bilobis; racemis paucifloris; floribus approximatis; bracteis triangulis ovariis pedicellatis multoties brevioribus; sepalis tepalisque cuneato lanceolatis acutis undulatis reflexis; labello trilobo; laciniis lateralibus semi-oblongis ima basi cum columna brevi truncata connatis; fundo cymbiformi; lacinia antica valde carnosa crassa triangula sub apice conico carnoso gutturosa; callo depresso quadrato valde obscuro in fundo; pilis quibusdam asperulis in linea mediana superiore. —*Vanda undulata*, Lindl., Proc. Linn. Soc. iii., p. 42.

Fig. 36.—Polystichum lepidocaulon.

geton, Gnaphalium, Plantago, Typha, Oxalis, and Nasturtium. Of species thoroughly at home in all four it is difficult to find a satisfactory example. Some aquatics, like Ceratophyllum demersum, Potamogeton lucens, pectinatus, and pusillus, are the most thoroughly independent of solar heat of all known plants, and extend their range into all the four zones. Amongst land plants a few annual weeds, Ferns, and small perennial herbs, such as Cerastium glomeratum, Capsella bursa-pastoris, Sonchus arvensis, S. asper, S. oleraceus, Plantago major, Aspidium aculeatum, Nephrodium Filix-mas, and Athyrium Filix-fœmina, pass within the bounds of all the four zones, but none of these can fairly be considered as more than stragglers into the warmest. Pteris aquilina is plentiful in the woods on the banks of the Amazon, and gets up into Lapland, but generally stops short on the hills at the upper limit of cultivation. Of species quite at home in the three warmer zones we have many instances amongst water plants, perennial herbs, and annual weeds, such as Ruppia maritima, Typha angustifolia, Lemna minor, Drosera longifolia, Oxalis corniculata, Bidens bipinnata, Solanum nigrum, Gnaphalium luteo-album, Elephantopus scaber, Mikania scandens, Panicum Crus-galli, Juncus tenuis, Cynodon Dactylon, and Eragrostis pœoides. But none of the plants which are cultivated on a grand scale for the use of man, and no shrubby or woody plants, are sufficiently flexible in constitution to grow in more than two out of these four heat-zones.

Probably at least three-quarters of the known species are concentrated in the two warmer zones. It does not always follow that in any tract of country where there is a luxuriant vegetation there is a great number of species, or that the number of species is always small when the vegetation is poor. We have a good instance to the contrary of the last of these two propositions in Cape Colony, which consists to a large extent of grassy plains and barren sandy deserts, and which yet produces nearly as many species of plants as Europe within about a quarter of its geographical area. We have a case of a small flora constituting a luxuriant vegetation in Ireland, where the number of species is not more than 1000, and where a few heath and swamp species growing in enormous quantity cover large tracts of surface. For about 40° on each side of the equator—that is to say, till we reach the polar boundary of the warm-temperate zone—there is not any lowering of the average number of flowering plants in a given area, and that number is larger than it is anywhere else in the world. But as soon as we pass from the two warmer of the four heat-zones into the region where winter comes in as a real check to vegetation, the number of species begins to lessen, and it goes on lessening in about the same proportion as the winter increases in length and intensity, till at last the flora within the whole round of the arctic circle falls short of 800 flowering plants.

Taking these four heat-zones one by one, the following are their principal characteristics:—

1. *The Torrid, or Intertropical Zone*, includes a belt round the world 3300 miles broad, with the equator for its centre, and, of the total 52,000,000 square miles of land, takes up not less than 21,000,000 square miles, or about two-fifths of the whole, about half of which is included in tropical Africa, and the other half almost equally divided between tropical America and tropical Asia, including along with the latter Polynesia and tropical Australia.

Of this 20,000,000 square miles a large part is not suitable for the production of plants under a continuous torrid heat. In the immense compact mass

of tropical Africa in particular, there is a vast tract of arid desert, and in the heart of South America there is also much bare sandy desert country; but in the Asiatic and Polynesian portion of the zone the relative distribution of sea and land is eminently conducive to plant growth; and in those regions where moisture and soil are suitable, such as the Gold Coast and Senegal in Africa—in Asia, the jungles of Ceylon, the Bombay ghauts, the Neilgherries, Birma, the Malay peninsula, Java, Borneo, and Sumatra—the numberless islands of Polynesia—in America, the dense primeval forests of the banks of the Amazon and its tributaries, Nicaragua, Panama, the West Indies, and the belt along the coast of Brazil from Pernambuco to Rio Janeiro, which constitutes the *regio dryadum* of Martius, we have an energy and richness and luxuriance of forest vegetation far beyond that of any other part of the world.

The leading features that give the characteristic general tone to the vegetable physignomy of the intertropical zone are the following:—1. The richness and luxuriance of the forest-vegetation in these favourable places; huge trees whose evergreen leaves form overhead a covering of perpetual shade which the sun's rays cannot penetrate, bound together by tangled masses of interlacing woody climbers, and the fallen trunks and rocks overgrown, not, as in temperate regions, by mosses and lichens, but by climbing Ferns, Aroids, Bromeliaceæ, Orchids, and other monocotyledonous and dicotyledonous epiphytes. 2. The large proportion of the total number of plants that are either trees or shrubs, not herbs, even the annuals that spring up during the rainy season, such as Corchorus, Grewia, Sesbania, Sida, Triumfetta, and Crotalaria, assuming a half-shrubby character, like the bushes of temperate regions. 3. The variety of the forest vegetation, different kinds of trees, climber and epiphyte being so mixed up together that it is often difficult for a collector to see to what a fallen fruit belongs — the woods being made not of a large number of trees of the same kind, like our European Pine woods, Oak woods, and Birch woods, or the same bush covering large tracts of surface, like our Heather, Furze, and Brambles. 4. The absence of greensward and terrestrial mosses and lichens. 5. The presence of arborescent Ferns and monocotyledons, which are almost confined to this intertropical zone, and several of which, Palms, Bamboos, Tree Ferns and Pandani, are types that strongly affect the general aspect of the vegetation. 6. The presence in the forests of a crowd of climbing shrubs, principally dicotyledons, a type of form which is almost restricted to this zone. Of these we have examples in Paullinia, Serjania, Gouania, Lygodium, Ficus, Echites, and a crowd of Leguminosæ, Malpighiaceæ, and Bignoniaceæ. 7. The presence of several peculiar types, composed of a large number of species, which possess in common a highly differentiated aspect, as Peppers, Begonias, Gingers, epiphytic Orchids, Bromeliaceæ (confined to America), Figs and Dorstenias. 8. The presence on muddy seashores of groves of interlacing trees, with broad entire coriaceous leaves, as Rhizophora, Bruguiera, Ceriops, Avicennia and Barringtonia.

We cannot count the whole flora of this zone at less than 40,000 species, already known, out of a total of 100,000 in the world. Only a small proportion of these extend their range beyond one of the three great continents, and a considerable part of its area still remains to be botanically explored, and there are in our herbaria crowds of species yet unnamed and undescribed. The following natural orders are either restricted to this zone, or run out rapidly when its bounds are crossed, viz., Anonaceæ, Menispermaceæ, Capparidaceæ, Bixaceæ, Guttiferæ, Bombaceæ, Dipterocarpaceæ, Vochysiaceæ, Malpighiaceæ, Simarubeæ, Ochnaceæ, Burseraceæ, Meliaceæ, Sapindaceæ, Dalbergieæ, Sophoreæ, Cæsalpineæ, Chrysobalaneæ, Connaraceæ, Melastomaceæ, Lecythideæ, Turneraceæ, Passifloraceæ, Rhizophoreæ, Cinchoneæ, Vernoniaceæ, Eupatoriaceæ, Sapotaceæ, Ebenaceæ, Myrsinaceæ, Apocynaceæ, Loganiaceæ, Cordiaceæ, Gesneraceæ, Cyrtandraceæ, shrubby Verbenaceæ, Acanthaceæ, Lauraceæ, Myristicaceæ, Artocarpeæ, Moreæ, Palms, Pandanaceæ, epiphytic Orchidaceæ, Zingiberaceæ, Marantaceæ, Commelynaceæ, Smilaceæ, Dioscoreaceæ, Podostemaceæ, Burmanniaceæ, Chlorideæ, Panicеæ, Andropogoneæ, Cyatheaceæ, Hymenophyllaceæ, and Marattiaceæ.

Amongst large genera concentrated here not included in the orders already mentioned are Grewia, Sida, Corchorus, Zizyphus, Crotalaria, Tephrosia, Mucuna, Mimosa, Vigna, Eugenia, Loranthus, Blumea, Hyptis, Ipomœa, Plectranthus, Physalis, Phyllanthus, Croton, Coccoloba, Pilea, Elatostemma, Dorstenia, Pisonia, Boerhaavia, Cyperus, Fimbristylis, Eragrostis, Lindsaya, and Adiantum.

Of plants cultivated on a large scale for the use of man the following are more or less characteristic of the intertropical zone. Amongst roots yielding farina the Yam, Batatas, Tacca, Arrow-root, Manihot, Caladium, and Colocasia; the various Palms and Cycads from the pith of which sago is made (Sagus Phœnix, Corypha, Cycas). Of farinaceous grains, Rice, Maize, Arachis, Voandezia, Sorghum, Penicillaria, Eleusine coracana, Panicum miliaceum and frumentorum, Poa abyssinica, Trapa, Cajanus, Phaseolus Mungo, and Dolichos Lablab. Amongst Nuts, the Cocoa-nut and Brazil-nut. Amongst fruits, the Mango, Custard-apple, Guava, Jambosa, Bread-fruit, Banana, Date, Tamarind, Papaw, Granadilla, Jujube, Averrhoa, and Betel-nut. Amongst dyes and scents, Vanilla, Gamboge, Indigo, Logwood, and Henna. Amongst oil-yielding plants, the Oil-Palm (Elais), Sesamum and Castor-oil. Of beverages, Coffee and Cocoa. Of spices, Sugar, Nutmegs, Cloves, Cinnamon, and Capsicum. Of fibre-yielding plants, Cotton, Corchorus, Broussonetia, and Sanseviera; and amongst valuable woods, Rosewood, Teak, and Ebony. *J. G. B.*

A PLEA FOR MOSSES.—I.

I DO not remember to have ever seen the mosses in greater beauty than they were in January. Probably, owing to the long-continued frost and snow, to which we have been of late years unaccustomed, the eye got weary of colour and was ravenous for green (in botany white is reckoned a colour and green is none), and the cleansing and fertilising effects of a top-dressing of snow are very apparent on this class of cryptogamic plants. Whatever be the reason, they were unusually vivid and fine, and I was stirred up to refresh my very scanty knowledge of them, acquired ong ago.

One would think that botany can only be prosecuted in summer, or at best spring, as it is always in these seasons that beginners commence. Now I do not think that a Tulip (the first flower given to the botanical student) will be found more difficult to handle and dissect if the eye has been trained to see and observe the various species of our common mosses for a couple of months previously. No preparation of shining vasculum, with stiff leather strap and deadly sharp spud, is needful; pockets, eyes, and hands, are all that is required. True, a microscope will alone exhibit certain portions and distinctions in these minute plants; but let us begin with surely knowing those we see with our naked eye everywhere, in the country, in the outskirts of towns, in the most exhausted town square gardens, back greens, paved yards, boundary walls of stone or brick, or roofs of tile or slates. No town hedge or paling is too scrubby for mosses, and, in short, there is no excuse for not finding mosses, if only there is the wish to do so.

The study of mosses or other cryptogamic vegetation is more likely to make a botanist than that of any other class of plants. All the year round they can be studied. If inconvenient to examine them when first collected, they will keep an unlimited time; even when dried for the herbarium, sprinkling and moistening will renovate them; and as for travelling, they certainly are the easiest plants to collect and carry about. It is not to be expected that the amateur will ever master every species of even one genus. Of Hypnum alone there are above ninety species in Britain, but there is no difficulty in distinguishing a Hypnum from a Bryum, a Polytrichum from Bartramia, a Dicranum from a Grimmia, Fontinalis from a Tortula, &c.; nor does it require much knowledge to know that we need not look for Sphagnum overrun with Drosera rotundifolia (Sundew), and Vaccinium Oxycoccos (Cranberry) on the top of a wall, or Tortula and Grimmia associated with Draba verna (Whitlow-grass) and Sedum acre (Stonecrop) in a bog, nor Polytrichum in running streams with Fontinalis antipyretica. This last is a very interesting moss, and grows rapidly in a fresh-water aquarium, even when not attached to a stone, but it is best to select a nice tuft growing on a fragment of rock of suitable size for the dish.

All plants look best growing in their natural states and localities; but mosses lose less than any other tribe when transplanted, and to familiarise oneself with the different species it is essential to have them actually under one's eye. This is most easily done, and they form, I was going to say, the most beautiful groups for the room. They cannot be killed, are no trouble, bear utter neglect, and cause no mess or litter. When sprinkled or watered with a fine rose (which is all the care they require, even when kept to fruit for identification of a doubtful specimen) the mosses have their own delightful woodland open-air smell.

We have had several common Fern-glasses filled with different sorts for weeks past, and they are a constant source of interest and admiration, particularly at night when the strong light from a green-shaded reading lamp is thrown down on them; then, indeed, it is like fairyland, and, of course, one can enjoy their beauty without knowing their names or peculiarities, but that is a very curtailed enjoyment. The first point is to collect them yourself, and then there is no chance of forgetting where and how they grow. One dish, 13 inches in diameter, contains about two score of nice patches, viz., the largest British moss, Polytrichum commune (Hair-moss), with fine fruit, large enough to catch the eye when walking along a path, and the only moss whose seed-vessel one can actually handle without a lens. Pulling off the calyptra or hood, and exposing the oblong quadrangular capsule or seed-vessel, one finds how wonderfully tough and persistent is the seta, or footstalk of mosses; they continue standing up long after the capsule casts off its operculum or lid, and scatters its spores. The seeds have, however, another protection in the shape of a delicate fringe at the mouth of the capsule, called the peristome, which comes into use when the operculum has dropped off. Next to this handsome Hair-moss comes Hypnum sericeum (Feather-moss), pressed against the side of the glass, so that the beautiful forked way in which the young portions grow may be seen; but a grey wall is the place to see this beauty in perfection, and the time now, when it is of a bright yellow colour: the patterns it makes on the stone would be well worthy of being used for borders of papers, "running patterns" on muslins, &c. It would be well if the unmeaning branching lines and dots and holes of embroidery patterns had "no sale," and mosses copied from life were used instead, they are so perfectly suitable and so delicately varied in their outlines. Hypnum proliferum or tamariscinum (Proliferous Feather-moss) comes next. It is a moss that always attracts, the distinct feathers of yellow-green rising well above the creeping stems. One has no right to expect anything real about an artificial flower, but it is this Hypnum which is used in imitating Moss Roses.

There are two grand divisions of mosses: 1, those that have their capsules at the summit of the branches (terminal); and 2, those that have their fruit-stalks from the side of the branches (lateral). Polytrichum belongs to the first division, and Hypnum to the second. A fine dark cushion of Tortula muralis (Wall Screw-moss) and a bright green one of Bartramia pomiformis (Common Apple-moss), divide the two Hypnums in our dish; both are terminal mosses and loaded with fruit—the Bartramia capsule is round like an Apple, that of Tortula is oblong. I am always sorry to have to cement or lime our walls and copings, as I love to see them regularly pointed with these neat tidy mosses of softest texture, or a mass of bristles stiff to the touch, according to their age. After rain or a heavy fog one wonders at the strength of these bristles; there will be a drop hanging on the capsule six times its own size and weight, but the sturdy little seta hardly bends—and cobwebs, concave and opaque with moisture, and almost hiding the mosses below them (which webs, if dry, the naked eye would barely see), are another set of threads that make one pause and think of the mighty power of little things. Against the sky these cushion-mosses show well, and are most conveniently placed to be seen by sunshine, or in a foggy day, with different but pleasing effects from either state of weather. The little Grimmia pulvinata (Grey-cushioned Grimmia) is better seen on its wall-top than in the glass dish. It is loaded with fruit, whether ripe or unripe requires a lens to decide, and more knowledge than the mere fact of its being a Grimmia requires. Edinburgh is particularly rich in Grimmias. Mr. Sadler states, in a paper read before the British Association at the meeting in 1871, "that perhaps in no district of equal size in Britain would so large a number of species of this genus be found." "At one part of the hill (Arthur's Seat) there is an area of very limited extent, where the whole of the species which occur on the hill can be collected in a very few minutes," eleven species (besides varieties), including the rare G. anodon, first discovered there as a British moss, and which, as yet, Mr. Sadler told me, is elsewhere only found in Africa.

However, these minute mosses may not be so attractive to the beginner as some of larger growth. Bryum ligulatum (Long-leaved Thyme Thread-moss) is distinct, both in its "elegant tree-like branches and pale green waved foliage" (Stark's *Popular History of British Mosses*—the quotation is, I believe, a reprint from Smith's *Flora*), forms a good contrast to the cushions; and, next the Bryum, is a solid lump of Sphagnum rubellum (Bog-moss), out of which I had not the heart to draw the little evergreen Cranberry, easier seen now when the bog-mosses are not at their full growth. In July this Sphagnum will be in ripe fruit, terminal, and of so bright red a colour that one has to look close to distinguish Drosera with its fringed edges of red hairs. S. cymbifolium, of long straggling growth, is also not at its best; one can split with the finger-nail its erect-growing capsule, causing a distinct little sound. The Sphagnums form a complete variety to Dicranum scoparium (Broom Fork-moss), which reminds one somewhat of Polytrichum in its growth and dark green colour; it also is one of the terminal division of mosses, is very common, and has a long beak to the operculum (lid). Two Hypnums, H. Schreberi (Schreber's Feather-moss), so common among grass and much used for packing plants when Sphagnum is not to be had, and H. striatum (Common Striated Feather-moss), found everywhere, and a good variety for covering the sur-

face of pots or lining baskets containing plants as it can be got in large pieces, fill up the bottom of the dish, just leaving room for a little cluster of the pretty "red tipped lichen" (Cladonia coccifera) which one finds in dry portions of bogs and bare places among the heather, and a group or two of another well known and attractive lichen, Scyphophorus pyxidatus (Fairy Cups), frosted and powdered with silver, as it were.

Such are the most distinctive contents of moss-dish No. 1. In another paper I may note the contents of dish No. 2. *F. J. Hope, Wardie Lodge, Edinburgh.*

THE CONSERVATORY AT LUTON HOO PARK.

The exterior of the north wing of the fine mansion at Luton Hoo Park, Beds, the residence of Gerard Leigh, Esq., was built by the late Marquis of Bute, while the interior remained quite unfinished, and looked like a vast barn without flooring or divisions of any sort, until the year 1873, when operations were commenced, and the whole work of converting the greater portion into a beautiful chapel, and the remaining space into a large number of bedrooms, offices, &c., was finished by the present owner in magnificent style. In order to obtain easy access from the other portion of the mansion to the chapel it was considered necessary to continue the already grand corridor the whole length of the house, and, in doing so, it was deemed advisable to convert the centre part into a conservatory, so as to obtain more light, which is the great drawback to this otherwise unique corridor. Unlike the other portion, the ceiling here is flat and divided into panels, with lanterns in each panel. On the left-hand side are glass windows, and on the right is the side wall which separates it from the dining-room, which is painted with different subjects in oil, such as Musa Cavendishii in fruit, Orchids in bloom, Cissus discolor climbing about, tropical birds, monkeys, butterflies, &c. Access to the dining-room is gained through this wall, and visitors can pass through the conservatory to the billiard-room, the door of which is seen at the end of the return path (fig. 37). The floor is paved with richly-arranged marbles, polished. To prevent their being stained with dirty water or marked with flower-pots it was suggested that wire stands should be used for the plants; these stands are provided with zinc trays with a draw-off tap in each, which allows all stagnant water to be removed, and also prevents it running through to the floor. There are eight stands, and, as partially shown in the engraving, they form a graceful outline, far preferable to the old formal stand, with tier above tier. They are provided with wire "boxes," the shape of the stand, for Lycopodiums, and, in order to keep up a succession, two sets are supplied; these "boxes," when well furnished, impart a pleasing and refreshing edging. It will be observed that the legs that support the stands are set well back, they are, therefore, quite out of the sweep of ladies' dresses, &c.

To lessen the formality of this structure it was thought that wire canopies, supported on wire columns, and creepers trained over them, would enhance its beauty and interest, which has been fully realised, for the effect is charming. Of course the creepers are grown elsewhere, and brought here and tied up. The whole of this wirework has been substantially executed by Mr. R. Holliday, of Portobello Terrace, Notting Hill Gate, and reflects great credit on his abilities as a wireworker and designer.

Most cultivators know full well that structures of this kind are most difficult to manage, and they must have a great deal of care and attention bestowed on them to be at all successful; this is in a great measure due to the dry arid atmosphere and deficiency of light. However, by a judicious selection of foliage plants with dry leathery or wiry leaves and Ferns, an interesting display may be kept up throughout the year. Flowering plants, as a rule, do not succeed well, the summer season especially being the most unfavourable; but the able gardener, Mr. Budd, has little difficulty in keeping the house gay at this time of the year.

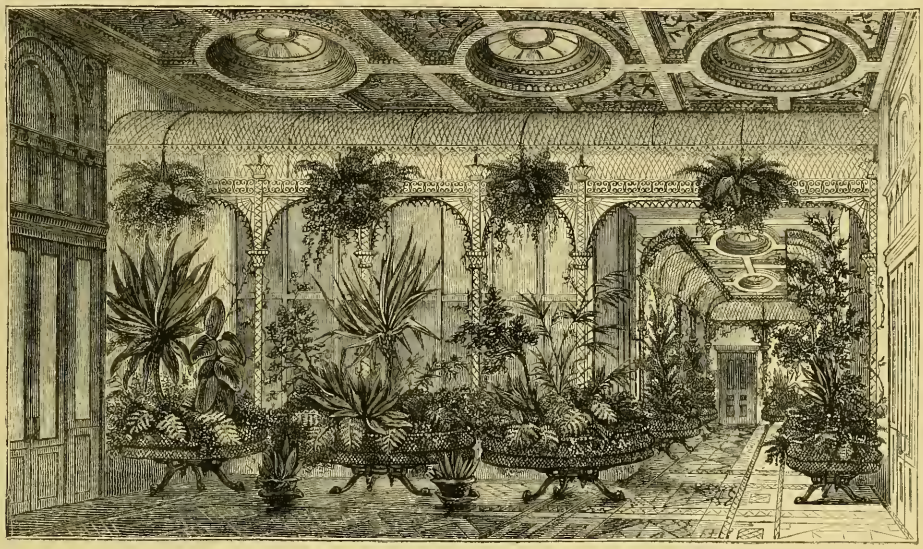


Fig. 37.—CONSERVATORY AT LUTON HOO PARK.

Foreign Correspondence.

Japan.—In his report upon the trade of Kanagawa, Consul Robertson mentions the subject of the Japanese vegetable wax. The trees from which this wax is made are the Urushi or Lacquer tree, the Yama-urushi, the Hage-urushi and the Koga-no-ki. The wax is made from the rind of the fruit. In places where wax is manufactured to any great extent the Urushi is not made use of for its lacquer. As the trees are not cut for several years, they may be seen in the wax-producing districts growing to a height of 35 to 40 feet. In districts where the trees are used for their lacquer or varnish, they are cut every seven or ten years. The mode of obtaining wax from the Urushi or Lacquer tree is as follows:—Late in the autumn the branches heavy with fruit are lopped off and taken into the house. The fruit is pounded up with a pestle and then shaken in a basket-sieve, so as to separate seed from rind. From this rind the wax is made. The mode of expressing it differs here and there, but in no very important particulars. The following method is followed out in Sendai Vaidzu. Boiling water is got ready in an iron cauldron, over which a latticework of sticks is placed, and on these some matting. The sifted rinds of the fruit are then laid out on the matting and steamed, after which they are placed in hempen bags and again steamed. The bag, with its contents, is then put in a wooden trough, wooden wedges or blocks are inserted in the trough and driven home on to the bag with heavy blows from a mallet. An aperture at the bottom of the trough provides for the egress of the wax. The trough and wedges are made of Kiaki wood, and the mallets and blocks of wild Mulberry, a very hard wood, and well suited to the purpose. A small quantity of oil, in the proportion of about one-tenth, is added to the wax to allow of its being expressed more easily. It then goes through another steaming process, and is again pounded in the trough.

Wax from the Yama-urushi, or wild Lacquer tree, is obtained thus:—The fruit is collected at the latter end of the summer, and is at once steamed without being pounded with a pestle, as is the case with the Urushi wax. The wax is purified by melting. A large tub of cold water is taken, and placed under a wooden tank, having a small aperture close to the bottom. The melted wax is then poured into this tank, and escapes through the aperture into the tub beneath. While doing so it is stirred rapidly with the hand, after which it is placed either in matting or in shallow boxes, and dried in the open air for about fifteen days.

The Hage-urushi, from which wax is largely obtained, grows in the south-western portion of the island. This tree was first brought from the Loochoo Islands to Sakurajima, an island near Sakuma. Its production has so increased that there are now no less than seven different species, known as marunsi, yasutomi, inotsume, ogawa, tanaka, fukiaage, and matsu-yama, the last-mentioned being regarded as the best. The Hage-urushi tree is raised from seed or from slips. Koga wax is made from the fruit of the Koga tree, which differs from the Urushi and Hage-urushi trees. It is an evergreen, and is largely grown in Otsugori, in the northern part of Nagato. It flowers in the middle of summer, the fruit ripening in autumn, when it is plucked and soaked in water for four or five days, after which it is trodden out with the feet, thus separating the outer rind. This is then dried and pressed, and the same course pursued as already described. The Koga wax contains a large proportion of natural oil, which in a measure restricts its use to cold and temperate districts. Candles made of it show a very bright light, and if some contrivance could be hit upon for extracting the oil the consumption of this wax would be increased, as it is cheap compared with the other kinds. Refuse wax is used for manuring purposes.

Notices of Books.

THE *Botanical Magazine* has entered upon its 101st volume. It has, we believe, been issued with a degree of regularity and punctuality quite unparalleled from the date of its first establishment by Curtis in 1786, up to the present time. The services of the most eminent botanists and artists have always been secured, and under its present editorship, and with its present artist, its interest and value are well maintained. If we were a more excitable nation than we are, we should ere this have started a centennial celebration of some sort in honour of this publication entering upon its second century of volumes. The February number contains plates of Epidendrum syringothyrsis, a handsome species with dense spikes of purplish flowers. The plant is figured from a specimen which flowered at Messrs. Veitch's. Lilium canadense, var. parvum, is supposed to be a small variety of L. canadense, as its name implies. In any case it is a pretty species, not unlike an Alströmeria in habit. The specimen figured was furnished by Messrs Barr & Sugden. Veronica pinguifolia is a pretty white flowering shrubby plant, hardy at Kew, and reminding one somewhat of a Ledum as to its flowers. Fourcroya Selloa is one of the grand set of similar plants which flowered in (or rather outside of, for their flower-stems protruded high above the roof) the succulent-house during the past autumn. Like other Fourcroyas the flowers were intermixed with bulbils. Senecio macroglossus is a remarkably handsome evergreen climber suitable for greenhouses—for dwelling-room culture even, according to Dr. Hooker. It has glossy, Ivy-like leaves, and produces in midwinter large, clear yellow flowers, which remain for a considerable time in perfection. The plant has been in flower for some time in the succulent-house, where the combination of its Ivy-like leaves with large yellow flowers has created much interest among those who have seen it. This is a plant that should be inquired after by all plant lovers; it is a native of the Cape. The last plate of the present number is devoted to a curious Indian Commelynad, with over-lapping two-ranked leaves, of a bright red colour beneath. The flowers are small, of a pink colour, while the hairs on the stamens are bright blue; the flowers are borne in short clusters at the ends of the branches. Dr. Hooker considers this as the type of a new genus, which he calls Erythrotis Beddomei. The plant is a native of the hills of Southern India, whence it was introduced to Kew by Col. Beddome. It is described as a stove plant well adapted for a warm conservatory in summer, when it may be trained over the pots and made very ornamental. The colour of the under-surface of the leaves fades in winter.

—— The *Journal of Botany* for the present month contains, in addition to articles, notices, &c., which are of purely botanical interest, or which have already been alluded to, a notice of two new species of Ribes from northern China, by Dr. Hance, one of which, R. macrocalyx, has edible fruit. Mr. Duthie continues his list of plants found in the Maltese islands, and Mr. Nicholson his enumeration of the indigenous flora of Kew Gardens. It is remarkable how few garden plant species have become naturalised; even the Galinsoga, which is so common in the adjoining market gardens, is very rare in the pleasure grounds. We have before remarked, with reference to this subject, the fact that in some seasons Erigeron canadense is very abundant on the railway cutting on the up-side at Kew Bridge, while on the opposite side, as also on the North London Railway banks close by, few or no plants of this species are to be seen. A funny story is told with reference to Cypripedium Calceolus (which, by the way, we are happy to learn is not, as was feared, extinct in a wild state). It appears that a gardener confessed to the late Mr. Joseph Woods that he had uprooted a number of plants of this Cypripedium, whereupon Mr. Woods threatened the gardener with a special Act of Parliament, enacted for the express purpose of hanging him—a threat that did not cause so much alarm as might have been wished. For our own parts we would not cut down such an offender if we had the chance!

—— Among recently published books lying on our study table are *Heredity and Hybridism*, by E. W. Cox; *Les Moyens d'Attaque et se Défense chez les Insectes*, by Dr. Candèze of Liege; *Geological Notes on some Portions of Greenland*, by Dr. Robert Brown; *Introduction to Experimental Physics*, by Adolf Weinhold, translated and edited by B. Loewy, with a preface by Prof. Foster.

—— The plates in the November number of the *Gartenflora*, which has lately reached us, are devoted to Tillandsia juncifolia, a narrow-leaved species with violet-coloured flowers; Iris acutiloba, with brown-pink streaked flowers, from the Caucasus; Lithospermum Gastoni, a native of the Pyrenees; and Cereus pectinosus, a Mexican species. Lily growers should be on the outlook, as a correspondent describes in the number of the journal before us a disease of the bulbs of the common white Lily, occasioned by a fungus. M. Salomon contributes a list of the species of Pirus, which will be continued in a future part.

—— The *Florist* for the present month opens with a coloured representation of two new show Pelargoniums of great merit, though to one who is not a specialist there seems a too great similarity to what we already have. The second coloured plate is devoted to the Souvenir du Congrès Pear, a seedling from the well-known "Williams." Mr. Cox commences what promises to be a valuable set of articles on the culture of fruit trees on walls; and Mr. Fish has a characteristic article on the desirability of increasing the consumption of fruit, as a means, amongst other benefits, of reducing the price of meat. Sympathising with much that Mr. Fish says, we yet do not think it would be an advantage to the labourer to adopt an exclusive fruit diet, even if he could; but if by increasing the supply of fruit—in itself a most desirable thing—we can insure a few more pounds of meat to the labourer in the course of a month, all the better; meantime let us have the fruit.

—— A fourth edition of Mr. W. Earley's practical little treatise, entitled *How to Grow Mushrooms* (Bradbury, Agnew & Co.), has been published—a fact sufficiently indicative of its merits.

—— A triple number of the *Illustration Horticole*, for October, November, and December, 1874, is before us. The plates represent × Sciadocalyx Luciani, an interesting hybrid between the beautiful Sciadocalyx digitaliflora and Tydea pardina. If we could be at all sure that what are called genera had a right to that appellation, especially among Gesnerads, the interest attaching to this cross would be great. In any case, for garden purposes a very showy plant has been obtained. Camellia Miss Minnie Merritt is a salmon-pink coloured variety, apparently of good form and substance. Fourcroya Lindeni is a variegated form from New Granada, with leaves 3 feet in length. Dracæna Troubetzkoi is a dwarf form, said to be intermediate between D. regina and D. albicans—the leaves are dark green margined with white. Clavija Rodekiana is a Theophrasta-like plant, with fine foliage and racemes of orange flowers. Spathiphyllum heliconiæfolium is a Peruvian species, originally described by Schott, but now more fully described by M. André: the leaves are 3 feet in length and 1 foot wide, of a rich lustrous green. Dracæna densicoma is shown in flower, the white blossoms being profusely borne in dense pendulous panicles, but surely the artist has left out one segment in nearly every flower—a pentamerous Dracæna would indeed be a curiosity. In any case it is a magnificent plant as to its inflorescence, and is supposed to be a native of New Caledonia or adjacent islands. Kentia Belmoreana is a pinnate-leaved Palm from Lord Howe's Island, and was mentioned in our columns for 1873.

—— Of Professor Baillon's *Histoire des Plantes* (Hachette) we have before us the monographs of Terebinthaceæ, Sapindaceæ, Malpighiaceæ, and Meliaceæ.

—— Among miscellaneous publications which have reached us we may also mention a list of seeds offered for exchange by the Botanic Garden of Claudiopolis, which, after some research, we find means Klausenburg, *alias* Kolozsvar, in Transylvania.

Home Correspondence.

Royal Horticultural Society.—As an old Fellow of this Society, and one who has for years aided in its practical work, I was much disconcerted on reading the recent report of the Council. The only satisfactory part of it is the opening paragraph, wherein it is stated that the shows have been "magnificent displays," and that the plants and flowers at the concluding exhibition "transcended almost all similar collections of former years." This shows at least that the enterprise of the horticultural body has in nowise dimished, and that they have not withheld their support from the present governing body. It is most unfortunate that, in the face of these facts, the Council for want of funds should judge themselves compelled to reduce the prizes during the coming year to the amount of something like £700. To the horticultural mind this looks something like ingratitude. As a rule in life promotion or reward is looked for in return for work well and liberally done, but here we see that rule reversed. It does not seem to me sufficient ground for this line of action to say that "the ordinary revenue of the Society cannot support its expenditure." Every good man of business knows that if he wishes to keep clever and good men attached to him as co-workers in his pursuit he must not only treat them courteously, but pay them liberally. The bright spots in the discussion on Tuesday last were the speeches which, I presume, we may take as expressing the views of Her Majesty's Commissioners. They were candid, calm, and unimpassioned; and there was a breadth about them which contrasted nobly with the waspish personalities and ungenerous inuendos which characterised some of the speeches delivered two years ago. I have always maintained, and still maintain, that the best and most natural alliance for horticulturists is an alliance with Her Majesty's Commissioners. They are pledged to the nation to do nothing antagonistic to the interests of art and science, but to do everything to support and promote them; and I am glad to find that some horticulturists who two years ago took an opposite view have since changed their opinion. I am not antagonistic to the present Council; I sincerely believe that they have done their utmost to serve the interests of the Society; but man cannot do impossibilities. I think from the tone of the meeting last Tuesday it was the opinion of the majority that the Council should work in harmony with Her Majesty's Commissioners. [Hear, hear.] There can be no permanent prosperity and comfort when landlords and tenants disagree. If it is possible for the present Council to work with the Commissioners, I should be sorry to see them resign; but in the interests of horticulture we must have a Council that can do this. One word more: I do hope that at the adjourned meeting no personalities or needless recrimination will be indulged in, or, if so, that the noble Chairman will suppress them, come from whatever quarter they may. There has been too much of that in the past, and no good has come of it, or can come of it. The speaker who is more bent on wounding an adversary than on pushing his own views by force of argument is not worthy to be accepted as a leader, or trusted as an exponent of high and truthful principles. *William Paul, F.R.H.S.*

—— At the present crisis of the Royal Horticultural Society's affairs, I conceive that the policy of the Horticultural Fellows is to request our Council at once to open communications with Her Majesty's Commissioners with a view of transferring to them (the Commissioners) the gardens, under satisfactory arrangements for our debenture-holders, the life and local Fellows, and with a *locus standi* there for our shows and meetings. We have but to be united, and act with vigour and determination, and the thing is done. *John Denny.*

Fuchsias.—As your correspondent, W. B. Hemsley (p. 179), is anxious to know the origin of Fuchsia Riccartoni, allow me to say that when I was a gardener in Ayrshire a young man of the name of Buchanan came from either the Glasgow or Edinburgh Botanic Garden, to be gardener at Caprington Castle, near Riccarton, Kilmarnock. He brought a plant of a seedling Fuchsia with him under the name of a hardy Fuchsia, from Port Famine, on the Southern American coast of Terra del Fuego. This Fuchsia he told me was raised from seed in the Botanic Garden he came from, and I had a plant of it from him, and when propagated introduced it into the neighbouring island of Arran, where the climate was likely to suit it better in the open air than in Ayrshire. Whether he gave it the name of Riccartoni from the suburb of Riccarton, near the Castle, I know not, but the plant is the same, and in the western isles of Scotland, the south of Ireland, and the southern counties of England and Wales, it is hardy, and forms one of the grandest flowering hardy shrubs or trees that has ever been introduced. In a catalogue of indigenous and tropical plants I have cultivated and kept from 1832 until this date, under the heading of Fuchsias are the following old varieties:—coccinea, introduced from Chili in 1788; lycioides, from Chili in 1796; tenella, from Chili, in 1824; virgata, from Chili, in 1825; fexcortica, from New Zealand, in 1825; microphylla, from Mexico, in 1828; and fulgens, from Mexico, in 1837. None of the Chili varieties are so hardy as Riccartoni, for if planted out they require covering up in severe frosty weather even in the south of England. Globosa, conica, gracilis, and other old varieties, which I have likewise grown, are very likely to have been early garden hybrids, as Mr. Hemsley supposes, and raised from magellanica. The Mexican varieties of Fuchsia, fulgens, serratifolia, and others, are tender, and only fit to make fine climbers in greenhouses and conservatories. *William Tillery.*

Stapelia olivacea.—I was rather surprised to find in the notice of this plant at p. 136, that Mr. Brown believes it to be the plant known as S. erucæformis. If the figure is correct, the plants are very distinct, as also is the description. S. erucæformis is little more than half the diameter of the figure of S. olivacea. It is not so deeply sulcate, has black flowers, 1 inch wide; and the marginal ciliæ are black. My plant grew 9 inches high last season, and is always purplish. The one figured is like a plant we have, which came from the Botanic Garden, Oxford, called S. Massoni in error. The name, S. erucæformis, came from Paris. The plant came from Graham's Town in 1868. M. Pfersdorff had it, and got it christened. *J. Croucher, Sudbury House, Hammersmith, Feb. 1.* [We sent

your note to Mr. Brown, who replies as follows:—"In reply to Mr. Croucher, I can only say that I had a plant in cultivation and have seen two others bearing the name of S. erucæformis, which, so far as the plant was concerned, were identical with my S. olivacea, but the flowers of S. erucæformis I have never seen. It is possible they may be different, as Mr. Croucher describes, for in this group of plants there are several species that are almost undistinguishable from one another except by their flowers. But Mr. Croucher says that the plants in themselves are distinct: if this be so, it is only another proof how utterly valueless 'garden names' are, and to which Mr. Croucher seems to attach the same importance as to a published name. I alluded to the name S. erucæformis for two reasons—first, that cultivators might have a better clue to the plant; secondly, that the name erucæformis (caterpillar-like) might be abolished, being an unpublished name, and having no possible application to a Stapelia. As to the nomenclature of the whole group, it is in a most disgraceful state among cultivators, and it was with a view to remedy this evil that I began collecting material for a monograph of them. I have had some dozens of flowers sent to me, but among them all only two (!) were named correctly. Since Mr. Croucher has mentioned the name of S. Massoni, Haw., I may state that I have had five distinct species sent to me under that name; and Mr. Croucher himself, when on a visit to Kew last summer, put this name to two or three specimens (without flowers) of the S. grandiflora type, at which I was considerably astonished, for S. Massoni is a name that cannot be identified with any plant, as Haworth gave no description of it beyond this—that the stems were 4-angled and pubescent, a character common to all of the true genus, or section, Stapelia known to me. Therefore, unless Mr. Croucher can show that he has compared specimens of the plant in question with a *bonâ fide* type of Haworth's S. Massoni, I must refuse to have faith in his determinations, more especially when I find he also gave the name S. fuscata, Jacq, to the common and well-known Tromotriche (Orbea) mutabilis, Jacq. *N. E. Brown.*

Hardiness of the Double Crimson Primrose.—I have just seen a statement by a large firm that they have lost by the recent frost upwards of 2000 of the above. If this is the case, cultivators should be on their guard in future, as this is a new danger. In my experience I never knew any variety of Primula acaulis to suffer the least from frost, even when lying entirely upon the surface. *T. Smith, Newry.*

Ribes sanguineum: Origin of Varieties.—At p. 525, vol. ii., 1874, you express a wish for information upon the origin of varieties. The accompanying very rough sketches show the progress of a fastigiated shoot upon a plant of Ribes sanguineum growing in my garden. In 1870 I observed a straight vertical shoot from an elbow in one of the stems, which assumed a fastigiated character in its side shoots the next year. I encouraged it by shortening the main stem upon which it grew, and some of the others. Last winter I cut away all the other stems, and shortened what had become a branch to about 4 inches. Last year's growth has brought the fastigiated stem to the thickness of the branch, and the height of the tree is about 8 feet. Whether this is an everyday occurrence, or whether it is to be the parent of a race of Ribes sanguineum var. regia, emulating Poplars in height and manner of growth, I am profoundly ignorant, but the facts are simply as I have stated them. *H. K., Sussex.* [The character will doubtless be perpetuated by cuttings, but doubtfully by seed. Eds.]

Myosotis dissitiflora as a Winter Pot Plant.—I have been accused, I believe, of Forget-me-not on the brain. Well, supposing any plant to have a place there, or in my heart either, and a choice were given, I do not know that I could choose any more beautiful or useful; and of all the Forget-me-nots this is undoubtedly the best. It is the earliest, and, properly cultivated, by far the most beautiful. It may be had in flower all the year round. By frequent division, high culture, a proper choice of sites, and giving a fair, well-grown plant the shelter of glass from November to January, or the middle of February, the last batch of autumn and the first batch of spring may be linked together, and then this lovely Forget-me-not will bind the year round with its matchless sprays of blue beauty. Through January and February few plants are more lovely under glass. The plants look best, perhaps, in 4-inch, or at the largest in 6-inch pots. Place well-grown patches in these; they will not only cover the surface, but flow over the sides. Give them a temperature of 45° to 50° till in flower; then range them against well-filled pots of Lily of the Valley, Spiræa japonica, or Deutzia gracilis, and see if the deep blue does not add to the spotless purity of their blanched whiteness; or place the Forget-me-not near to pots of golden Crocuses, mixed Cyclamens, double and single white Chinese Primroses, and the effect is equally good. It it is equally valued for conservatory and greenhouse decoration. And then it is invaluable for cutting. In small vases, with Lily of the Valley, &c., its azure is inimitable, and to bouquets it adds the charm of sentiment as well as the grace of beauty. While this colour contrasts or harmonises, or both, with nearly all other material, I cannot conceive why some one does not go in for it by the thousand for market purposes. Somehow it does not seem at home in London smoke, but there can be no reason why those at some distance from the metropolis should not grow it in quantity—as it is certainly as beautiful as the best of spring flowers—for market purposes. The snow has been merciful to the plant this winter, as out of several thousands I do not think we have lost one. *D. T. Fish.*

Stone Breakers.—A stone-breaker which shall not cost quite as much as £240 is a great desideratum in the country, where the difficulty of getting hand work done is much increased; no other machine than the one I have mentioned above is satisfactory, as the smaller ones on the same principle do not pay their expenses. The principle of the above is faulty in that it makes no use of the weight of the hammer, and also that it wastes great quantities of material in dust and gravel. Such a one as I propose would cost only—Cast steel mortar, two cast steel hammers, £10; framing, upright pistons to act against rollers—altogether within £50, which is within any private gentleman's or farmer's means. *East Somerset.*

Roots from the Leaf-stalk of Celery.—I have just found the piece of Celery which I forward, which is perfectly rooted from a wound in the outward

Fig. 38.—Celery-stalk rooting.

portion of the stem. Has such a thing ever come under your notice? *F. Groombridge, Gr. to Sir Stiles J. Gibbons, Bart., Judge Place, Hurst Green.* [The production of roots under these circumstances has been occasionally observed. We reproduce a woodcut (fig. 38), which almost exactly represents your specimen. Eds.]

Forced Flowers of the Bladder-nut.—I have received from Mr. Dickson, of Covent Garden, some sprays of bloom of this shrub, the introduction of which for market purposes you noticed last week. From the ternate form of the leaf and the looseness of the inflorescence I should have suspected that it would have proved to be Staphylea trifoliata, instead of S. pinnata. [Possibly: when better specimens are before us we will decide. Eds.] I now learn that the grower received his plants under the name of S. escallonioides. Is there such a species? [We can find no trace of this name. Eds.] Of the staying properties of the flowers for use in bouquets there need be no doubt, as I have now in my coat a piece with fifteen open flowers on it, and as many more unopened buds, looking as fresh as when it was cut four days ago, although it has been out of water for the last twenty hours. Its pellucid whiteness by daylight may induce some to think less of it than it deserves; let them see it by lamplight, and they will then change their opinion of it. It is really an acquisition to the *bouquetière. W. T. P.*

Pinus austriaca.—The account of the P. austriaca in your number for January 13 deserves to be noticed by all who, like myself, have planted this tree largely. It grows with me admirably. I have planted it both on moorland and on the sandy shores of the Lough Ennell or Lake Belvedere, some 320 feet above the sea-level. There it has grown luxuriantly, defying the gales which sweep over the lake, brought by the storms of the Atlantic. The P. maritima and insignis, sometimes the Silver, and I hope Picea Nordmanniana, alone share with the austriaca the power of withstanding the terrible south-west winds which rage over the high table-land on which Belvedere stands. The Douglas Fir does not do well there, and the P. ponderosa I cannot yet judge of, though it looks well. You open your columns so liberally to contributors, that I trust you may be induced to collect information on the effects which climate and situation have on the newer forest trees, and so obtain some data on which to lay down rules that may guide planters like myself, with large tracts laid bare by the carelessness or rapacity of their ancestors. *Brinsley Marlay, St. Katherine's Lodge, N.W., Jan. 29.* [Such information would be most welcome. Eds.]

The Lindley Medal.—The editorial remarks appended to my letter at p. 181 show that I have committed the grave error of making an incorrect statement in reference to Lord Londesborough being a member of the Council of the Royal Horticultural Society in 1873. I am sure your readers will believe me when I say that I am sorry I made that statement. But before they whip me, allow me to give the authority upon which I based the statement. In my former letter I referred to the *Gardeners' Chronicle*, 1873 or 1874, but 1873 only was given; and to prevent any mistake this time allow me to give an extract from the *Gardeners' Chronicle* of 1874, p. 221—it is taken from the report of the annual general meeting of the Royal Horticultural Society:—"The Chairman here announced that the list recommended by the Council had been unanimously adopted: it was as follows:—Extraordinary vacancies—names of vacating members—H.R.H. Prince Arthur, H.S.H. Duke of Teck, Lord Londesborough, and Mr. Andrew Murray." Then follows—"Names of Fellows proposed by the Council to fill up the vacancies"—and these gentlemen were elected. Now, I understood this to mean that Lord Londesborough and the other honourable gentlemen were officially relieved of their duties as members of Council on the 10th of February, 1874, when their successors were elected; and I certainly thought that this was good evidence that his lordship was a member of the Council for 1873, and wrote the letter in the full belief that it was so; this will explain how I fell into the mistake, and I beg to congratulate Mr. Denning upon his lucky escape from the prohibition rule. *W. Wilson, Gr. to Mrs. Adams, Chase Park, Enfield.*

The Lucombe Oak (Quercus Cerris Lucombiana and Quercus Cerris Lucombiana crispa).—These two varieties may be seen at the Old Nurseries at Exeter, which are still carried on under the name of Lucombe, Pince & Co. Neither the ordinary Lucombe Oak, nor the variety called crispa are ever found without their leaves, as before they shed one year's leaves the new ones are all but fully expanded. There is a history attached to this most beautiful of all the evergreen Oaks. Mr. Lucombe found one or two young trees in a seed bed of the acorns of the Turkey Oak (Quercus Cerris) which held their leaves all through the winter whilst the rest were quite bare; the above two varieties of the Lucombe Oak were thus discovered. The ordinary Lucombe Oak is an upright growing tree, whilst the variety called crispa is partially pendulous in its habit, the lower branches forming themselves into very graceful curves. There is a tree of this latter variety (crispa) at the entrance to the above nursery, measuring 62 feet in height, and 11 feet 4 inches in girth at 2 feet from the ground, planted by the late Mr. Lucombe—probably the original tree; its companion was cut down some years since and was no doubt the original tree of the ordinary variety. A suite of excellent and handsome furniture was made from a portion of the timber, the grain of which is very ornamental. *Exeter.*

Gooseberry and Currant Training at Clarendon Park.—The *modus operandi* practised in these gardens is to plant the trees about 15 inches from the edging on either side of the walk, and train against a set of wires which are run through posts driven into the ground at a certain distance from each other. Trees thus trained are found to be more easily protected from the ravages of birds. This I consider a very neat way of training the Gooseberry and Currant, and it also economises the ground, inasmuch as the trees only cover a strip 1 foot or 15 inches wide on either side of the walk, whereas on the old system of bush-training they cover from 4 to 5 feet of the border on both sides of the walk, which in a kitchen garden of small dimensions, with a large family to supply, renders the above method of training a great *desideratum.* As a preventive of bullfinches, Mr. Chard, the clever gardener at Clarendon, finds a solution of lime and soot applied with the garden engine answers admirably. *H. W. W., Salisbury.*

HORTICULTURAL EXHIBITIONS, 1875.

MARCH.

3.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.
10 and 11.—Leeds Horticultural Gardens Company. Spring Flower Show. Sec. and Manager, James Birbeck, 102, Hyde Park Road, Leeds.
16.—Manchester Botanical and Horticultural Society's Floral Meeting in the Town Hall. Manager, Bruce Findlay.
17.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees. Hyacinth Show.
24.—Glasgow and West of Scotland Horticultural Society. Spring Exhibition. Sec., F. G. Dougall, 167, Canning Street, Glasgow.
31.—Royal Botanic Society, Regent's Park. Spring Show. Sec., W. Sowerby.

APRIL.

4.—Special Exhibition of the Royal Horticultural Society of Antwerp.
7.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.
21.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees. Early Rhododendron Show.
22.—Royal Horticultural Society of Ireland. Spring Exhibition. Sec., A. Balfe, 28, Westland Row, Dublin.
27.—Manchester Botanical and Horticultural Society. Exhibition of Auriculas, &c., in the Town Hall. Manager, Bruce Findlay.
28.—Royal Botanic Society, Regent's Park. Spring Show. Sec., W. Sowerby.

THE

Gardeners' Chronicle.

SATURDAY, FEBRUARY 13, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Feb. 15	Meeting of the Entomological Society, at 7 P.M. Sale of Rare Californian and Japanese Lilies and Hardy North American Ferns, at Stevens' Rooms.
TUESDAY,	Feb. 16	Sale of Poultry and Pigeons, at Stevens' Rooms.
WEDNESDAY,	Feb. 17	Royal Horticultural Society: Meeting of Fruit and Floral Committee, at 11 A.M.; Scientific Committee, at 1 P.M.; General Meeting, at 3 P.M. Sale by Auction at Bury Nursery, Edmonton, by Protheroe & Morris. Sale of Camellias, Azaleas, and Palms, from Ghent, Roses, Shrubs, &c., at Stevens' Rooms.
THURSDAY,	Feb. 18	Meeting of the Linnean Society, at 8 P.M. Unreserved Sale at the Park Nursery, Richmond Road, Kingston, Surrey, by Protheroe & Morris.
SATURDAY,	Feb. 20	Sale of Fruit Trees, Roses, Shrubs, Herbaceous Plants, Gladioli, &c., at Stevens' Rooms.

RARELY has the sense of a public meeting been more unequivocally expressed than it was at the Annual General Meeting of the ROYAL HORTICULTURAL SOCIETY on the 9th inst. Seldom of late years has a brighter gleam of hope lightened the gloomy prospects of the Society as a horticultural establishment, than on that occasion. Referring our readers to the detailed account of the proceedings in another page, in confirmation of our statements, we now emphatically urge the Council to take the lesson to heart, act on it fully, frankly, loyally. With equal earnestness we implore the horticulturists to maintain an unbroken front, seize the present opportunity—the most favourable they have had for years—and once again make the Society powerful and respected as a Horticultural Society. In spite of differences of opinion on matters of detail the general issues are becoming more sharply defined. The local Fellows, as the South Kensington residents may be designated, know what they want. The horticulturists are, as the meeting showed, far more unanimous in opinion than they have been for a long time past. The Commissioners profess the utmost readiness to treat on fair and equitable terms for the benefit of the Society as a Horticultural Society. Let there be no further doubt or misapprehension on this score. There has been reason for it before, but after Sir HENRY THRING'S emphatic statement on Thursday last those doubts are removed. Sir HENRY, speaking on behalf of the Commissioners, and with their Secretary by his side, said :—

"I am authorised to say, on behalf of Her Majesty's Commissioners, that their intention has never been in the remotest degree hostile to Horticulture. The Commissioners consider themselves *quasi* partners in the promotion of Horticulture, and it is their wish to promote it. Whatever might have been said of the Commissioners, I am authorised to say that they never had any wish to do anything but to promote the objects of the Society in every possible way. So far as regards Horticulture; and now as to the appropriation of the land. It has been whispered that the Commissioners wanted to build upon the land. Now I am authorised to say that proposition had never been submitted to them—I mean the proposition to build upon the Horticultural Gardens. I am authorised to say such a proposition was never brought before them; that they never for one moment thought of such a proposition, and that they never held any intention on the subject. It appears to me that the agreement or arrangement of the Society with the Commissioners is drawn in a worse and more loose manner than any Act of Parliament I have ever seen or drawn. I can say on behalf of the Commissioners that they have never thought of determining the lease, or of putting an end to the Society in order to benefit themselves."

Let the Council at once put these emphatic utterances to the test of actual proof. After the conciliatory tone adopted by the President, Lord BURY, there need be no difficulty in coming to an amicable understanding. Lord BURY did virtually, in his speech, retract the hard sayings made by the Council, and after his speech the cancelling or modification of the objectionable passages in the report ought to present no difficulty. Gentlemen who have had differences of opinion, and uttered fierce words in the heat of debate, know what is the proper course to pursue when a better tone prevails. The Council have only to act up to the spirit of Lord BURY'S speech, and peace will ensue.

Supposing the ground cleared in this way, what next is the right thing to do? We will not presume to dictate to the Council, and say Do this or do that. They are in power, and they must do what seems to them best. We, as outsiders, but at the same time as warmly interested in the Horticultural work of the Society, can only suggest and urge what we think right in the interests of Horticulture; and if the Council cannot or will not carry out the views of Horticulturists, we have the constitutional remedy in our hands to employ as best we can. We, however, trust that Horticulturists will offer no factious opposition to the Council in this crisis, but fully and freely make known to them what their views are, and support them so far as they consistently can, or be prepared to act on their own account if the Council cannot or will not carry out their wishes.

In the interests of Horticulture and of the Horticultural Society the duty of Horticulturists now is to insist upon an immediate opening of negotiations with Her Majesty's Commissioners, in a friendly spirit, with a view to serve the best interests of all parties.

The local Fellows want the garden for their own purposes; let them have it, on the most equitable terms that can be devised. The Horticulturists want a place for their meetings and exhibitions; they want free scope for carrying on the Horticultural work of the Society, for preventing it being strangled and stifled by other interests, and starved at the expense of other sections. Both parties—honourable men—wish that the financial difficulties shall be met in an honourable way. Both parties have rights which must be respected, all parties have duties which must be fulfilled, if they do not wish to be disgraced in the eyes of right-minded men. The bone of contention is the Kensington Garden. Over and over again have we advocated the severance—on fair terms always understood—of the Kensington Garden from the purely Horticultural part of the establishment. The two cannot be worked satisfactorily together. The experiment has been tried, and failed lamentably, as we see. If horticulture could be relieved of the burden of a useless and costly garden, matters would speedily improve. How can this be done without injuring the Society, without infringing on the rights and privileges of the Fellows, life Fellows, and debenture holders? The solution of this question lies with the Council and the Commissioners. Let a committee be forthwith appointed from the Council and from the Commissioners, taking especial care that committee be thoroughly representative. Let that committee discuss freely and fully the state of affairs, and come to an understanding. There can be no doubt that, if that understanding were satisfactory, it would be gladly hailed by all sections of the Fellows. All would sacrifice something for the sake of the general good. As a mere suggestion we throw out a scheme, of which, if the principles be adopted, the details could readily be adjusted.

Let the Commissioners cancel the present lease, grant a new one to the Society, with power to let the Kensington Garden at a remunerative rental to the local Fellows. The local Fellows would make the best terms they could with their constituents, and the Society would have an income wherewith to meet their obligations and carry on the proper work of the Society. Under an arrangement of this character Horticulturists should retain full rights over the meeting rooms; they would have the use of the whole garden, or any portion of it, on exhibition days; while life Fellows and debenture holders should, in consideration of their rights, have access to all portions of the establishment at all times.

A scheme of this kind would preserve the rights and privileges of all parties. Both sections might act in concert when joint action was desirable, as at exhibition times, or either might act independently if concerted action was not necessary or desirable. By some such plan harmony might be restored, and the Society be left free to carry out, unrestricted, the objects for which it was founded. At the adjourned meeting on the 9th prox., let us hope the Council may have to announce to us something conceived in the spirit, if not in the letter, of what we have now advocated.

—— OUR illustration (fig. 39) represents a portion of one of the many BANKS OF SUCCULENTS in the rich garden of M. THURET, at Antibes, near Nice, where this class of plants thrives with astonishing vigour and, it need hardly be said, with surpassing beauty. Nothing can excel the gorgeousness of some of these succulent-beds when in full bloom, while by judicious intermixture the rigidity of form is by no means so objectionable as it seems to be in some of our succulent-houses at home, where the uniform level stages detract from the effect of the plants. Among the plants represented are Cereus multiplex, various species of Echinocactus, Agave, Aloe, Crassula, Anigosanthus (?). The photograph, taken by Dr. BORNET, shows also a dense undergrowth of smaller succulents, which it is impracticable to show satisfactorily in the woodcut. For this, and other exquisite photographs taken by Dr. BORNET, we have to thank M. THURET.

—— The thirty-second anniversary festival of the GARDENERS' ROYAL BENEVOLENT INSTITUTION will be held on July 2 next, at the London Tavern, under the presidency of ROBERT BROADWATER, Esq., the Master of the Worshipful Company of Fruiterers.

—— We notice with great pleasure the prospectus of a new series of works on POPULAR GARDEN FLOWERS, to be brought out by Messrs. LOVELL REEVE & CO. "Cultivated flowers," says the prospectus, "have now become so numerous that it is impossible for any one grower to give adequate attention to all. It is, therefore, natural, as well as advantageous to floriculture, for him, while not neglecting others, to select one or two as his special favourites, to the study and cultivation of which he will devote more than ordinary attention. For this purpose he will require more information than is to be found in books treating of gardening generally; and it is to supply this desideratum that the present series is projected. Monographs of particular flowers have, in a few instances, been published, but these are on so large and costly a scale as to be within the means of only the most wealthy. The present series, while comprising all that can be desired both in matter and illustration, will be published at such a moderate price as will place them within reach of all. The volumes will be a large super-royal 8vo in size, and will contain chapters on history, culture, and classification, with descriptions and coloured plates, in the best style, of all the species and principal varieties. The first volume, now in the press, and shortly to be

Fig. 39.—Bank of Succulents in the Garden of M. Thuret, at Antibes.

published, will be The Narcissus—its History and Culture, by F. W. Burbidge; with a Review of the Classification, by J. G. Baker, F.L.S. Illustrated by forty-eight coloured plates." It is proposed that similar volumes on the Rose, the Lily, the Crocus, the Iris, be subsequently published, and the publishers will be glad to receive and consider any suggestions or communications relative to the above series; it being their desire, as far as practicable, to meet the actual wants of the public, and to render the volumes as practically useful as possible.

—— Mr. Wills, of Onslow Crescent, Brompton, proposes to raise a subscription for the benefit of the widow and daughter of the late Mr. W. P. Ayres, who, it is stated, are left totally unprovided for.

—— In the House of Commons on Monday last, Mr. Herbert, M.P. for Kerry, asked the Chief Secretary for Ireland whether Her Majesty's Government had taken any steps to prevent the introduction of the Colorado Beetle into Ireland by the importation of American seed Potatos or otherwise; and, should no precautions have already been instituted, what were the intentions of Her Majesty's Government on this subject. Sir M. H. Beach stated in reply, that the subject of the hon. member's question had been brought under his notice some time back, and he thought it right first to ascertain what steps had been taken by foreign Governments in the matter. He found that the only Governments which have taken any real action were those of Austria and Belgium. The former had assured the Government of Switzerland, which had warned the European maritime countries of the possible danger, that the importation of American Potatos would be prohibited; and the Belgian Government had introduced a Bill for a similar purpose, which had been agreed to by a special committee. He had also made inquiries as to the nature and extent of the evil to be apprehended, and thought there was reason to suppose that the harm recently done to the American Potato crop had been much exaggerated. He was also informed that the insect in question had been known in America for more than a century, and that it attacked the stalks and leaves of the Potato plant, not the root, though that naturally became diseased in consequence. No Potato stalks or leaves were imported from America, and as only healthy roots would be imported, it would seem hardly possible that the insect could be thus conveyed into this country. He was now in communication with the English Privy Council on the subject, because it was obvious that if any preventive measures were adopted they ought to apply to the whole of Great Britain as well as to Ireland. But he must add that the importation of Potatos into the United Kingdom, especially in the event of a failure of the home crop, was very large, and therefore any interference with this trade would require the most careful consideration on the part of Her Majesty's Government.

—— We are glad to find that Mr. McLachlan as an entomologist protests against the false security likely to be engendered by the refusal of the Government to adopt precautionary measures against the introduction of the Colorado Beetle. The danger is real, but with proper precautions it might be averted.

—— The *Hamburger Garten and Blumenzeitung* for January contains articles on the Culture of Cœlogynes, of Quisqualis indica, of Nymphæa rubra, of Chrysanthemums, &c.; a translation of the first part of Mr. Moore's review of the species and varieties of Ilex in cultivation, which appeared in these columns; the giant bladder seaweed, as a material for tying, to which we shall advert; "Notes on My Last Trip to New Grenada," by G. Wallis, an abstract of which we may give as soon as the whole narrative has been published; the Palms of Herrenhausen, one of the richest collections in Europe, under the superintendence of M. Wendland, the well-known writer on this class of plants; and an article by Dr. Gœppert on the Japanese flora. Altogether this number is an excellent one.

—— In the new German periodical called the *Deutsche Rundschau* is a contribution from the pen of Dr. Cohn of Breslau, entitled "Botanical Problems." The perusal of this very interesting, though brief sketch of the history of botanical science has made us long for a more complete work on this subject, and we trust that the English publication expected will prove a concise and useful book. Dr. Cohn's object appears to have been to show the important position botany has attained in the circle of sciences since vegetable biology has been taken into partnership with animal biology. He commences with Aristotle and Theophrastus, giving a summary of the questions they put to themselves; and although he claims for them the merit of having founded scientific botany, he is obliged to admit that they were less acute in their explanations of the various phenomena of plant life. Pulteney, in his *Rise and Progress of Botany in England*, opens with words to the effect that scientific botany had no existence in the enlightened days of Greece, &c.; but this is a question of degree, and of little importance to us. With the exception of a bare mention of the Roman herb doctors, Dr. Cohn makes a leap of 2000 years, and follows the development of the different branches of botany down to the present day, noting the solution of the principal problems of this science. He then goes on to speak of the still hidden mysteries of life—mind, matter, force, cause, &c., and adds that a philosophical study of plants has already taught us much, and may, if properly pursued, teach us yet more.

—— We are requested to state that all plants and other objects for exhibition at the forthcoming special exhibition of the Royal Society of Horticulture and Agriculture at Antwerp, which opens on April 4, will be conveyed at half-rates by the Belgian railways, the Great Eastern Railway, the boats of the Société Anversoise, the General Steam Navigation Company, and the vessels of Messrs. Van Maeneu & Co.

—— Those who are interested in the question of Climatic Changes, which occupied much of our space last year, should read an interesting article in the *Builder* of the 30th ult., and in which the writer gives a summary list of the occasions upon which the Thames at London has been frozen over so completely as to allow of fairs being held upon it. Numerous instances are given from 1564 to 1814, not to mention other cases of which less authentic accounts have reached us. The last frost-fair was in 1814, since which time, though we have had severe and long-continued frosts, they have not been of sufficiently long duration to permit of the revival of the "frost fair,"—possibly a result of modern improvements, such as the restriction of the river channel by the extension of wharfs and embankments, and the consequent greater velocity or force of the current.

—— M. Carrière figures and describes in the last number of the *Revue Horticole*, an instance where a bud of Chionanthus inserted on Fraxinus Ornus had lain dormant for fourteen years. It appears that the Ashes were cut down and the stumps left just above-ground, and from these stumps proceeded vigorous shoots of Chionanthus. Supposing that M. Carrière is right in his assumption that the buds were inserted on the stock so long ago, the case is remarkable as being probably the longest duration of dormant vitality in a bud similarly placed, yet chronicled.

—— The *Chicago Pharmacist* for January contains a note by Mr. H. H. Babcock, in which he states his belief that Cypripedium spectabile and C. pubescens possess powerful Poisonous Properties. The unpleasant effects on some constitutions following the mere touch of Rhus Toxicodendron and R. venenata have often been described. Some persons suffer severely, whilst others experience no inconvenience, from contact with these shrubs. Mr. Babcock says he was particularly careful during the seasons 1868 to 1872 not to touch Rhus Toxicodendron, pluck specimens of other plants growing in its immediate vicinity, nor to receive from the hands of another person a freshly-gathered plant, for fear it might have come in contact with Rhus. In spite of these precautions, he was so severely poisoned each season as to be confined to his room for several days. In June, 1872, he observed that his hands were stained with the purplish secretion of the glandular hairs of Cypripedium spectabile after gathering a quantity of specimens, and soon he experienced a peculiar irritation about the eyes, and next day his face presented the appearance of a severe case of Rhus poisoning. On looking over his notes of previous years Mr. Babcock found that these symptoms had invariably set in after plucking the two species of Cypripedium named above. In 1873 and 1874 he avoided touching the Cypripediums with the bare hand, but was not particularly careful as to the Rhus, and these seasons he escaped poisoning. He is now convinced that, upon himself at least, these plants are capable of producing effects similar to those caused by Rhus Toxicodendron, and thinks it possible that others may have wrongly attributed to Rhus the annoyance caused by the Cypripediums. It would be interesting to know whether we have here accidental coincidences or cases of real poisoning. Acridity in the raw tubers of Orchids is probably not uncommon, but poisonous venom we should not have suspected, and we cannot help thinking that Mr. Babcock is wrong in attributing his indisposition to the plants in question; but, to set the matter at rest, we suggest that he should make a trial in which there could be no mistake.

—— M. Boisduval mentions in the *Bulletin of the Central Horticultural Society of France* the injury done to the cultivated Spinach by the larva of a beetle, Chrysomela viridula, which, we believe, has also been noticed to attack Spinach in this country. Tobacco-water kills the larvæ, but would not improve the flavour of the Spinach unless the latter were carefully soaked in water before use.

—— We find in the last number of the *Journal of the Central Society of Horticulture of France* an article by M. A. Lavallée on the Conifers which were commented on by Mr. Murray in our own pages on a recent occasion. Mr. Murray's article must have been written quite independently of M. Lavallée, and it is interesting to compare the conclusions at which the two authors have arrived. We may probably revert to the subject when we figure, as we hope to do, some of the species in question from specimens sent to us by Messrs. Sander, of St. Albans.

—— M. A. Rivière advocated recently, at a meeting of the Central Horticultural Society of France, a method of Propagating the Fig by burying branches in the ground to a depth of 30 centimetres before winter. The following spring the branches are cut into several pieces, each one of which becomes a cutting, which is so placed that its upper extremity is also covered by soil. In the course of a year these cuttings form plants of 80 centimetres in height. It will be remembered that M. Rivière has adopted a similar plan with Vines.

—— The *Irish Farmers' Gazette* reports that the novel and extremely pretty Brazilian Orchid, Colax jugosus, is just now in flower (for the first time in Ireland, we apprehend) at Glasnevin. The sepals, it remarks, are of the same snowy whiteness and substance as the flower of the lovely little Cypripedium niveum, and if the reader will imagine one of these with the side petals, instead of being pure white, regularly dotted with rich chocolate, and the lip flat, and dotted and barred with blueish purple, he will form a very good idea of what the flowers of the Colax jugosus are like. It is, indeed, a little gem in its way. Colax jugosus was exhibited in flower at South Kensington, by Mr. W. Bull, in May, 1873; and a few days later at the Royal Botanic Society, Regent's Park, both by Mr. Bull and Mr. B. S. Williams.

—— At the ordinary meeting of the Meteorological Society, to be held at 25, Great George Street, Westminster, on Wednesday, the 17th inst., at 7 P.M., the following papers will be read:—"Report of the Conference on the Registration of Phenological Phenomena." "On the Weather of Thirteen Summers," by R. Strachan, F.M.S. "On a Universal System of Meteorography," by Professor F. Van Rysselberghe. "Results of Meteorological Observations made at Patras, Greece, during 1873," by Rev. Herbert A. Boys.

—— We learn from Melbourne, Australia, that early in the month of December last there was on view at the Collins Street Nursery of Messrs. T. Lang & Co., the largest and most varied collection of Rhododendrons that has been seen in that city. "Rhododendrons," says the *Melbourne Weekly Times*, "are not so generally cultivated in this part of the world as they are in England, and the opportunity seldom occurs when a number of varieties can be seen in flower together. Messrs. Lang & Co., however, seem to have made them a speciality, and after importing a large number of the finest varieties, have succeeded in growing them at their Ballarat establishment to the greatest perfection. The sight of so many fine varieties, all in full bloom, called up memories of the grand displays of this noble flower that we have seen in England in bygone years. Visions of Bagshot rose before us, and the names of Standish, Hosea and John Waterer, with others, were brought to mind. The collection embraces a great variety, and though many of the plants are rather small, they are well-bloomed and remarkably healthy and vigorous."

—— On the occasion of the marriage of Mr. Martin Sutton, jun., of the firm of Sutton & Sons, Reading, last week, the *employés* of the firm, with their wives, 250 in number, sat down in the evening to an excellent dinner, after which the health of the bride and bridegroom and other members of the family was drunk with the greatest enthusiasm. About 8 o'clock the large party adjourned to the Abbey Lecture Hall for the enjoyment of a musical entertainment. Among the many wedding presents were a silver epergne of elegant design and workmanship, presented by the heads of departments, and a beautiful dining-room clock, together with an illuminated address, signed and presented by the whole of the establishment.

—— Respecting the Hardiness of Eucalyptus globulus, which has lately been questioned, a correspondent of the *Gardeners' Record* writes:—"I think it has proved itself capable of standing any degree of cold that it may be liable to. Some fifteen years ago there was, at Lakelands [near Cork], the seat of William H. Crawford, Esq., a fine plant of Eucalyptus globulus, 30 feet in height at least, and which used to ripen seeds. I venture to say it is there still. If I do not mistake there is one at Fota, the seat of Smith Barry, Esq. I remember seeing more than one lot of seedlings raised from seeds ripened on the Lakelands specimen, some of which may very probably be growing there still. I have known it to pass unhurt through a frost that killed some and severely injured other plants of a seemingly hardier nature, such as Cupressus macrocarpa, C. Goveniana, C. Lawsoniana, and Cryptomeria japonica. At the same time, I have seen the tops of shoots of seedlings killed by late spring frosts on one occasion. The seeds used to be sown as soon as gathered, started and grown on in heat for the first season, then hardened off and planted out in nursery quarters in a garden, where they grew, although in a very dry soil, most luxuriantly. I have seen them from 10 to 12 feet in height in two or three years, from the seed, but I believe they used to be pretty liberally supplied with water, both pure and manurial, with mulching." Mr. White, of Hazlewood Gardens, Sligo, states that with the exception of a few of the leaves being browned the Eucalyptus has received no injury there; the trees have attained from 9 feet to 9½ feet, having been planted nearly five years. Mr. Twohig, of Curragh Chase, Limerick, states that with him it is quite hardy. This is tolerably conclusive evidence, so far, at least, as regards Ireland.

—— The Melbourne *Leader* states that the Vine Mildew or Oidium made its appearance some two or three months ago in the Murray and other warm districts of South Australia, and has also been seen south of the dividing range at Murghebolac and on the Colac Road.

—— Mr. Thomas Ingram, the son of the fine old gardener who so long and worthily presided over the Royal gardens at Frogmore, has retired from the Royal service, and receives, by command of Her Majesty, an annuity in consideration of faithful services extending over a period of some five-and-thirty years. Before leaving Frogmore, last week, the members of the Royal Garden Book Society presented him with an inkstand, as a small token of respect, together with their thanks for the numerous kindly services rendered during the many years he was president of the Society.

—— To Mr. William Cross, gardener to the Dowager Lady Ashburton, Melchet Court, Romsey, we are indebted for the photograph from which the illustration (fig. 40) of Cypripedium caudatum was prepared. The plant was grown at Melchet Court. About four years ago it was growing in a pot 5 inches or 6 inches in diameter. It has since had the benefit of liberal shifts, and an abundance of light, air, and moisture; and when photographed last year it bore twenty-six flowers on seven stems, many of the tails measuring 27 inches in length.

Reports of Societies.

Royal Horticultural: *Feb.* 9.—The annual meeting of this Society took place on Tuesday, in the Council-room, South Kensington, at 3 P.M., under the presidency of the Right Hon. Viscount Bury, K.C.M.G.

The Secretary read the minutes of the last meeting of the Council, which were duly confirmed.

Mr. Pinches and Mr. Fortune having been appointed scrutineers,

The Report, as given in our columns last week, was taken as read.

The result of the ballot for new members of Council and officers was that, in place of Mr. J. A. Hardcastle, Mr. Alfred Smee, F.R.S., and Mr. J. Herbert Tritton, the following Fellows were elected:—The Hon. and Rev. J. T. Boscawen, Mr. William Longman, and Mr. J. D. Chambers. To fill up the extraordinary vacancy created by the retirement of Lieut.-General the Hon. Sir Alexander H. Gordon, K.C.B., Mr. Frederick Campion was elected. The balloting list for officers had the following result:—President, the Right Hon. Viscount Bury, K.C.M.G.; Treasurer, Mr. Bonamy Dobree; Secretary, Mr. W. A. Lindsay. Expenses Committee-men: Sir Coutts Lindsay, Bart., Sir Alfred Slade, Bart., and Mr. Bonamy Dobree. Auditors: Mr. P. M. Leonard, Mr. Henry Liggins, and Mr. Conrad H. Pinches.

The Chairman rose and addressed the meeting as follows:—Ladies and gentlemen: The question I shall have to submit to you, I am happy to say, requires from me only a few remarks—I mean with respect to the report which the Council think it their duty to submit to you. There was a time when we had reason to believe that this meeting would be of a stormy character, and that we should have to battle for our lives, but I am happy to say that these sinister auguries have been entirely dispersed, and that, far from being here to encounter any direct hostility, or even covert hostility, from our landlords, the Royal Commissioners, we are likely to receive from them all the consideration which is consistent with their high position. It is only quite recently that I am permitted to state that affairs have taken this happy turn. I will confess—and here I agree with the Council—that the Royal Horticultural Society felt that we had been hardly dealt with, and that the Commissioners did not appreciate our real position. It is possible that, as we felt the interests of ourselves and of the Society trembling in the balance, we should not have been so courteous or so conciliatory as we might have been under happier circumstances. There is no doubt in the heat of argument that both parties have said hard things, which we regret, and which we regard as better if left unsaid. We put forward this frank expression of opinion on our part, and I think I express the opinion of my colleagues; and I only hope it will be accepted as frankly as it is given, and that the circumstances will be taken into consideration under which the report referring to the Commissioners has been made. I must go back for a moment to the time when we first took office. The Royal Commissioners were placed in relation to the Royal Horticultural Society by a resolution, the terms of which were undefined, and which might be taken to mean that both bodies should work in common for a common end. But outside the Royal Commissioners there had sprung up two bodies who had great and substantial rights under the agreement with the Commissioners—the Fellows on the one side and the debenture holders on the other. At last the time came when the Royal Commissioners—or rather when the Royal Horticultural Society, acting in what they then believed to be not altogether their own interests, proposed to accept terms from the Royal Commissioners which the outside Fellows of the Royal Horticultural Society considered detrimental to the interests of the Society. Under these circumstances what does an Englishman do? It is suggested that he has rights, and he thinks his rights are invaded, and accordingly he takes constitutional means of asserting his rights. He moves the rejection of the proposition submitted to him, and if he is successful, he places himself in the position of those who made the proposition, and pursues the course of business in the best way he can for himself; indeed, he has succeeded the late ministry, and become a minister in power. When we did that we were in something like revolutionary troubles, and we did the best we could to make ourselves legal, and, according to the best advice, we did succeed in making ourselves a legal tribunal—in making ourselves the Council of the Royal Horticultural Society—your representatives, gentlemen.

Fig. 40.—Cypripedium caudatum, as grown at Melchet Court. (from a photograph)

Arrangement with the Commissioners.

I need not tell you that on all points the Royal Commissioners did not entertain that opinion of our legality which we ourselves were advised to entertain. They disputed our legality, and they would not deal with us as the Council of the Royal Horticultural Society; and from that time until now we have been met with this difficulty—that the Commissioners would not deal with us as frankly as they might have dealt, simply because we were not legally constituted a Council. That, then, frankly, was our position as regards Her Majesty's Commissioners. The Commissioners knew it. I do not know whether they think the result of the election under your auspices can remove the taint of illegality, but I am strongly inclined to believe—and you may take it as my own opinion, and not an official one—that Her Majesty's Commissioners will assume that after the election to-day we are in a legal and proper position. In our position to-day we have to be careful that there is no flaw as to the legality of our proceedings, but I am sure that at the end of our proceedings any objection to our existence as a legal body will be entirely removed. The position of the Society's finances may not be found to be very sound, but while it may give the members of the Society ample room for reflection, it is not one which would allow us in any way to despair. We are the only society—I will not say the only—but we are the society which has the means at its disposal to do the greatest amount of good, from our official position, for the horticultural world. We can easily keep that position, but, in order to do that we must keep shoulder to shoulder, and assist each other. These gardens must be retained in the interest of horticulture. Then the question arises, there are besides the horticultural Fellows proper the Fellows who are owners or occupiers of house property about this neighbourhood. I need not tell you that they are deeply interested in keeping open the gardens—one of the lungs of London, and that they feel that if it went over into the hands of any other body than the Royal Horticultural Society, it would be a grievous disaster. As I have before said, Englishmen if they know they have rights are very careful to associate themselves in defence of those rights, and I think the local Fellows are not at all unlikely to die hard if they are put to it. But I do not, as I have said before, believe there will be any necessity for a fight, but that on the contrary—and I wish to repeat it, even at the risk of wearying you—the Royal Commissioners are quite willing to meet us evenly and fairly. I will not consider it either uncivil or uncourteous if I give this frank and plain expression of our feelings and opinions. I say that we are perfectly well aware we hold some good trump cards in our hands, and know how to deal them on terms of perfect equality. This, I trust, will not be construed as being in any way hostile to the Commissioners; and I believe I am right in saying that there are some gentlemen present representing the Royal Commissioners who will comment upon any statement I make on your behalf, and say whether it be correct or not, and who will be able to make, on behalf of Her Majesty's Commissioners, a statement, whether it be satisfactory or not. I will frankly say I have heard—and perhaps from very good authority—that some terms made use of in the Council's report to the Society have been felt as wounding to the feelings of the Royal Commissioners. I hear that two paragraphs in the report have been construed into a sneer. I am sure, and I know I speak the sentiments of my colleagues, that anything like a sneer towards Her Majesty's Commissioners was foreign to our minds; and I say, if such an impression was conveyed to them, I own I frankly regret any expression that may have caused it. I will, however, ask the Royal Commissioners to remember that at the time this report was framed the Society was labouring under the smart—I will not say of unjust—but in any case the smart of dealing with Her Majesty's Commissioners. The principal diversity of opinion between the Commissioners and ourselves is upon the proposed skating rink in these gardens. Her Majesty's Commissioners have felt aggrieved that we did not communicate with them on the subject, because the agreement under which the rink was to be built was signed by us. The answer to the objection is a simple one. We were, and always have been, most desirous to be on the most friendly and open terms with Her Majesty's Commissioners, but I have taken the trouble to look into our letter-book, and I can tell you we have seven times addressed letters to the Commissioners, requesting them to allow the Expenses Committee to meet and discuss the affairs of the Society; and on these seven occasions we were told that it was impossible for the Commissioners to allow it to be done. I do not now question whether it was right or wrong, I merely state the fact that, having seven times asked Her Majesty's Commissioners to meet us for the purpose of entering into the affairs of the Society, and having been seven times refused—certainly in a courteous and civil manner—we felt we were bound to act for ourselves in this matter, and that we could not again ask the Royal Commissioners to meet us on the affairs of the Society. Under the charter, and according to the bye-laws, there is only one way of dealing with the affairs of the Society, as between ourselves and the Royal Commissioners, and that way is through the Expenses Committee—and all the monetary affairs of the Royal Horticultural Society are committed to their decision. That being the case, now, when I say we seven times requested that the Expenses Committee should meet, and have seven times met with a refusal, I think—without entering into bygones, and

with a desire to avoid them—you will see it was quite impossible to approach Her Majesty's Commissioners on the subject of the skating rink again. And now that they feel aggrieved that we have not consulted them, I hope that the representatives of Her Majesty's Commissioners will accept this frank explanation of the circumstances I have the honour to make to them as the real, true, and only reason why the communication was so long delayed. And, after all, the communication was not so long delayed, because it was only a few weeks after it was made that the Royal Commissioners met, and a letter was sent by Sir Coutts Lindsay giving them the fullest information. I do not know whether I should enter at greater length into the arrangements between this Society and the Royal Commissioners: I hope I have explained our aim and objects in acting as we have done. As I have before said, if there be anything in our report—written at a time when the Council were labouring under considerable irritation, and with the notion that their dignity was offended—which was considered as being hurtful to the Commissioners, I regret it, and, paraphrasing the words of Hotspur, say, "Let not this report come betwixt my love and your Majesty." Having thus explained, I hope, on the part of myself and my colleagues, that all the clouds which lie between the bright sunshine of the full fellowship of the Commissioners and ourselves may soon be swept away.

FINANCE.

I now pass away to another subject—the Society's finances. We have not now to discuss the position of our finances in detail. It will suffice to say that we are in a position which, although grave, is not irremediable; not irremediable because, by the terms of our lease, we have enough yet to pay a certain rent to the Royal Commissioners, and if that rent be paid we shall be free for several years to come. At the same time, the finances of the Society—I of course mean the income of the Society—do not meet its necessary expenditure by a long way. We must "put our shoulders to the wheel," as others have often done, and devise some means of meeting the difficulty. The present Council has been in an unfortunate position since it first accepted office. They found themselves heirs to a very large amount of debt, which ought to have been previously discharged. That debt amounted to between £6300 and £6400, and out of our limited income we have paid about £2000, so that our debt now stands at about £4393. According to our charter and bye-laws we ought never be in debt at all. The expenditure of the year and the yearly income ought to balance, and nothing should be left outstanding. You will agree with the Council when I say that, when we find ourselves with a very limited income—which is often the case with scientific societies—the position of having to discharge large amounts in payment of debt places us in a very unfortunate position.

RETRENCHMENT.

This year, I regret to say, in the interests of horticulture, we have been obliged to diminish the number of prizes so as to curtail our necessary expenditure—even in those legitimate prizes in which the Royal Horticultural Society ought to be very liberal indeed. With respect to the skating rink, we no doubt diverted a small portion of the funds from the legitimate pursuit of horticulture. We felt, however, that the income derived thereby would give a corresponding amount, which could be devoted to the interests of scientific horticulture. Sir Coutts Lindsay reminds me that the sum to be paid was £1100. How happy should we be if we could get £1100 towards the cultivation of scientific horticulture! I must say that we come before you with all possible confidence, and ask you to ratify what we have done.

THE SKATING RINK.

I may say that a great point in connection with the skating rink question is that not one shilling of the Horticultural Society's money has been, or would have been, expended on the construction of the rink. The agreement we concluded with Messrs. Prince is to the effect that the whole thing is to be done at their expense—that large privileges should be reserved for Fellows of the Society—the whole arrangement being very favourable to the interests of the Society; and thus we feel no hesitation in recommending the scheme for your adoption. Now I do not think I need trouble you further in introducing the report.

EVENING MEETINGS.

What alone remains for me to address you upon, is our horticultural position. You will see, in the report before you, that the Council have established a series of evening meetings for the discussion of horticultural subjects. These meetings have already begun. I was going to refer to the black board behind me for illustrations, but I see they have been effaced. I am told, however, that the meetings have been highly successful.

EXPENDITURE.

I have just been reminded by Sir Alfred Slade of the fact that in the year 1875 our expenditure will be £2400 less than it was last year. The very compendious statement which is now before you will show that the Council have most closely looked into the finances of the Society, and have tried to keep the expenditure down to the lowest possible limit.

LINDLEY MEDAL.

The Lindley Medal was struck last year, and it reflects great credit upon the Society generally. I shall leave Sir Coutts Lindsay, who has taken so great an interest in this matter, to state the arrangement for the delivery of the medal, which is certainly the most important ever issued by the Society. Gentlemen, I have placed these matters before you—they are practical statements. It is quite unnecessary for me to indulge in oratorical flourishes, and I will sit down recommending to you the adoption of the report.

Mr. BATEMAN then asked whether the adoption of the report now before them would be formally moved before criticisms upon it would be permitted? He wished to say that he had listened to the Chairman's remarks with a good deal of pleasure. Nevertheless, he could hardly go over the ground as delicately or as daintily as the noble lord had done—so smoothly, in fact, that one could imagine he was careering on the polished surface of the skating rink. He had no feelings of hostility towards the Council, and he did not wish to speak in a hostile spirit and when referring to the report he should confine himself to horticultural matters only. In the second paragraph of the report it is stated "The Council have established a series of evening meetings for the discussion of horticulture. They are convinced that the comparatively small attendance at the ordinary meetings arises from the inconvenience of the hour rather than any indifference to them on the part of the Fellows; and they, therefore, consider that evening meetings may be considered of value both by the Fellows and others engaged in the pursuit of horticultural science." Here now was a statement that there was a small attendance at the ordinary meetings, but it was the opinion of all horticulturists without exception that the meetings were for the cultivation of the science of horticulture. Now, if the Chief Pontiff in the chair, or any of his suffragans, thought that the meetings of the Society were of so little moment that it was not worth their while to attend, it was hardly to be expected that the outside world would pay them more respect. It was to be remarked that all the alterations were made in a non horticultural direction, and that the Council went in for large reductions. He went on to say that the local Fellows—the Kensingtonians—who lived in the neighbourhood, did not appear to have any special interest in horticultural matters. They had in their Society the town element and the country element. The town Fellows had the advantage of these gardens, and could attend all the shows during the summer, whereas country Fellows possessed the advantages which sprung from the distribution of new plants. He did not know how much more than £100 (which had been saved by the dispersion of the Orchids) was the salary of an additional doorkeeper at Elvaston Place, but for his own part he should prefer the sight of a few pretty plants, when entering by the old Orchard-house, to the new entrance, even though it be amongst the chalk and plaster effigies of some monsters of the deep. Mr. Bateman went on to say that he could not see why the difficulties and antagonistic interests between the Commissioners and the local Fellows could not be arranged. The local Fellows wanted their arcades, and their band, and their promenade, but these were no horticultural elements whatever; but still, why should not people have these things as long as they were willing to pay for them? Why should not some arrangements be come to between the Royal Commissioners and the local Fellows, in order that the latter might be provided with whatever accommodation they required? He felt quite certain that the Commissioners would not be slow to give the Fellows all the accommodation they required, and he again said he could see no reason why an amicable arrangement should not be come to between the two bodies.

Mr. WALFORD said he had long taken a deep interest in the affairs of the Society, and had watched the changes which had taken place in the Council, with the hope that they might go on from what was regarded as bad to something better. He was of opinion that they had not been successful in that. The Chairman, who had put everything so pleasantly before them—it really went against his heart to say anything in an opposite direction—said he saw nothing in our present position at which they need be much alarmed. But if his own expenditure rapidly exceeded his income, and he found himself surrounded with debt, he should regard the position as a very serious one indeed. He knew very well that the people who lived in the neighbourhood did not feel the same interest in horticulture that others did. He should not trespass on the attention of Sir Alfred Slade, as he saw now, what he had perceived before, that when Fellows were addressing the chair, the members of the Council were holding a conversation. He should stop if he saw the conversation renewed. (A pause.) The fact was that the local Fellows had made the gardens into a nursery—very different indeed from the sort of nursery originally designed. They had not been successful, and the time had arrived when they ought to take some steps to have a remedy applied. He asked whether it would not be prudent to go to the Commissioners and treat with them, if, as had been said, the very existence of the Society depended on the Commissioners. Why not put the whole case before them, and say that a number of gentlemen both in London and the country had joined the Society to promote horticulture, but that horticultural purposes were being wiped away to make room for other purposes? It was with great regret he saw the name of Mr. Smee withdrawn from the list of the Council; and he was reminded of the gloomy condition of the Society by the black board which stood behind the Chairman.

The CHAIRMAN said that the Council had approached the Commissioners on many occasions. Mr. Smee's name had been eliminated as one of those who had made the smallest number of attendances.

Mr. G. F. WILSON assured the meeting that, for a considerable time past, Fellows deeply interested in horticulture had said to him they would retire, as so little was being done for horticulture. He had told them not to be in a hurry, but to wait for the good time. He thought that everything which was possible to be done to introduce a better state of things should be done at once. The Chairman had spoken about the feelings of Englishmen, but he (Mr. Wilson) thought that the Chairman and Council were open to a charge very objectionable to Englishmen, and which was want of pluck. He applied that to the subject of country shows. Why had not the subject been mentioned in the report? When the show was held at Bury St. Edmund's it was an untried experiment; but what had been an untried experiment then was now, with ordinary good management, an ascertained success. Therefore the Council showed want of pluck in not encouraging country shows.

Sir HENRY THRING wished to say what he considered he was bound to say on behalf of the Royal Commissioners. He wished to allude to himself respecting some advice he had given to the Commissioners lately, and he wished to say a few words upon the legal aspect of the question, having for twenty-four years taken a very great interest in the Society. He might say he was no longer a Commissioner. As to the legality of the Council, when the revolution occurred, either for good or bad, the Commissioners sought the advice of the law officers of the Crown, and the latter said, in their opinion the Council was illegal. Consequently, the Commissioners did not appoint the Expenses Committee, and thus they were brought to a dead-lock. The Commissioners did not think it their duty to interfere, but simply to let matters alone. The Commissioners were perfectly willing when the present, or the next Council, obtained an opinion from the law officers of the Crown in their favour, to at once acknowledge them. The Commissioners never had the slightest hostility or ill-feeling towards the noblemen and gentlemen on the Council. The Commissioners never had the slightest feeling as to the revolution, but they were advised by the law officers of the Crown that the actions of the Council were illegal. The next question referred to the unfortunate rink. He believed he was in this matter the most guilty person, for, when he was asked whether in his opinion it was legal to devote any portion of the gardens to the purposes of a rink, he pronounced it with the greatest confidence to be illegal. He told the Commissioners this—"It is illegal, and we cannot allow it." That was the whole history of that affair. He was perfectly certain there was no more hostile feeling on the part of the Commissioners in refusing to sanction the skating rink than in any other matter. The refusal to sanction the rink was not the result of hostile spirit, but was a mere question of law. If ever there was a clear case of ordinary common sense and of legal common sense, it was this. It was perfectly impossible for a Commission established for the promotion of science and art to allow a Society which was established for scientific horticulture to put up a skating rink. Whatever might have been the intention of the Council, or whatever had been the speech of the Chairman, there appeared to have been something more in their minds when the report was penned. He did not blame them for it, but *he was authorised to say on behalf of Her Majesty's Commissioners* that their intentions had never been in the remotest degree hostile to horticulture. The Commissioners considered themselves *quasi* partners in the promotion of horticulture, and it was their wish to promote it. Whatever might have been said of the Commissioners he was authorised to say that they never had any wish to do anything but to promote the objects of the Society in every pos-

sible way. So far as regarded horticulture, and now as to the appropriation of the land. It had been whispered that the Commissioners wanted to build upon the land. Now he was authorised to say that proposition had never been submitted to them—he meant the proposition to build upon the Horticultural Gardens. He was authorised to say such a proposition was never brought before them; that they never for one moment thought of such a proposition, and that they never held any intention on the subject. It appeared to him that the agreement or arrangement of the Society with the Commissioners was drawn in a worse and more loose manner than any Act of Parliament he had ever seen or drawn. He could say on behalf of the Commissioners that they never thought of determining the lease, or of putting an end to the Society in order to benefit themselves. Now, he wished to address a few words to his brother Fellows, the "Kensingtonians." With great deference to the noble Chairman, he could not but think, after reading the report, that it did not bear a pleasant aspect as regarded the Commissioners. He had now nothing to do with the Commissioners. He might say in the language of Shakspeare, "My withers are unwrung." Since they were, however, in a great measure dependent upon the Commissioners, he did not think it was wise to use terms which appeared to him to be—he would not say offensive, but assuredly not calculated to conciliate the Commissioners. He did not want to find fault with the Council. He thought that meeting ought to authorise the Council to consider some of the sentences in the report, and either to omit these sentences or re-cast them. If they did that it would not be the slightest reflection upon the Council or the Society. He should also suggest that, after reconsidering their report, the Council should take steps to establish their own legality.

Mr. Shirley Hibberd felt there were so many unsatisfactory passages in the report, the Society appeared to be in so unfortunate a condition, and the Council had seemed to be without a definite policy—and therefore he should move that the report be referred back to the Council for reconsideration. He would point out one clause in this report which they could not allow to pass, after what the Chairman said as to what had sprung up between the two authorities. It was impossible for them to be on friendly terms, or even on proper business terms, with Her Majesty's Commissioners, when they had in the report a paragraph which told them that Her Majesty's Commissioners attempted to get the lease voided, so that the Society should be cast upon their mercy to receive some dole. That sentence jarred upon the whole of the proceedings that day, and there appeared to be no other course open than to ask the Council to take back the report and reconsider it. He begged to move, as an amendment, that the report be referred back to the Council for further consideration.

Dr. Denny said that, considering the way in which the Chairman spoke, and the conciliatory way in which he mentioned the Royal Commissioners, he (Dr. Denny) looked upon the report as one drawn up in the worst possible taste, besides being untrue. They had no right to say that Her Majesty's Commissioners intended to take their lease from them. They seemed to forget that, if the lease was voided, it was voided by themselves, and not by the Commissioners, and simply because they did not pay their rent to the Commissioners. The report alleged what was not true, and as it was quite impossible for them to pass the report as it now stood, he had much pleasure in seconding the amendment moved by Mr. Shirley Hibberd. They were told they were to save £2500 next year; but what was it to be saved out of, if not out of horticulture and shows? The first thing the Council did was to do away with the salaries of the staff upon which the Society leaned. Were they to lose all their staff? Was nothing to be done at Chiswick? Were they to have no science there, no records kept or published? Was the Society to become a nonentity as far as horticulture was concerned? They must recollect that gentlemen on the Council were elected for a certain purpose. He did not find fault with the South Kensington interests, which certainly had a right to be represented but not to sweep off everything. The President of the Society was a South Kensingtonian, so was the Vice-President, so was the Treasurer, so was the Secretary; and so were the members of the Finance Committee. Those who were not South Kensingtonians had not a voice in the matter at all. How, he should like to know, were they going to pay their rent next year? If they were about to do so, they ought to do it at once, and not leave it until Her Majesty's Commissioners chose to take proceedings, and when the Society would not be in a position to make any terms whatever. If they could not pay their just debts, they ought to have some means of doing so. It would have been much better if the Council had proposed to the wealthy inhabitants of South Kensington to put their hands in their pockets and pay off the debenture debt. There were thousands of rich people in South Kensington who could pay it, and it would only cost the Fellows about £17 each to pay the amount off. That would be better than to go begging to people who had nothing at all to do with the matter. With regard to horticulture, they ought to show what was to be taken off and what put on. Anything should be done before they touched their staff. Had they a right to ask gentlemen whose time was valuable to give it to the Society, and in addition pay a considerable sum for railway fare?

The Chairman asked Dr. Denny what gentlemen he was alluding to?

Dr. Denny: I am referring to your scientific staff.

The Chairman: Well, then, what about the Council?

Dr. Denny: I am simply referring to our scientific staff.

The Chairman: But all the members of the Council are unpaid.

Dr. Denny was quite aware the members of the Council were unpaid, but still he asked the question, Would any man work without pay? Would their lawyer work without pay? Next year, when they had to pay their rent, they would find that horticulture would be cut down to nothing.

Mr. Haughton congratulated the Chairman upon his speech—a speech which was an announcement of a total reversal of policy. It announced that, at the last moment, the Council had ceased to wage war against the Royal Commissioners, and that, practically, a treaty of peace had been entered into. He had hoped to have heard something about the details of that treaty, and something as to the real state of the Society, and the loss which was the result of ill-advised warfare. On both points the meeting had nothing but promises. They were told they were to have a great reduction of expenditure next year, but how that reduction was to be effected they did not know, for no estimate had been laid before them. They had nothing but a bare statement placed before them; but it was obvious to every one in the room that a reduction must be effected if they were not to forfeit their lease and be turned out of their gardens. Having criticised the accounts submitted by the Council, Mr. Haughton said there was one thing they should keep in mind, and that was, not to quarrel with one another. They must be unanimous in insisting upon the Council carrying out their policy, and to come to satisfactory arrangement with Her Majesty's Commissioners at the earliest possible time. It would be most desirable, when that was done, that the result should be announced to a meeting of the Fellows. The Chairman had told them that Her Majesty's Commissioners considered they had some cause of offence before the skating rink was commenced; but really the Fellows had some cause of complaint, that they had not been consulted. He hoped something would be done to ensure peace, lasting and durable. He thought that the concluding words of the report ought to be struck out, and if they were not, he should support the amendment.

Mr. Quilter said he was anxious, as a country Fellow, to see some amicable means adopted by which this continual strife should be ended. He did not think the Council could refuse to send back the report, so that the words which reflected on Her Majesty's Commissioners should be expunged. If that was not done, let an independent committee be appointed to seek an interview with Her Majesty's Commissioners in order to come to some arrangement with them. What, he asked, had the Kensington Gardens done to benefit horticulture? The whole object seemed to be to raise money for the benefit of these gardens. He should be anxious that either a committee or the Council should undertake to seek an interview with the Royal Commissioners, and see what were the best terms into which they could enter with them. He should be exceedingly sorry to see the gardens done away with; but there were many ways in which they could be helped, as the Prince Consort had wished to do. What they wanted was to give the people something to see and hear, and not give exclusive rights to the people of the locality. As a country Fellow, he did not see what advantage it was to him to continue his subscription to the Society. He begged to support the amendment, and hoped the Fellows present would vote for it; and he trusted that before it was again presented the Council would seek an interview with Her Majesty's Commissioners.

Sir Alfred Slade gave some explanations of the figures quoted by Mr. Haughton, and then

Mr. Edgar Bowring addressed the meeting, stating that he spoke as a member of the Royal Horticultural Society, and not as a Royal Commissioner. He had listened with much pleasure to the speech of the Chairman when opening the meeting, and he hoped the time was fast coming when amicable arrangements would be entered into between the Council and Her Majesty's Commissioners. He entirely endorsed the remarks made by Sir Henry Thring. He was unwilling to take a hostile step towards the Council, but now that a motion had been brought before the meeting to refer back the report he could not think he should show any hostility to the Council, but, on the contrary, show his good will, when he said he would support this motion—that the report be sent back for reconsideration. He should only say that he hoped the result of the meeting would be to place the Council in a legal position. The Chairman said that seven times the Expenses Committee were asked to meet, and that the Royal Commissioners seven times gave a refusal; but really that was not because the Royal Commissioners did not want to sit, but because there was an expressed opinion by the law officers of the Crown that they could not meet. The suggestion about the skating rink was altogether outside the province of the Expenses Committee.

The Chairman observed that he had only asked the question to be discussed—not to be sanctioned.

Mr. Bowring said that, under the Act, the Society could not appropriate any of their land to the purposes of a skating rink, nor could the Commissioners approve any such appropriation. It seemed to him better to refer the report back to the Council, and he hoped the result of the meeting would be, that the present Council would be declared legally elected.

The Chairman said it was now time to declare the course the Council felt it their duty to pursue. He asked the Fellows to put a little trust in the Council which had carried on the affairs of the Society during the past two years. The Council had heard with the greatest possible satisfaction it was not the intention of the Commissioners to build on the gardens. They accepted that as a most gratifying fact, and he should not state the evidence upon which the Council thought it was otherwise. Again, they heard that the Royal Commissioners did not intend in any hostile sense to determine the lease of the gardens, and the Council accepted that statement as frankly as it was given, and certainly with sincere delight. But, if the meeting were to come to a resolution that the report should be sent back, then, before the meeting did that, he should ask them ont to turn out their Council. Surely the Council had some self-respect left. If the meeting told the Council to take back the report, of course the Council would at once resign; but it would be churlish to say the Council would not again look at the report and endeavour to arrive at some amicable solution of the difficulty. If the amendment was put to the vote the Council would be bound in honour to stand by their report, and the Fellows knew it; and he asked them not to place the meeting in an awkward position.

Mr. Godson: I move that the discussion be adjourned to this day month.

Mr. Haughton: And I second the motion.

Mr. Shirley Hibberd: On the understanding that we adjourn, so that the report be reconsidered. I shall, with great pleasure, withdraw my amendment.

The amendment was then withdrawn, and the further discussion of the report adjourned to the second Tuesday in March.

A vote of thanks was given to the noble Chairman, and the meeting separated.

Obituary.

Mr. W. R. Bragg, of Slough.—This well-known florist, once a keen exhibitor, but who of late years has seldom been heard of outside his own immediate circle, died very suddenly, at his residence, on the morning of Thursday, the 4th inst., in the 70th year of his age. William Roland Bragg was born in the Royal Mews, at Windsor, and was the son of a coachman in the service of his late Majesty King George IV. Evincing a liking for flowers and their culture in his early days, he was, when quite young, apprenticed to the head gardener at Lord Sefton's, Stoke Farm, near Slough, but afterwards left the garden, and became booking-clerk to Messrs. Lillywhite, Moody & Thumwood, the coach proprietors at Windsor. Subsequently he became a licensed victualler at Slough, having been landlord of the North Star Tavern for something like twenty-seven years. Though he gave up the profession of a gardener so early in life, he did not cease to be a cultivator of flowers, and as an amateur exhibitor he gained considerable renown. He was a grower of Pinks, Carnations, Picotees, Dahlias, Hollyhocks, Pansies, Sweetwilliams, &c., and one of his greatest triumphs as an amateur was the winning of a cup, value £20, with Dahlias, at Birmingham, in 1840.

Eventually he entered into business as a florist, cultivating some ground at the back of the hostelry so long associated with his name, which was known as the North Star Nursery. This was the exhibition place of the once well-known Slough Dahlia Show. He was a much-respected contemporary of such well-known florists as John Edwards, C. P. Lochner, George Weedon, Richard Staines, and others that we now associate with the old school of floral enthusiasts.

Of late years he obtained some notoriety as a cultivator of a fine break of Sweetwilliams, known as Hunt's strain; and to the last he continued his business, and raised Hollyhocks, Pansies, &c. That somewhat over-rated bedding Pansy, Cliveden Blue Improved, originated as a sport at the North Star Nursery.

He was a most genial, good-natured man, a pleasant social companion; and though the later years of his life were somewhat clouded by adversity, he passed away amid many regrets; and numerous cultivators of florists' flowers, both past and present, will cherish his name with kindly remembrance.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
For the Week ending Wednesday, February 10, 1875.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 Years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for the Week.	Temperature of the Air. Departure of Mean from Average of 60 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
Feb.	In.	In.	°	°	°	°	°	°			In.
4	29.85	+ 0.09	40.9	32.6	8.0	35.6	− 3.3	32.5	89	NNW	0.00
5	30.16	+ 0.40	38.1	30.5	7.6	34.4	− 4.6	33.7	98	NNE : W.	0.00
6	30.13	+ 0.37	40.1	26.9	13.2	32.3	− 6.8	30.7	94	S W : W.	0.04
7	29.64	+ 0.17	39.0	31.1	7.9	34.7	− 4.4	33.4	91	E.S.E. : S.E.	0.07
	30.06	+ 0.29	34.1	29.6	5.1	31.4	− 7.7	28.4	88	E.S.E. : E N.E.	0.00
	29.92	+ 0.22	33.4	28.8	4.6	30.7	− 8.4	28.1	89	ENE : E.S.E.	0.01
10	30.00	+ 0.22	33.8	32.0	1.8	32.6	− 6.4	29.6	88	E N.E.	0.00

Feb. 4.—Fine and cold, a little hoar-frost in morning. Fine, and clear in afternoon and evening.
— 5.—Overcast, and dense fog in morning. Fine, and bright in afternoon. Fog at night.
— 6.—Fine, hoar-frost, and slight fog in early morning. Overcast, dull in afternoon and evening.
— 7.—Overcast, dull; and cold in morning and afternoon. Fine, and light clouds at night.
— 8.—A fine, but cloudy day. Lowest temperature of vegetation, 26°.7
— 9.—Overcast and dull, a little granular snow from 8 to 9 A M. Overcast in afternoon and evening.
— 10.—Overcast, dull, and cold throughout. A little snow fel at 11.15 A M., but for a very few minutes.

—— In England, the extreme high temperatures observed by day ranged between 65° at Sunderland and 41¾° at Nottingham, the general average all over the country being 49½°. The extreme low temperatures observed by night varied from 29° at Birmingham to 21¾° at Nottingham, the general average being 26°. The extreme range of temperature in the week was 23½°, being as large as 37° at Sunderland, and as small as 19¼° at Birmingham. The mean high day temperatures ranged from 48¼° at Sunderland to 36° at Nottingham, with an average value of 43¼°. The mean low night temperatures varied from 35¼° at Leeds to 30¾° at Bristol, with a general average of 33°. The mean daily range of temperature in the week was 10½°, varying from 13½° at Sunderland to 4° at Nottingham.

The mean temperature of the air for the week was 38°, being 1½° higher than the value for the corresponding week in 1874; the highest reading in the week was at Sunderland, 41¼°, and the lowest at Nottingham, 33¾°.

The amounts of rain which were recorded at the different stations were generally small; at Liverpool, Manchester, and Eccles nearly four-tenths of an inch was measured, being considerably larger than the amount recorded at other stations; at Bristol one-hundredth of an inch only was recorded, and at Leeds no rain fell. The average fall over the country was rather more than one-tenth of an inch.

The weather during the week was fine; cold and frosty, with dense fog, on the morning of the 6th.

In the suburbs of London the reading of the barometer at the level of the sea decreased from 30.67 inches at the beginning of the week to 29.92 inches by the afternoon of February 3; a steady increase then occurred, and by the evening of the 5th, 30.38 inches was reached; it then turned to decrease, and by the end of the week 30.20 inches was recorded. The readings were all in excess of their averages except that of the 3d, which was 0.03 inches in defect. The mean reading for the week was 30.25 inches, being 0.22 inch higher than that of the preceding week.

The highest temperatures of the air at 4 feet above the ground ranged from 49° on February 1 to 38° on the 5th; the mean for the week being 43°. The lowest temperatures of the air ranged between 35° on the 3d, and 27° on the 6th, with a mean for the week of 31½°. The mean daily range of temperature in the week was 11¾°, the greatest range being 16° on the 1st, and the least, 7°, on the 3d. The mean daily temperatures and the departures from their respective averages were as follows:—January 31, 38°.4, — 0°.1; February 1, 40°.4, + 1°.8; 2d, 38°.8, + 0°.1; 3d, 38°.5, — 0°.3; 4th, 35°.6, — 3°.3; 5th, 34°.4, — 4°.6; 6th, 32°.3, — 6°.8. The mean temperature for the week was 36°.9, being 1°.9 below the average of sixty years' observations.

The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in the full rays of the sun, were 96¾° and 80¾° on February 1 and 4, but on the 3d it did not rise higher than 49°. The lowest readings of a thermometer on grass, with its bulb fully exposed to the sky, were 29° and 24° on the 4th and 6th; the mean for the seven low readings being 28¾°.

The weather during the week was fine, but cold. The sky was entirely covered with cloud on the 2d, on which day slight fog prevailed.

Rain fell on one day, the amount being 0.04 inch.

In Scotland, the highest temperatures ranged from 55° at Paisley to 48° at Greenock, the lowest temperatures varied from 25° at Greenock to 18¾° at Aberdeen, their averages being 51½° and 22½° respectively. The mean range of temperature was 29°.

The mean temperature of the air for the week was 37¾°, being 3¼° below the value for the corresponding week in 1874; the highest happened at Glasgow, 39½°, and the lowest at Greenock, 36½° nearly. Rain fell at Aberdeen to the amount of four-tenths of an inch, but at Paisley and Perth five-hundredths of an inch only was measured, the average fall over the country being two-tenths of an inch nearly.

At Dublin, the highest temperature was 54½°, the lowest 23½°, the mean 42°, and the rainfall 0.32 inch.

JAMES GLAISHER.

Garden Operations.

(For the Ensuing Fortnight.)

PLANT HOUSES.

Greenhouse Hard-wooded Plants.—In the autumn, when plants are got into their winter quarters, it frequently happens that insufficiency of room necessitates the stock being placed closer together than consistent with their well-being, yet, whilst comparatively dormant, they do not receive so much injury as when growth commences. Where such has been the case means should at once be taken to give the plants in the hard-wooded house more room, as growth of the shoots and swelling of the bloom-buds will with many things shortly commence. Room for these will now generally be found in the place of a portion of the *Azaleas* and similar plants that are being brought on into flower, or a late vinery may often with advantage be used for this purpose, so essential to the well-being of the stock, especially during the earliest stages of the season's growth. If any old plants exist of that most useful decorative subject, *Aralia Sieboldii*, that are furnished with cuttings, these should at once be taken off and struck in heat; when rooted, potted on, and growth encouraged by the time that frosts are over, they will, if they are plunged out-of-doors in a sheltered sunny situation, make nice small conservatory or room decorative subjects for the ensuing winter; but by far the best method of increasing the plant is from seed, which is sown during the spring, and, grown on under glass through the summer, and wintered out of the reach of frost, they will make splendid plants the second season. Where any exist that were raised from seed last season, and are now transferred to 10 or 12-inch pots, according to their strength, they will get well established before the time for plunging them out arrives; so treated, almost every plant will bloom, throwing up in the autumn their large panicles of white flowers, that will last for weeks. Independent of its bloom, it is one of the very best subjects in existence for standing in situations where plant-life can scarcely exist. There are few things, except some succulents, and some of the Palms that will thrive in a low temperature, that equal this Aralia as a room plant; even far away from a window, such as in an entrance hall, it will retain its leaves, healthy and fresh, for as many months as the generality of plants would for days: when its properties in this respect are better known it will be much more extensively grown. Where there is a considerable demand for decorative things of this description each spring a few small plants of *Dracæna australis* should be procured, both for using in a small state and for growing on to succeed others that get too large, and which find a suitable place in the conservatory, corridors, or similar situations, where their elegant habit of growth is seen to the best advantage. The stronger-growing D. Draco is another most useful plant for this purpose, and if procured in a small state, by liberal pot-room and an occasional application of manure water, it will soon grow into a handsome size. A few small plants should also be periodically added to the stock of the most useful varieties of *Yucca*, such as *Y. aloides variegata*, *Y. albospica*, *Y. filamentosa*, *Y. quadricolor*, and its finer form, *Y. Stokesii*. They have everything to recommend them in the way of their adaptability for associating well with each other, or with flowering plants, and may be placed for a time without injury where many things would die or suffer seriously. Where plants of *Yucca aloides variegata* exist that have got old and naked at the bottom, or too large for the place they have to fill, if about 2 feet of the head is cut off, the bottom leaves removed for 6 inches, and the top, so prepared, inserted in peat and sand in equal parts in a little heat, they will root directly: sections of the hard stem taken off an inch and a half in length, and inserted half their length in sand in a propagating pan, will root and push growth during the summer in heat. The propagation and attention in growing on of all such things as these is much better done at once than deferred to later in the spring, when there are things innumerable requiring attending to.

Orchids.—Potting and top-dressing must be proceeded with as the plants indicate signs of growth. Miltonia Moreliana, and the varieties of M. spectabilis, succeed best when grown in shallow perforated pans or baskets, suspended from the roof, in the warmest part of the Mexican-house, where they can be conveniently shaded. Miltonias require more shade than the occupants of the Mexican-house generally. For potting use good fibrous peat with a little sphagnum. Good drainage is indispensable, and the plants should be cleaned previous to being potted. They frequently get infested with white scale; these can easily be got rid of by washing the plants over with soft soap and tobacco water; to do it effectually the mixture should be allowed to remain on the plants for a day, and they should afterwards be washed with tepid rain-water. The small-growing Cattleya Aclandiæ, C. marginata, and C. Regnelli, that require repotting or blocking, should be done as soon as they show signs of starting into growth. These small Cattleyas are rather more difficult to keep in health than the stronger growing kinds; they, nevertheless, succeed very well when grown in small pans or pots suitable to the size of the plant. They should be suspended from the roof, where they can obtain a good circulation of air, and have plenty of light. For potting, use fibrous peat and a few lumps of charcoal, with good drainage; the plant must be a little elevated above the top of the pot. Care must be taken not to over-water them—once or twice a week will be sufficient. Under the above treatment I have found them to continue in health a much longer time than when grown on blocks. The constant changes from drought to saturation, when grown on blocks, weakens the constitution of the plant so much, that after two or three years they begin to decline, and in nine cases out of ten C. Aclandiæ dies. C. superba should be grown in the way recommended for the above, but it requires the heat and moisture of the East India house when making its growth. A few of the Dendrobiums are now starting into growth; these require an increase of water at their roots; those plants requiring larger pots or baskets should be shifted as soon as the growth is fairly started. An increase of moisture will be necessary on fine days in all the departments. A dewing over with the syringe will be found very beneficial to such plants as Aerides and Vandas which have been repotted. *G. Baker, Clapham Common.*

Soft-wooded Greenhouse Plants.—*Mignonette*, if the plants have been well managed, will now come in very useful; if they are kept a few degrees warmer than ordinary greenhouse temperature the flowers will come stronger, but the plants should be placed near the light. *Pelargoniums*, both show and fancy sorts, should have enough sticks placed to them to keep them in shape; this is necessary, and must be done at once, so as to keep them open and allow the light and air to get to the centre of the plants. Zonals, if kept in a temperature of 45° in the night with a dry atmosphere, will flower freely and be useful for cutting or conservatory decoration. *T. Baines, Southgate, N.*

FLOWER GARDEN, &c.

Parterre and Mixed Garden.—Any alterations necessitating the removal and relaying of turf, or the transplanting of deciduous trees and shrubs, should now be brought to a close as soon as possible. If this work is deferred and the spring sets in dry, it will entail much labour to get such things properly established. Continue to eradicate weeds on lawns, and look closely to the margins of walks and beds, and if they are found to be at all unlevel, ram down and roll. After getting the whole level and firm, the verges should be neatly cut with a sharp edging-knife. By doing this every spring the clipping during the summer, is greatly facilitated as a man can then go quickly over them with the edging shears, and keep them sharp and well defined. If the grass is at all mossy, as frequently occurs on poor sandy soil, or if it is at all thin and poor, or shows signs of exhaustion from frequent cutting or any other cause, it should now receive a good top-dressing. Rich vegetable mould is best for this purpose, and to this should be added a good quantity of soot, wood-ashes, and lime, and the moss will soon disappear and give place to fine grass.

Soot is a powerful fertiliser, and imparts that rich healthy green to grass so desirable as a setting to gay flowers. The texture and appearance of grass is much improved by frequent sweeping and rolling; therefore the broom and roller should not be idle when opportunity for their use occurs. Walks, too, will now require free use of the roller to get them thoroughly consolidated after the loosening they have had from the frost, and before dry weather sets in any that are dirty or discoloured should have a sprinkling of bright gravel, and be well rolled down. Walks kept bright and clean in this way impart an air of comfort, and give a cheerful tone to the whole place.

Borders containing herbaceous plants, bulbs, &c., if not already done, should be neatly forked over, as many are fast pushing through. Advantage should be taken while working among them to reduce such as have become too large, or to divide and increase such as are choice and desirable. Bulbs of any of the *Liliums* may now be planted. These are very effective in shrubbery borders backed up by evergreens, or among thinly planted Rhododendrons, in the peat beds of which they revel. The bulbs should be planted 6 inches deep, and have a handful of sharp sand scattered over them to prevent them rotting. *Gladiolus* for early blooming may now be planted, and should be treated in the same way. Plant *Ranunculuses* and *Anemones* in deep rich soil, with a pinch of sand round them, and sow seed of the latter for blooming in autumn. *Roses* and other climbers on walls and trellises should now be pruned, regulated, and tied in, and any standard or dwarf perpetual varieties required to bloom early should be pruned in at once, but the main lot should be left till later. No time should be lost in sowing seed of such of the subtropical and other bedding plants as require time to get them into planting size. Some of these may be enumerated as follows:—*Wigandias, Solanums, Melianthus, Ferdinandas, Cineraria, Acacia lophantha, Centaurea*, &c. Such things as *Beta Cicla, Ricinus, Zeas, Amaranthus*, and others of quick growth, should not be sown till April, as they only get checked and stunted. A few *Sweet Peas* and *Mignonette* may be sown for early blooming. Divide and place in heat such things as *Cannas*, and start all stock plants required for propagating purposes. Roots of *Aralia papyrifera* put in at once will make good plants by June. *Abutilon marmorata* is a fine thing, being much superior to *Thomsoni*. If placed in heat now it will soon afford a good supply of cuttings. Tricolor and other choice variegated *Pelargoniums* should be enjoying a little gentle heat, so as to afford a batch of cuttings. These may be partly severed, and left on the plants a week or so to callus, after which they may be entirely severed and inserted in small pots, with a certainty of them rooting if placed on shelves near the glass. Push on the propagation of all kinds of bedding plants from stock plants previously placed in heat for that purpose. Most bedding plants are better from spring-struck cuttings, and a sufficiency of these should be grown on, so as to be able to discard the old stock plants. Such things as *Mesembryanthemum cordifolium variegatum* will be found to root more readily on shelves near the light than in close, moist propagating boxes, as such places are only suited to cuttings containing but little moisture in their stems. The old neglected *Verbena venosa* is one of the best and most lasting bedding plants we have, and forms a pleasing contrast if mixed with any of the variegated *Pelargoniums*. Seed sown in heat now will afford nice plants by May, and old roots may be cut up and divided. Place in heat roots of any choice *Dahlias*. These should be plunged in a bed of old leaves, tan, or cocoa-nut fibre, in either of which the young shoots root freely, and they can then be taken off with safety, and potted in loose vegetable soil. *J. Sheppard, Woolverstone Park.*

FRUIT HOUSES.

Pines.—At about the commencement of March it is customary to start a batch of suckers, which are intended to provide plants to give a supply of ripe fruit from about next December and onwards through the spring and early summer months. The present expeditious method of cultivation dispenses with considerable labour which at this time was formerly necessary in overhauling the principal part of the whole stock of plants, stripping off the lower leaves and soiling up the stems to induce new roots therefrom, and in some cases even shortening it back a bit. Preliminary arrangements are nevertheless to a certain extent still required with regard to materials which will be wanted for use in potting, and the necessary preparation of a fermenting bed in some close structure, which will generate and maintain a temperature near the surface of it of from 80° to 90°; where an abundance of fire-heat will not be necessary to keep up a degree of warmth of from 55° to 65° regularly; these matters should have immediate attention if not already done. If a number of the best developed plants were selected at about the beginning of last December, and were stimulated by an advanced temperature and other suitable requirements, as have been from time to time indicated in this Calendar, these will now be showing fruit. It is in most cases both desirable and profitable to advance the ripening of the fruit of these as much as possible; therefore the temperature about them should be well sustained at a mean of 70°, with 5° or 10° more under favourable conditions. Ventilate as before advised, and economise fuel as much as possible whenever sunshine assists. If such plants can be afforded a suitable structure together it is much to be preferred; otherwise they should occupy the hottest end in the house. With the fruit advancing the plants will want more water at the roots. It will also be necessary to go over the stock once every week, as other plants will, with increased light and heat, require it also. Recently started plants, which are intended to furnish a succession of ripe fruit to those already named, should not be hastened on too rapidly; 65° at night, and 70° in the day-time, artificially, will suffice throughout the present month. *G. T. Miles, Wycombe Abbey.*

Cucumbers.—A fair amount of sunshine during the past fortnight has wrought wonders in the progress of Cucumbers, and very healthy growths, with good supplies of fruit, have resulted. The early salmon season is now fairly in, too, which always increases the demand. Lent is also in, when Cucumbers, to be served with fish, are sure to find sale in many quarters; hence the importance of securing a good supply just now. The general treatment for the ensuing fortnight remains much the same. A little more moisture, both at the roots and in the atmosphere, however, may be safely employed, and the evaporating troughs may be regularly charged in bright weather. A slight increase in the day temperatures may also be permitted. Still be very careful in the admission of air, and don't overlook that injunction which I have ever striven to enforce in regard to regulating the temperatures by the fire, and also the water valves: young practitioners often need a hint in this direction. Encourage a free root-action by a repeated introduction of fresh compost, and never omit to cut the plants over regularly at least once a week. Pits and frames must now be thought about, and as fast as they become cleared of winter salads and the like let them be turned to account forthwith, by way of a thorough cleansing and the getting in of the fermenting materials, which must previously have received a thorough course of preparation, preparatory to planting out both Cucumbers and Melons. Pits and frames need never be unoccupied. A good and a lasting heat should be secured; do not, therefore, get in the materials of fermentation before they are well prepared, or it will only end in failure to a greater or less extent. The plants to be turned out, it is presumed, are also in hand. The 1st of March is a good time to turn them out. Those who have no convenience for raising their own plants by that date should court the good offices of a neighbour. *Thos. Simpson.*

KITCHEN GARDEN.

The Mushroom-house.—All Mushroom beds prepared in early autumn should have borne their crops, and in the order of things now show marked signs of exhaustion; hence, it will be necessary to renew them with as little delay as possible. This may quickly be done where fresh materials have been prepared in readiness. Where these do not exist, however, resort should be had to the necessary collection and drying of such. If practicable, collect the crude horse-droppings direct from the stables, and under no circumstances allow rain or water in any form to reach them. Along with the latter procure all the dry sweepings of a short description, and let them be mixed freely together. Spread them out where practicable on the floor of an open airy shed, and in such a position that they may dry freely. If old beds do not bear at all, then will it be necessary to hasten the matter, and resort must be had to fermentation, in view to dispel all excess of moisture contained in the new material. Turn them over about twice each week, and immediately following each distinct ferment, and when steam is seen to issue freely from the apex of the mass. This is to be followed until such time as it is judged that all excessive and impure moisture is expelled, and only sufficient latent moisture remains in the whole mass to cause a slight fermentation, and produce a maximum heat of about 95°, when they will be in a proper state to form the bed or beds as may be needful. *William Earley.*

Answers to Correspondents.

Black Fly on Peach Trees: *J. T. B.* Your trees are infested with the common black fly, which is a sad scourge to Peach trees, and is very difficult to get rid of. You must persevere in dusting the trees with Pooley's Tobacco Powder.

Insects: *T. B., Lochryan.* The grubs which have gnawed your Vine and Peach tree roots are the omnivorous larvæ of the weevil, Otiorhynchus sulcatus. Their size and white colour render them easy to be discovered on carefully removing the soil round the roots. As they are near the surface, it would be well to remove the earth and bake it, in order to kill the grubs. *I. O. W.*

Names of Plants: *Nil Desperandum.* We do not recognise your plant from a single leaf.—*R. C.* Myrsiphyllum asparagoides.—*A. G. C.* Abies nigra.—*W. S.* Kennedya monophylla, a very old-fashioned pretty greenhouse plant.—*G. P. S.* Begonia argyrostigma; Fittonia Pearcei; Phlebodium arcolatum; Gymnogramma chrysophylla.—*An Old Sub., Dublin.* The specimen seems to be only a var. of Berberis aristata; but it would be better to send again when in flower.—*F. B., Ferndene.* Cypripedium venustum. The Oncidium is apparently O. cebolleta; but without leaves or description it is impossible to be certain.—*P. H. G.* Dendrobium aureum, var. pallidum = D. rhombeum of Lindl. Please send another specimen of the Ceylonese Dendrobe.

Peach Borders: *Nil Desperandum.* You must water when it is required. Keep the soil always moist, but never in a soddened state. We should say the borders would require watering in about a fortnight's time.

White Paint: *F. G.* Nothing better than good white-lead—pure; not, as sometimes happens, adulterated with whitening.

☞ Foreign Subscribers.—We are requested by the Publisher to desire Foreign Subscribers who send Post Office Orders, to be good enough to write to the Publisher at the same time, stating that they have done so.

*** Correspondents are specially requested to address, post-paid, all communications intended for publication to the "Editors," and not to any member of the staff personally. The Editors would also be obliged by such communications being posted as early in the week as possible. *Letters relating to Advertisements, or to the supply of the Paper, should be addressed to the Publisher, and* not *to the Editors.*

Catalogues Received. — Felton & Sons (23, High Street, and 56, Harborne Road, Edgbaston, Birmingham), Seed Catalogue for 1875.—Peter S. Robertson & Co. (33, St. Andrew Square, Edinburgh), Descriptive Catalogue of Vegetable and Flower Seeds, Garden Implements, &c. — William Bull (King's Road, Chelsea, London, S.W.), Retail List of Flower, Vegetable and Agricultural Seeds, and New Plants.—Drummond Brothers (52, George Street, Edinburgh), Spring Catalogue of Vegetable and Flower Seeds; also their Select List of French Hybrid Gladioli. — Francis & Arthur Dickson & Sons (106, Eastgate Street, Chester), Catalogue of Vegetable and Flower Seeds, &c.—Alegatière (Chemin de St. Priest, à Monplaisir, Lyons), Catalogue of Florists' Flowers.—Thos. S. Ware (Hale Farm Nurseries, Tottenham, London), Spring Catalogue of Hybrids, &c. — William Barron & Son (Elvaston Nurseries, Borrowash, near Derby), Descriptive Catalogue of Roses, and Select List of Coniferæ and Ornamental Plants, &c.—Frœbel & Co. (Horticulturists, Neumunster, Zurich), Price List of Vegetable and Flower Seeds, Bedding Plants, &c.; also their List of New Plants to be sent out in April.

Communications Received.—F. A., Hatfield.—Thos. Boyd. — W. S.—F. G.—J. T. B.—J. D. W.—J. G. B.—C. B. S. — Lynx-eyed. — H. K. F.—W. B. H.—J. R. J.

Markets.

COVENT GARDEN, February 11.

We have little alteration here at present; quotations remain as last week; importations and home produce being quite sufficient for all demands. *Thos. Taylor, Wholesale Apple Market.*

Fruit.

	s. d.	s. d.		s. d.	s. d.
Apples, per ½-sieve	1 0	1 6	Melons, each	..	..
Chestnuts, per bush.	10 0	20 0	Nuts, Cob, p. lb.	1 6	2
Grapes, English, p.lb.	4 0	10 0	Oranges, p. 100	8 0	12 0
— Muscats, do.	6 0	10 0	Pears, p. doz.	4 0	8 0
Lemons, per 100	8 0	12 0	Pine-apples, p. lb.	3 0	6 0
Medlars, per doz.	..	....	Walnuts, p. bush.	16 0	..

Vegetables.

	s. d.	s. d.		s. d.	s. d.
Artichokes, Fr., each	0 8	..	Horse Radish, p. bun.	3 0	5 0
Asparagus, English, per bundle	12 0	15 0	Leeks, per bunch	0 2	0 4
— French, p. bund.	2 0	..	Lettuces, per doz.	1 6	..
Beans, French, p. 100	6 0	..	Mushrooms, per pott.	1 0	2
Beet, per doz.	1 0	2 0	Onions, young, bun.	0 4	0 6
Broccoli, p. bundle	0 9	1 6	Parsley, per bunch	0 4	0 6
Brus. Sprts., p. bush.	6 0	..	Parsnips, p. doz.	0 9	1 0
Cabbages, per doz.	1 0	2 0	Peas, per quart	8 0	..
Carrots, p. bundle	0 6	0 9	Radishes, per bunch	0 2	0 4
Cauliflowers, per doz.	2 0	6 0	— black, Turnip, do.	..	0 6
Celery, per bundle	1 6	2 0	Seakale, per bundle	1 6	2 0
Cucumbers, each	4 0	6 0	Shallots, per lb.	0 3	..
Endive, per doz.	1 0	2 0	Salsify, per bundle	1 6	..
Herbs, per bunch	0 2	0 4	Tomatos, per doz.	1 0	3 0
Potatos:—Early Shaws,	110s.		Turnips, per bundle.	0 6	0 0
			Early Myatt's	140s.	
			Early Regents,	120s.; and Early Dons,	120s per ton.

Cut Flowers.

	s. d.	s. d.		s. d.	s. d.
Azaleas, p. 12 sprays	6 0	2 0	Lily-of-the-Valley, 12 sprays	2 0	6 0
Camellias, 12 blooms	2 0	6 0	Mignonette, 12 bun.	4 0	6 0
Carnations, 12 blooms	2 0	4 0	Narcissus, per doz.	1 0	3 0
Cineraria, p. bunch	0 9	1 6	Pelargoniums, 12 spr.	1 6	3 0
Cyclamen, 12 blooms	3 0	6 0	— Zonal, do.	0 9	1 6
Deutzia, per bunch	0 6	1 0	Primula, dbl., p. bun.	0 9	1 6
Epiphyllums, 12 bl.	1 0	2 0	— single, do.	0 4	0 9
Eucharis, per doz.	6 0	12 0	Roses, indoor, p. doz.	2 0	6 0
French Lilacs, p. bun.	8 0	12 0	— French, do.	2 0	3 6
Heliotropes, 12 sprays	0 6	1 0	Spiræa, 12 sprays	2 0	4 0
Hyacinths, per spike	3 0	6	Stephanotis, 12 sprays	9 0	15 0
— Roman, per 12 spikes	2 0	4 0	Tuberoses, p. doz.	2 0	4 0
			Violets, per 12 bun.	3 0	6 0

PLANTS IN POTS.

	s. d. s. d.		s. d. s. d.
Azaleas, per dozen..	30 0–50 0	Heaths, in var., doz.	12 0–30 0
Begonias, do. ..	6 0–12 0	Hyacinths, per doz.	4 0–12 0
Bouvardias, do. ..	9 0–18 0	Lily of the Valley,	
Cineraria, do. ..	9 0–18 0	12 sprays ..	3 0– 9 0
Cyperus, do... ..	6 0–12 0	Mignonette, do. ..	4 0– 6 0
Deutzias, do. ..	8 0–18 0	Myrtles .. do.	3 0– 9 0
Dracæna terminalis	12 0–30 0	Pelargoniums, dble.,	
— viridis, per doz.	12 0–24 0	per doz.	6 0–12 0
Epiphyllums, each ..	1 6– 3 6	— Scarlet, do. ..	6 0– 9 0
Ficus elastica ..	1 6– 7 6	Primula sinensis, do.	4 0– 8 0
Fuchsia, per doz. ..	6 0–12 0	Solanums, do. ..	6 0–18 0

SEEDS.

LONDON: *Feb.* 10.—A brisk business is now passing in agricultural seeds. Red Clovers continue in active request at full rates, the stocks on the market being by no means excessive. Strong home-grown samples come to hand very sparingly, and such qualities realise extreme prices. From the United States our importations thus far have been very limited, both France and Germany having competed with us for their supplies in the American market. White Clovers are hardening in value. In Trefoil the recent advance is more than maintained. Alsike keeps dull. Imported Italian and perennial Ryegrasses meet with an improved inquiry. On account of its great scarcity, Sanfoin seed is dear. A large business at enhanced currencies is doing in spring Tares; the rise on the week for all descriptions is fully 2*s.* per qr. Large Scotch Gores are freely placed at long figures, and Brunswicks are also in better favour. The country generally is this year most unusually bare of both spring and winter Vetches. Canary seed is in diminished request, without being quotably cheaper. An increased demand is shown for white Millet, at an advance of 2*s.* to 3*s.* per qr. For blue boiling Peas the trade is more animated. Other articles are without change. *John Shaw & Sons, Seed Merchants*, 37, *Mark Lane, E.C.*

CORN.

The market on Monday opened quietly, and closed in a like manner. The condition of English Wheat, somewhat improved, tended to assist the sale a little, at the quotations of Monday last. Foreign Wheat was taken off sparingly, at unaltered rates, but the tendency was downwards. Flour remained dull, with drooping prices. Barley hung on hand, and to press sales easier rates had to be taken. Beans on the spot were firm, with more doing; Peas unchanged in value, and a quiet sale. Oats were taken off rather more freely, at 6*d.* per quarter less than on Monday week; and Maize was very difficult of sale except at reduced rates.—Trade on Wednesday was dull, but, influenced by the cold weather, factors were not disposed to accept money for either English or foreign Wheat, the condition of which was comparatively good. Barley and Oats realised Monday's currencies generally, but Maize was again slightly cheaper to sell. Beans and Peas also were drooping, and recent quotations were with difficulty supported for flour.—Average price of corn for week ending Feb. 6:—Wheat, 42*s.* 7*d.*; Barley, 45*s.*; Oats, 29*s.* 11*d.* For the corresponding week last year:—Wheat, 63*s.* 9*d.*; Barley, 48*s.* 9*d.*; Oats, 28*s.* 3*d.*

CATTLE.

As usually is the case in Lent week, the trade on Monday morning at Copenhagen Fields was dull. For beasts lower prices had to be taken to close sales; and for a general top quotation, 5*s.* 10*d.* to 6*s.* only could be quoted. The sheep trade was also somewhat disappointing. For very prime and small Down wethers, which were exceptionally scarce, stiff rates were paid, but, as a current topping market rate, 6*s.* 8*d.* was quite the extreme. Prime small calves were in request, at an advance on top quotations to 7*s.* per stone. Pigs were not in request. Quotations:—Beasts, 3*s.* 4*d.* to 4*s.*, and 5*s.* 8*d.* to 6*s.*; sheep, 4*s.* 8*d.* to 5*s.* 8*d.*, and 6*s.* 4*d.* to 6*s.* 8*d.*; calves, 4*s.* 10*d.* to 5*s.* 4*d.*, and 6*s.* 8*d.* to 7*s.*; pigs, 3*s.* 8*d.* to 4*s.* 4*d.*, and 4*s.* 8*d.* to 5*s.*—On Thursday there was scarcely any business done in beasts; and, notwithstanding lower prices, trade in sheep was exceedingly dull. Calves being in plenty, the average price was lower. No alteration reported in the rates for milch cows.

HAY.

The trade in fodder at Whitechapel market has been steady and fairly animated, supporting late extreme rates. Quotations:—Clover, best, 114*s.* to 120*s.*; inferior, 70*s.* to 80*s.*; hay, best, 104*s.* to 112*s.*; inferior, 60*s.* to 70*s.*; straw, 33*s.* to 40*s.* per load. Cumberland Market quotations:—Superior meadow hay, 110*s.* to 118*s.*; inferior, 88*s.* to 96*s.*; superior Clover, 114*s.* to 126*s.*; inferior, 95*s.* to 105*s.*; and straw, 40*s.* to 44*s.*

POTATOS.

With large supplies on sale at the Borough and Spitalfields markets trade has been slow, at easier rates. Regents, 75*s.* to 95*s.*; flukes, 110*s.* to 135*s.*; Victorias, 100*s.* to 130*s.*; rocks, 60*s.* to 70*s.* per ton.—The imports into London last week consisted of 13,479 bags, 109 baskets, and 10 casks from Antwerp; 436 sacks Boulogne, 343 tons and 5240 sacks Dunkirk, 304 tons Dahonei, 74 tons Duclere, 36 barrels New York, 160 St. Malo, and 217 bags from Rotterdam.

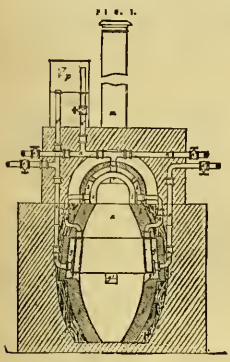
COALS.

A steady business was done at market on Monday, at prices ranging between 18*s.* 3*d.* and 24*s.* per ton. On Wednesday the demand for house coals was active on account of the cold weather, and the price advanced 1*s.* per ton. Hartley's also rose 6*d.* per ton.

COWAN'S COMPENSATING SYSTEM OF HEATING.

WAUCHOPE & COWAN'S NEW AND ECONOMICAL SYSTEM OF MAKING GAS.

THE COWAN COMPENSATING HEATING COMPANY, LIMITED, having recently been offered a valuable Patent for the Manufacture of Gas, to be worked in combination with their Patents for Heating Horticultural and other Buildings, have found it necessary, so as to acquire and work such Patent, to form a new Company with larger powers; the old Company having been incorporated for the purpose of dealing with the Heating Patents only.



THE COWAN COMPENSATING HEATING COMPANY, LIMITED, will, therefore, be wound up and dissolved, and a new Company, called "THE COWAN PATENTS COMPANY, LIMITED," has been formed, and has taken over the entire business of the old Company. From this date the new Company will carry on the business of the old Company, with the addition of the New System of Making Gas—full particulars of which, with Illustrations, can be had on application.

Contracts entered into by the old Company will be carried out by the new one and all its responsibilities fulfilled.

The Directors of the new Company have thought it advisable to change the Offices from Lothbury to 21, WHITEHALL PLACE, WESTMINSTER, S.W., where all communications should in future be addressed, and where full information concerning their Patent Systems of Heating and Gas Making can be obtained.

SPECIAL MEDALS WERE AWARDED AT MANCHESTER, 1873; BELFAST, 1874; BIRMINGHAM, 1874.

ILLUSTRATED PAMPHLETS SENT FREE ON APPLICATION.

All Communications in future to be addressed—

21, WHITEHALL PLACE, WESTMINSTER, S.W.

WILLIAM PARHAM,

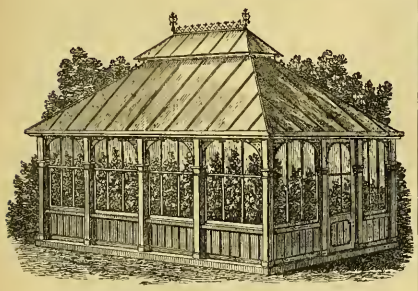
Northgate Works, BATH, and 280, Oxford Street, LONDON,

PATENTEE AND MANUFACTURER OF EVERY DESCRIPTION OF

HORTICULTURAL BUILDINGS

Glazed without Putty on Channelled Rafters, securing almost entire immunity from Breakage of Glass, extreme Facility for Repairs, and absolute Freedom from Drip.

Illustrated CATALOGUES and PRICE LISTS for Four Stamps.



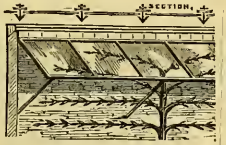
PORTABLE LAWN CONSERVATORY.

With W. P.'s Patent System of Glazing, panelled wood sides in place of Brickwork, open-jointed floor and lattice staging; Cast Iron moulded rain-gutter, down-pipes, Finials and Cresting; opening Lights on each side and top Ventilators under glazed super-roof. It is removable by a Tenant-at-will.

PRICE, with 21-oz. Glass, 18 feet by 12 feet, by 7 feet at eaves, £70.
" with 21-oz. Glass, 24 feet by 14 feet, by 7 feet at eaves, £94.

GALVANIZED WALL WIRING AND ESPALIERS.

Holdfasts.	Raidisseurs.	Eyes.	No. 13 Wire.
2s. per dozen.	4s. per dozen.	6d. per dozen.	2s. 6d. per 100 yards.



A Certain Crop of Fruit, in spite of Frost, is secured by

PARHAM'S

PATENT GLASS COPING

For Sheltering Fruit Trees.

The Patentee has sent out many miles of it during the past three seasons, and additional orders have each year been received from those who have tried it.

PRICE—Per foot run, with 21-oz. glass.
With the iron framework painted, 2 feet, 2s. 6d.; 3 feet wide, 3s. 9d.
With the iron framework galvanised, 2 feet, 3s. 3d.; 3 feet wide, 4s. 9d.

From Mr. F. SAUNDERS, *Gardener to* Sir Wm. Miles, Bart., *Leigh Court, Bristol, October* 23, 1874.

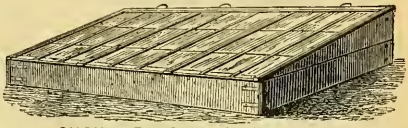
"Sir,—I have much pleasure in saying the Wall Coping you erected here in April, 1872, has given the greatest satisfaction. Many of the Peach trees, at that time apparently worthless, are now in full vigour, and have borne extraordinary crops this season, the fruit being unusually fine, and of excellent flavour. I have recommended it to several gentlemen, who, I believe, will give it a trial."

PATENT PORTABLE PLANT PRESERVER.

Glazed with 21-oz. glass (under W. Parham's Patent) without putty, on channelled wood rafters.

PRICE—Including two wood ends to each length.

Long.	Wide.		Long.	Wide.	
6 feet by 2 feet	..	£1 10 0	12 feet by 3 feet	..	£3 12 0
12 feet by 2 feet	..	2 15 0	6 feet by 4 feet	..	2 14 0
6 feet by 3 feet	..	2 2 0	12 feet by 4 feet	..	4 12 6



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PRICE—Complete with 1¼-inch red deal sides, and 2-inch lights.

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4 feet by 6 feet,	1 light ..	£1 17 6	16 feet by 6 feet,	4 lights ..	£6 7 6
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12 feet by 6 feet,	3 lights ..	4 17 6			

WANTED, as FOREMAN, a Man, not under 24, with a thorough knowledge of Pines, Vines, Peaches, Melons, Cucumbers, &c. Good character indispensable. Wages to commence at 18*s.* per week, with bothy, vegetables, &c.—Address A. GRAY, Worsbro' Hall Gardens, near Barnsley, Yorkshire.

WANTED, a FOREMAN (married). Must be a good Correspondent, used to Laying-out Grounds, the Management of Men, and thoroughly experienced in all branches of the Trade. Would have to attend Markets.—Apply to JOHN CATTELL, Nursery and Seed Establishment, Westerham, Kent.

WANTED, as FOREMAN, for first-class Fruit, Flowers, and Vegetables, a thoroughly trustworthy Man. Wages 18*s.* per week, with bothy, milk, &c.—J. W., Mr. Cooper, 29, Iron Gate, Derby.

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WANTED, a PROPAGATOR and GROWER, principally of Soft-wooded Greenhouse Plants, Roses, &c. Must be a good Grower of Cucumbers, and make himself generally useful.—State experience and references from former employers, and wages required, WILLIAM CUNNINGHAM, Nurseryman, The Forge, Burton-on-Trent.

FISHER, HOLMES AND CO. are in WANT of a MAN who has a knowledge of Herbaceous Plants, and who has had some experience in Growing Culinary Plants for Market. Wages to commence at 22*s.* per week. Applicants to give reference as to ability and sobriety.—Handsworth Nurseries, Sheffield.

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WANTED IMMEDIATELY, a young MAN for the Houses—one that has a good knowledge of Stove and Greenhouse Plants. A good chance for Improvement. Wages 14*s.* per week, with lodgings, &c.—W. BIRMINGHAM, The Gardens, Elsham House, Grantham, Lincolnshire.

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WANTED, at once, an IMPROVER, having had some experience in Greenhouses. Not less than eighteen years of age. Wages 15*s.* per week.—Mr. W. PALMER, Gardener, Stubtoo, Newark.

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WHOSE CHARACTERS WILL BEAR STRICT INVESTIGATION.

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B. S. WILLIAMS, having at the present time several very excellent GARDENERS upon his Register, is desirous of placing them in Situations where great experience and trust are required. B. S. W. would at the same time beg to intimate that when a Gardener is applied for that the filling of the situation should be left with him, as that would prevent unnecessary correspondence and delay.—Victoria and Paradise Nurseries, Upper Holloway, London, N.

Head Gardeners.

JOHN LAING can at present recommend with every confidence several energetic and practical Men, of tested ability and first-rate character. Ladies and Gentlemen in WANT of GARDENERS and BAILIFFS, or GARDENERS for First-rate Establishments or Single-hand situations, can be suited, and have full particulars by applying at Stanstead Park and Rutland Park Nurseries, Forest Hill, London, S.E.

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GARDENER (HEAD), to any Nobleman or Gentleman.—The Dowager Lady SONDES will be very glad to highly recommend WILLIAM SMYTHE, who has had charge of the Gardens at Elmham Hall for nineteen years. He is leaving through the death of the late Lord Sondes, and will be disengaged early in April.—W. SMYTHE, The Gardens, Elmham Hall, East Dereham.

GARDENER (HEAD), age 29, married.—A GENTLEMAN can highly recommend his Gardener, who has a thorough knowledge of the profession in every branch. Has been assistant Orchid grower in a large establishment, also a successful exhibitor. Excellent testimonials and references from previous employers.—N. GERMAN, 70, Duke Street, Whitehaven.

GARDENER (HEAD), age 30, married.—Mr. B. FINDLAY, Curator of the Botanic Gardens, Manchester, can with confidence recommend the above to any Lady or Gentleman requiring the same, as steady, industrious, and trustworthy, and a successful Cultivator of Fruits, Stove and Greenhouse Plants, Orchids, &c.—Mr. FINDLAY will be glad to answer any inquiries that may be made to him.—A. B., Botanic Gardens, Manchester.

GARDENER (HEAD), with two under, or FOREMAN in a large place.—Age 26, married, one child; has had ten years' experience. If as Foreman, would prefer the General Management In and Outdoors.—R. A., Post Office, Bromley, Kent.

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GARDENER (HEAD, WORKING).—Age 32, married; thoroughly understands the management of Vines, Cucumbers, Melons, early and late Forcing of Fruits, Flowers and Vegetables. Fourteen years' first-class experience and good character.—J. E., Church Cottage, Maindee, Newport, Monmouthshire.

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GARDENER (UNDER), in a Nobleman's or Gentleman's Garden.—Age 22. Good character.—T. S., The Gardens, Quernmore Park, Lancaster.

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GARDENER (SECOND).—Age 24, single. Good character. Can be well recommended.—B. B., Lanelay Gardens, Llantrissant, Glamorganshire.

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All saved by Mr. BETTERIDGE this season, and including every variety sent out by him, as see copy of letter by Mr. BETTERIDGE enclosed with each packet supplied through

READING, *Sutton & Sons* BERKS.

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Duke of Edinburgh,
Grand Duchess Marie, Cantab,
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These superb varieties, which were sent out by us last year for the first time, have given great satisfaction, notwithstanding the unfavourable season. Each variety is perfectly symmetrical in form, with a delicately-quilled centre, surrounded respectively by crimson, pink, light blue, and dark blue guard-petals.

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GRAND DUCHESS MARIE (Duchess of Edinburgh)	2	6
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IMPROVED OXONIAN	1	6
The COLLECTION of Four Varieties	8	0

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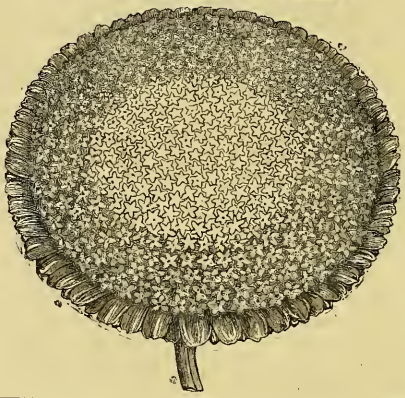

BETTERIDGE'S INTERNATIONAL

PRIZE COLLECTIONS OF ASTERS.

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Mixed .. .. .. per packet	1	0

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To produce a supply of the best vegetables, all the year round.

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French Beans ..	3 pts.	Mustard	1 pint.
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Borecole or Kale, best sorts	3 pkts.	Onion, Suttons' Improved Reading, &c.	5 oz.
Brussels Sprouts, Suttons' Matchless ..	1 large pkt.	Parsley, Suttons' Imperial Curled ..	1 oz.
Broccoli, Suttons' Superb Early White and other best sorts	5 pkts.	Parsnip, Suttons' Student and others ..	3 oz.
Cabbage, Suttons' Imperial and others ..	5 pkts.	Radish, finest sorts ..	8 oz.
Savoy, best sorts ..	2 pkts.	Spinach	1½ pts.
Carrot, best sorts ..	7 oz.	Salsafy	1 pkt.
Cauliflower, best sorts	2 pkts.	Scorzonera	1 pkt.
Celery, Suttons' Sulham Prize and others	2 pkts.	Turnip, Suttons' Snowball, &c. ..	6 oz.
Couve Tronchuda ..	1 pkt.	Vegetable Marrow	1 large pkt.
Endive	2 pkts.	Sweet and Pot Herbs	4 pkts.
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		Capsicum	1 pkt.
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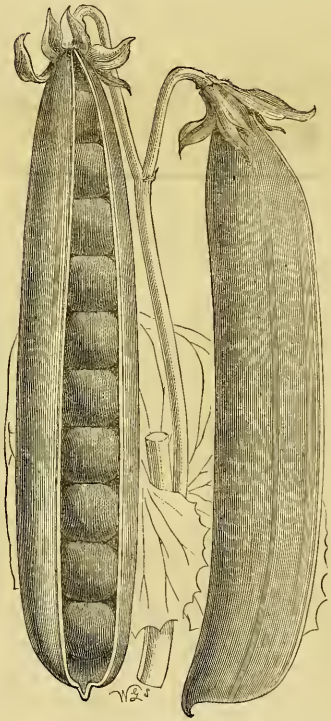
		Orache	1 pkt.

The best and most distinct Wrinkled Pea is



SUTTONS' GIANT EMERALD MARROW,

Price, 5s. per Quart.

From the "GARDENERS' CHRONICLE," *Jan.* 16, 1875.

"THE GREATEST NOVELTY IN PEAS IS THAT CALLED SUTTONS' GIANT EMERALD MARROW."

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To produce a supply of the best vegetables, all the year round.

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This Collection is specially suited to "The Amateur's Garden, and contains all the best and most productive kinds—

Peas, Suttons' Ringleader and other best sorts	12 pts.	Cress .. 3 oz. and	1 pkt
Beans, the best sorts	3 pts.	Cucumber, best sorts	2 pkts.
,, French	1½ pts.	Leek, Musselburgh ..	1 pkt.
Beet, Suttons' Improved Dark Red ..	1 pkt.	Lettuce, Suttons' Superb White Cos and others	2 pkts.
Borecole or Kale, best sorts	2 pkts.	Mustard	4 oz.
Brussels Sprouts, Suttons' Matchless ..	1 pkt.	Melon	1 pkt.
Broccoli, Suttons' Superb, Early White and other best sorts	3 pkts.	Onion, Suttons' Improved Reading and others	3 pkts.
Cabbage, Suttons' Imperial and others ..	3 pkts.	Parsley, Suttons' Imperial Curled ..	1 pkt.
Savoy, best sort ..	1 pkt.	Parsnip, Suttons' Student	1 oz.
Carrot, do.	3 oz.	Radish, finest sorts ..	3 oz.
Cauliflower, do. ..	1 pkt.	Spinach	4 oz.
Celery, Suttons' Sulham Prize and others	2 pkts.	Turnip, Suttons' Snowball and others ..	3 oz.
Couve Tronchuda ..	1 pkt.	Vegetable Marrow ..	1 pkt.
Endive	1 pkt.	Sweet and Pot Herbs	2 pkts.
		Tomato	1 pkt.

Other Collections, 12*s.* 6*d.*, 15*s.*, 31*s.* 6*d.*,* 63*s.** and 105*s.** each.

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Agent for Manchester—JOHN HEYWOOD. Agents for Scotland—Messrs. J. MENZIES & Co., Edinburgh and Glasgow.

THE

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Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

No. 60.—Vol. III. { New Series. } SATURDAY, FEBRUARY 20, 1875. { Registered at the General Post Office as a Newspaper. } Price 5d. Post Free, 5½d.

CONTENTS.

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W. RICHARDS, Publisher.

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IMPORTANT SALE of 200 very handsome English-grown CAMELLIAS and AZALEA INDICA, beautifully set with bloom-buds; a superb assortment of 500 Standard and Dwarf ROSES; selected FRUIT TREES, hardy CONIFERÆ, SHRUBS, and AMERICAN PLANTS, EPACRIS, ERICAS, CYCLAMENS, DAHLIAS, choice LILIUMS of sorts, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on TUESDAY, February 23, at 12 o'Clock precisely.

On view the morning of Sale. Catalogues at the Rooms, and of the Auctioneers and Valuers, 98, Gracechurch Street, E.C., and Leytonstone, E.

Tooting, S.W.

IMPORTANT SALE of THRIVING NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. R. Parker to SELL by AUCTION, without reserve, on the Premises, Exotic Nursery, Tooting, S.W., on TUESDAY, February 23, at 11 for 12 o'Clock, a large quantity of EXTRA NURSERY STOCK, remarkably well grown, and in excellent condition for removal, comprising some thousands of Border Shrubs, consisting of the choicest Evergreens and Coniferæ in cultivation, and admirably adapted for effective planting; likewise a quantity of beautifully furnished Thuja aurea, and unusually handsome Yucca recurva for potting; Laurels, fine bushy Rhododendrons, well set, and numerous others; a rich assortment of Ornamental Trees, Acer Negundo var., &c.; some fine Fruit Trees, Standard and Dwarf Roses of sorts, and a quantity of Hardy Climbers in pots, &c.

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Frimley, Surrey.

CLEARANCE SALE of VALUABLE NURSERY STOCK, a portion of the Land being required for Building Purposes.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. J. Holder to SELL by AUCTION, without reserve, on the Premises, Frimley Park Nursery, Frimley, on THURSDAY, February 25, at 11 for 12 o'Clock precisely, a large quantity of well-grown NURSERY STOCK.

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MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL the above by AUCTION, at the Mart, Tokenhouse Yard, E.C., on TUESDAY, March 2, at 12 o'Clock for half-past punctually.

On view the day prior and morning of Sale. Catalogues had at the Mart, and of the Auctioneers, Estate Agents, and Valuers, 98, Gracechurch Street, City, E.C., and Leytonstone, E.

Auction Mart, Tokenhouse Yard, City, E.C.

MESSRS. PROTHEROE AND MORRIS are instructed to include in the SALE to take place as above, on TUESDAY, March 2, some valuable ORCHIDS, a fine assortment of Standard and Dwarf ROSES, choice CONIFERÆ, hardy American SHRUBS, &c.

98, Gracechurch Street, City, E.C., and Leytonstone, E.

Kirkdale Nursery, Sydenham, Kent.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from Mr. George Selby to include the above valuable FREEHOLD PROPERTY in their NEXT PERIODICAL SALE, to be held at the Auction Mart, Tokenhouse Yard, on THURSDAY, March 18.

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On view the morning of Sale, and Catalogues had.

Plants and Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, February 24, at half-past 12 o'Clock precisely, First-class Dwarf-trained, Standard, and Pyramid FRUIT TREES; Standard, Dwarf, and Climbing ROSES; Hardy and Ornamental TREES and SHRUBS, HERBACEOUS PLANTS, DUTCH BULBS, &c.

On view the morning of Sale, and Catalogues had.

Feltham Hill Farm, Feltham, Middlesex.

TO FARMERS, MARKET GARDENERS, and OTHERS.

MR. W. GOUGH is directed by the Executors of the late William Whitehall Adams, to SELL by AUCTION, at the Railway Hotel, Feltham, on WEDNESDAY, March 3, at 3 o'Clock P.M., the BENEFICIAL INTEREST in the LEASE of the above capital FARM, containing 90 acres 1 rood 25 poles of very superior land, in a high state of cultivation, of which about 79 acres are Arable, and the remainder Pasture, with excellent Farm House, good Yard, and all usual Farm Buildings, held for a term of twenty-one years from September 29, 1861, at the very low rent of £212 per annum.

May be viewed, and Particulars with Conditions of Sale had, seven days prior to the Auction, on the Premises; at the place of Sale; of WALTER BARKER, Esq., Solicitor, 32, South Bank, Regent's Park, London, N.W.; and of Mr. W. GOUGH, Auctioneer, Surveyor, and Land Agent, Sunbury, Middlesex.

N.B.—The Live and Dead Farming Stock, Household Furniture, &c., will be Sold by Auction, upon the Premises, on Wednesday, March 17, particulars of which will be duly advertised.

Guilford Nursery, Whitfield, near Dover.

IN LIQUIDATION.

TO LANDOWNERS, BUILDERS, NURSERYMEN, and OTHERS. CLEARANCE SALE of about EIGHT ACRES of VALUABLE NURSERY STOCK.

MR. HENRY HAYWARD has received instructions from the Trustee of the Estate of Mr. C. H. Burbidge (in liquidation by arrangement) to SELL by AUCTION, without reserve, on the Premises, which are situate about one mile from the Kearsney Station on the London, Chatham, and Dover Railway, on MONDAY and TUESDAY, March 8 and 9, at 11 o'Clock punctually each day, the whole of the thriving NURSERY STOCK, in excellent condition for removal, comprising about 10,000 healthy Standard, Pyramid, and Trained Fruit Trees; 30,000 Forest Trees, of sorts; 20,000 thriving Evergreen and Deciduous Shrubs and Coniferæ of choice varieties, 1500 Ornamental Trees of the rarest species, quantity of Gooseberry and Currant Bushes, 8000 first-class Dwarf and Standard Roses, Manetti stocks, &c.

May be viewed prior to the Sale, and Catalogues had on the Premises; or of Messrs. WORSFOLD AND HAYWARD, Auctioneers and Surveyors, New Bridge, Dover; and 12, Queen Victoria Street, London, E.C.

Wood Engraving.

MR. W. G. SMITH, ARTIST and ENGRAVER on WOOD, 15, Mildmay Grove, London, N.

RODERICK NICHOLSON, ADVERTISING AGENT and GENERAL COMMISSION AGENT, 112, Fleet Street, E.C.

Window Glass, Sheet Lead, Paints, &c.

THOMAS MILLINGTON AND CO., IMPORTERS and MANUFACTURERS. New LIST of PRICES, very much reduced, on application.

87, Bishopsgate Street Without, E.C.

EDWIN LLOYD, HORTICULTURAL WORKS, Grantham, Lincolnshire.

PORTABLE FRUIT TREE CRYMOBŒTHUS.

Catalogues on application.

WILLIAM ROE, LANDSCAPE GARDENER,

42, Paternoster Row, St. Paul's, London, E.C., and Osborne Terrace, Lozells Road, Birmingham.

Designs prepared, the Work superintended if required, or Estimates given.

Notice.

R. SAWYER, High Street, Southampton, is about to RETIRE from his Old-established FLORICULTURAL and SEED BUSINESS. Any person wishing to enter into arrangements can apply. It has been in possession of the two last Proprietors upwards of sixty years.

WANTED to RENT, a FLORIST'S BUSINESS. Address, with particulars, to Y. Z., 13, Aberdeen Terrace, Clifton, Bristol.

Victoria Colony, Kansas, U.S.—To Farmers and OTHERS.

TO BE SOLD, fine STOCK FARMS of 640 Acres and upwards, Freehold, from 10s. to 25s. per acre. Grass in its natural condition unsurpassed for feeding Sheep and Cattle. For PAMPHLET containing full particulars respecting this Property, apply to

ROBERT W. EDIS, Esq., F.S.A., 14, Fitzroy Square, London, W., Architect to the Estate.

Freehold, 28 Miles S.W.

FOR SALE, a beautiful ESTATE of 240 Acres, with elegant Swiss Villa, and capital Stabling, gravelly soil, fine views, and extensive frontages. Free from Tithe and Land-tax; two-thirds on Mortgage. The Furniture may be taken at a valuation. A Plot of about 50 Acres, planted with fine Evergreens, Fruit, and other Trees would be Sold separately; also a Plot of 20 Acres. Apply to

W. TARRY, Bailiff, "Golden Farmer," Bagshot.

To Nurserymen and Others.

WANTED, a pair (or single plants) of MUSA ENSETE and DICKSONIA ANTARCTICA. They must be well grown, healthy, and handsome plants. State price and particulars by letter, addressed to

Mr. DIMMICK, Nurseryman, High Street, Ryde, Isle of Wight.

TO BE SOLD, TREE FERN (Dicksonia antarctica), stem of plant 6 feet high, girth of stem, 21 inches, head 6 feet across, fronds thirty-three in number. Apply Mr. JOHN JONES, Goldthorn Villa, Penn Road, Wolverhampton.

Johnstone's St. Martin's Rhubarb.

EARLIEST and BEST in CULTIVATION for open ground; it has a splendid colour, and excellent for forcing. Strong roots, 1s. each. Trade price on application.

W. P. LAIRD AND SINCLAIR, Nurserymen, Dundee, N.B.

Home Grown Mangel Wurzel and Turnip Seeds.

H. AND F. SHARPE are prepared to make special offers to the Trade of the above-named SEEDS, all saved from carefully selected stocks, and of the finest quality. Prices very low.

Seed Growing Establishment, Wisbech.

The Best and Most Distinct Wrinkled Pea is

SUTTONS' GIANT EMERALD MARROW.—"The greatest novelty in Peas is that called Suttons' Giant Emerald Marrow."—*Vide Gardeners' Chronicle*, January 16. Price 5s. per quart.

The Finest White-Spine Cucumber is

SUTTONS' DUKE of CONNAUGHT.—"I am quite sure it cannot be surpassed."—SHIRLEY HIBBARD, Esq.

The Best Scarlet-fleshed Melon is

SUTTONS' HERO OF BATH.—"As an exhibition fruit it is unequalled."

Special Prizes for

MESSRS. SUTTONS' NOVELTIES will be offered at the Royal Horticultural Society's Meetings during 1875.

Particulars on application to

SUTTON AND SONS,

THE QUEEN'S SEEDSMEN, Reading.

To Market Gardeners and Others.

SUTTON AND SONS can offer

Suttons' Ringleader Peas	Veitch's Perfection Peas
Suttons' Racehorse Peas	Scimetar Peas
Little Gem Peas	Bedman's Imperial Peas
Best of All Peas	Harrison's Glory Peas
Fortyfold Peas	

Of true stocks, at moderate prices for large quantities.

Reading, Berks.

Carnations—Named Show Varieties.

WOOD AND INGRAM offer fine Plants of the above in twelve varieties, one pair of each, throughly established in 3-inch pots, at 12s. the dozen pairs. Package 1s. the first and 6d. every additional dozen pairs.

The Nurseries, Huntingdon.

Specimen Trees.

CHARLES SHARPE AND CO. have a quantity of fine specimen HORSE CHESTNUTS, with straight tall stems, fit for avenue or single planting. They will be sold at a moderate price, as the ground must be cleared. Price on application.

Seed Warehouse, Sleaford.

To the Trade.

ROSES, surplus stock of Dwarf, at reduced prices. The plants offered are remarkably strong.

WM. WOOD AND SON, Nurseries, Maresfield, Uckfield, Sussex.

PEACHES and NECTARINES, magnificent Dwarf-trained, including all the best leading sorts. Splendid Trees, most beautifully trained.

WM. WOOD AND SON, The Nurseries, Maresfield, Uckfield, Sussex.

New Roses of 1875.

PAUL and SON'S Descriptive LIST of the selection made by them at the raisers' during the blooming season is now ready.

Strong thrifty plants, grown in a light, airy house, now ready for delivery. The Old Nursery, Cheshunt, N.

SEED POTATOS.—10 tons Myatt's Prolific, 10 tons Rivers' Royal Ashleaf, 5 tons Bresee's Climax, also Mona's Pride, Erin's Queen, Gloucestershire Kidney, Veitch's Improved Ashleaf, Sandringham Kidney, Yorkshire Hero, &c. Splendid samples. Prices low for cash, on application to

G. RUMLEY, Alma Terrace, Fulford Road, York.

To Planters and the Trade.

J. SLATER AND SONS beg to offer a quantity of large IRISH YEWS, 7 to 8 feet high, and 2 to 3 feet through; fine specimens, well rooted, and will be sold cheap. An inspection is invited.

J. SLATER AND SONS, The Nurseries, Malton, Yorkshire.

New Grape.

VENN'S BLACK MUSCAT.—This splendid Grape has all the good qualities of the Black Hamburgh with the rich full flavour of the Muscat of Alexandria. Good well ripened Canes, 31s. 6d. each. Usual allowance to the Trade. Post Office Orders payable to

WILLIAM DODDS, Gladstone Villa, Bishopston, Bristol.

CUCUMBER PLANTS.—Strong plants of Rollisson's Telegraph and Blue Gown, 12. each, 9s. per dozen, packed in boxes made on purpose. Also Duke of Edinburgh (Daniels) at the same price. Box and packing, 1s. 6d. per dozen, 1s. per half-dozen and under.

F. W. COOPER, Florist, Huntingdon.

CUCUMBER PLANTS of all the leading kinds, in 60 and 48 pots, very strong plants. STRAWBERRY and CABBAGE PLANTS, Dwarf, Moss, and Cabbage ROSES. The public may depend on being supplied with Cucumber plants till June next. The Trade supplied.

G. WALKLING, College Park Nursery, Lewisham, S.E.

Pansies—Show, Fancy, and Bedding.

THOMAS S. WARE'S new Spring CATALOGUE of the above, and other Florist Flowers, is now ready, and will be sent on application. Twenty thousand Pansies, established in pots, will be sure to bloom well if planted at once. The Trade supplied.

Hale Farm Nursery, Tottenham, London, N.

WELLINGTONIAS:—

100, 3 feet high	..	.. 3s. 6d. each
50, 5 to 6 feet high	..	.. 9s. each
20, 7 to 8 feet high	..	.. 12s. 6d. each
10, 9 to 10 feet high	..	.. 15s. each.

All well formed plants, from seed, and constantly removed; grown by a gentleman who has more than he requires. Address

H. GAMBELL, Sharsted Court, Sittingbourne.

VINES, extra strong leading sorts, close-jointed and well ripened; SEAKALE, ASPARAGUS, and RHUBARB, extra strong, for forcing; ROSES, FRUIT, FOREST, and ORNAMENTAL TREES, STOVE and GREENHOUSE PLANTS, &c.

Priced Descriptive CATALOGUE, post free.

DICKSON AND ROBINSON, 23, Market Place, Manchester.

LILIUM AURATUM, by the dozen, hundred, or thousand, price 1s., 1s. 6d., and 2s. each; magnificent extra-sized roots, 3s. 6d. and 5s. each. The Bulbs imported from Japan this year are in the finest possible condition, quite as plump and sound as English-grown Bulbs.

Mr. WILLIAM BULL, being the largest Importer of Lilies direct from their native habitats, can offer good and varied selections at 18s., 30s., and 42s. per dozen. Special quotations by the 100 or 1000.

ESTABLISHMENT for NEW and RARE PLANTS, King's Road, Chelsea, London, S.W.

TO BE SOLD, a great bargain, in order to clear the ground :—

20,000	SILVER FIRS,	1 foot high, 2s. per 100.
50,000	,, ,,	1½ feet high, 2s. 6d. per 100.
70,000	,, ,,	2 to 3 feet high, 5s. per 100.
50,000	,, ,,	3 feet high, 7s. per 100.

For particulars apply to The AGENT, Gunton Park, Norwich.

Pelargoniums for the Million.

JAMES HOLDER'S unrivalled COLLECTION of Show, French, and Fancy Varieties, strong Plants, distinct sorts, at 40s. per 100; 25s. for 50; or 15s. for 25. Hamper and packing included. Extra strong plants at 9s. and 12s. per dozen. Cash. CATALOGUES free on application.
Crown Nursery, Reading.

No Reasonable Offer Refused.—By the dozen or 100.

POPLARS, Lombardy, 7 to 14 feet; HORSE CHESTNUT, 4 to 14 feet; BOX PRIVET, 3 to 4 feet; LILAC, White and Common, 4 to 6 feet; TREE BOX, 1 to 3 feet; RIBES SANGUINEA, 4 to 6 feet; BERBERIS AQUIFOLIA, 3 to 4 feet; CURRANTS, 3 to 4-yr. old; GOOSEBERRIES, 3 to 4-yr. old.
JAMES SMITH, Ashford Nursery, Ashford, Middlesex.

CONNOVER'S COLOSSAL ASPARAGUS.—This Giant American Asparagus is described as producing heads from ½ to 1½ inch in diameter.

"I have now much pleasure in saying that in point of size this is a colossal variety: it far exceeds the Giant or Battersea."—Vide *Gardeners' Chronicle*, May 9, 1874.

Good plants, 3s. 6d. per 100; extra strong, 5s. per 100.
T. JACKSON AND SON, Nurseries, Kingston, Surrey.

Genuine New Seeds.

WILLIAM FROMOW'S Descriptive CATALOGUE of VEGETABLE and FLOWER SEEDS, GENERAL GARDEN REQUISITES, &c., is now ready, and may be had post-free on application; also LISTS of ROSES, CLIMBERS, NURSERY STOCK, &c.
Sutton Court Nursery and Seed Establishment, Turnham Green, London, W.

New Roses for 1875.

HENRY BENNETT has 10,000 PLANTS of the above to offer, of his usual matchless quality, at the reduced price made by several large Establishments in 1874. Ready early in March.
DESCRIPTIVE LIST ready, and post free.
Manor Farm Nursery, Stapleford, Salisbury.

TO POTATO GROWERS.—Before purchasing your seed see QUINCEY'S PRICE LIST, post free on application. It contains most of the best English and American varieties; quality good, quantity large. Prices low. Sacks and bags at wholesale rates.
CHRISTMAS QUINCEY, Potato Seed Grower and Merchant, Peterborough.

NEW SUMMER CABBAGE LETTUCE.—The FAVOURITE.

The finest of all Cabbage Lettuces, being very large, exceedingly sweet and crisp; also deliciously flavoured. Stands the driest summer longer than any other sort without running to seed. Post free per packet for twelve Stamps. May be obtained of all Seedsmen.
JOHN SCOTT, The Seed Stores, Yeovil.

Cabbage Plants! Cabbage Plants!
TRUE to NAME.

MESSRS. W. VIRGO AND SON can now supply any quantity of strong—

ROBINSON'S DRUMHEAD	3s. 0d.	per 1000
EARLY BATTERSEA	3s. 6d.	,,
NONPAREIL	3s. 6d.	,,
ENFIELD MARKET	3s. 6d.	,,
RED PICKLING	5s. 0d.	,,

Wonersh Nurseries, near Guildford, Surrey.

NEW APPLE—PEASGOOD'S NONESUCH.—Handsomest, and one of the largest autumn Apples in cultivation (Sept. to Dec.). First-class Certificate, Royal Horticultural Fruit Committee, Sept. 18, 1872; First-class Certificate, Crystal Palace Show, Sept. 8, 9, and 10, 1874. Strong Maidens, 7s. 6d. each; Dwarf-trained, 10s. 6d. each. Trade terms on application.
W. AND J. BROWN, Nurserymen, Stamford.

ROBERT NEAL begs to offer to the notice of Gentlemen and the Trade his extensive Stock of HARDY SHRUBS, FRUIT, FOREST, and ORNAMENTAL TREES, ROSES, RHODODENDRONS, CLIMBING PLANTS, &c., which are now in first-class condition for removal. CATALOGUES may be had on application.

The Nurseries are within a few minutes' walk of the Clapham Junction and Wandsworth Common Railway Stations.

ASPARAGUS.—Special offer of 2-yr., 3-yr., and 4-yr. old. Price per 100 or 1000 on application.
ROBERT NEAL, The Nurseries, Wandsworth Common, S.W.

POTATO SEED for SALE (seed of the berry)—Two Ounces seeding One Acre, and giving Eight to Nine Tons of Tubers per Statute Acre in First Year. Price 5s. per ounce, with Instructions how to Grow it free of the Disease. JAMES TORBITT, Belfast.

Also, in the Press, and to be obtained of the Advertiser or of all Booksellers, price 1s.,
CAUSE of the POTATO DISEASE,
Being a Paper read at the late Meeting of the British Association.

Richmond Nurseries, Richmond, Surrey.
(ESTABLISHED 1802.)
To the TRADE and LARGE CONTRACTORS.

G. AND W. STEELL have to offer this season, extra to their usual large stock of ROSE, FRUIT, FOREST, and ORNAMENTAL TREES, EVERGREEN SHRUBS, &c., a large quantity of fine, clean-grown and straight in the stock Standard GOLDEN QUEEN and other varieties of variegated HOLLIES, from 2 to 5 feet in the stem; Pyramid Green and Variegated do., from 2 to 7 feet; also an immense quantity of Hybrid and Ponticum RHODODENDRONS, uncommonly well set with bloom-buds, which they are prepared to supply at extremely low figures. Where large quantities are required special prices will be given.

To Propagators and Plant Growers.

The most useful material for the attainment of successful and rapid culture is

COCOA-NUT FIBRE REFUSE.—Price 1s. per bushel, or 6d. per bushel for quantities of 20 bushels and over.
DAGNALL AND TILBURY, Steam Cocoa-nut Fibre Works, Farm Lane, Walham Green, S.W.

COCOA-NUT FIBRE REFUSE.—10,000 bushels, ready bagged, must be cleared. Price on application. Large truck, holding 300 bushels, free on to any rails, £2 10s.—H. WRIGHT, Fibre Merchant, 4, Peterborough Terrace, King's Road, Fulham, S.W.

Propagating.

COCOA-NUT FIBRE REFUSE, at this season, is invaluable to all gardeners. Reduced price, £1 5s. per 100 bush., delivered free to any railway. Samples free.
JAMES STEVENS, Fibre Works, High St., Battersea, S.W.

PEAT for SALE, in Large or Small Quantities, at Chiselhurst, Kent. Can be put on the South-Eastern or London, Chatham and Dover Railways. Apply to Mr. T. LANSBURY, Hock Farm, Burnley Common, Kent.

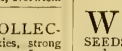
Fibrous Peat.

BROWN FIBROUS PEAT, best quality, for Orchids, Stove Plants, and Potting, £6 6s. per Six-ton Truck-load. BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, New Holland Plants, &c., £5 5s. per Six-ton Truck-load. Delivered on rail at Blackwater, South-Eastern Railway, or Farnborough, South-Western Railway.
WALKER AND CO., Farnborough Station, Hants.

Sphagnum, or Peat Moss, for Orchids.

FRESH SPHAGNUM MOSS, 10s. 6d. per sack.
WALKER AND CO., Farnborough Station, Hants.

NEW ROSES, 1875.



JAMES VEITCH & SON'S PRICED LIST

Of the above is now ready, and contains a Selection of all the best Varieties introduced this Season, with descriptions as given by the Raisers.

Strong Plants will be ready first week in April. Orders are now being booked.

ROYAL EXOTIC NURSERY, CHELSEA.—February 16, 1875.

NECESSARY CAUTION.

MESSRS. PAUL & SON,

THE "OLD NURSERIES," CHESHUNT, N.,

Respectfully beg their Customers to address business letters simply as above,

WITHOUT CHRISTIAN NAME OR INITIAL.

Through the use of wrong Initials several letters intended for them have recently failed to reach them direct. Will their friends therefore *carefully* address—

PAUL & SON, THE "OLD NURSERIES," CHESHUNT, N.

LOBELIA PUMILA MAGNIFICA.

THE

PINE APPLE NURSERY COMPANY

Will commence sending out this fine Lobelia on March 15 next.

Price 2s. 6d each, or 24s. per dozen for not less than half a dozen.

It received the Floral Certificate at the Royal Botanic Society, and a First-Class Certificate at the Royal Horticultural Society. It has been favourably noticed by all the gardening papers, and the *Gardeners' Magazine* of July 18 says of it:—"This dwarf bedding Lobelia, exhibited by the Pine-Apple Nursery Company, is unquestionably the most important of the many bedding Lobelias introduced of late years. The colour of the flowers is a deep indigo blue, and as there are no conspicuous eyes to mar the general effect, a solid mass or band will tell in a wonderful manner.

MAIDA VALE, LONDON, W.

SEED POTATOS.

H. & F. SHARPE

Invite the attention of the Trade to the following varieties of SEED POTATOS, which they have grown from the finest selected stocks especially for Seed purposes, viz.:—

RIVERS' ROYAL ASHLEAF,
MYATT'S PROLIFIC KIDNEY,
LAPSTONE KIDNEY,
BERKSHIRE KIDNEY,
FLUKE KIDNEY,
WALNUT-LEAVED OXFORD (for Forcing).
EARLY FORTYFOLD,
,, ROBSON'S CHALLENGE,
,, DALMAHOY,
,, FLOURBALL,
WALKER'S IMPROVED REGENT,
YORKSHIRE REGENT,
PATERSON'S VICTORIA.

RED-SKINNED FLOURBALL,
LATE FORTYFOLD,
WHITE ROCK,

AMERICAN VARIETIES.

EARLY ROSE.
BRESEE'S KING of the EARLIES,
CLIMAX,
EARLY GOODRICH,
AMERICAN WONDER,
BRESEES' PEERLESS.
BRESEE'S No. 6,
EXCELSIOR.

For Prices (which are very moderate), and further particulars apply to
H. AND F. SHARPE, SEED GROWERS, WISBECH, CAMBRIDGESHIRE.

Roses, Fruit Trees, &c.

WM. CUTBUSH AND SON'S stock of ROSES, FRUIT TREES, &c., is unusually fine this season. A visit to the Nurseries would well repay intending purchasers. CATALOGUES post free.
Highgate Nurseries, London, N.

Orchids.

AMATEUR'S COLLECTIONS, adapted to those beginning the culture of this class of Plants, or to those already having a good collection, can be supplied in strong, healthy specimens, at 42s., 63s., 84s., and 126s. per dozen. Package and delivery to London free, on receipt of cash with order.
J. H. LEY, Royal Nursery, Croydon.
N.B.—Plants put in, gratis, to compensate for carriage beyond London.

Phlox (Herbaceous), Pæonies, Pyrethrums.
SPECIAL OFFER.

THOMAS S. WARE'S new Spring CATALOGUE of the above, and other Hardy Florist Flowers, is now ready, and will be sent free on application.
Hale Farm Nursery, Tottenham, London, N.

SEED POTATOS for SALE :—

Myatt's Prolific	Early Don
Paterson's Victoria	Red Bog
Belgian Kidney	Dalmahoy
Fluke Kidney	Regents,
Early Shaw	And other varieties.

JOHN BATH, Salesman, 34, Wellington Street, Covent Garden, W.C.

New Dwarf Silver-variegated Geranium, Little Trot.

W. POTTEN is BOOKING ORDERS for the above, as advertised in the *Gardeners' Chronicle*, January 30. Those who wish to secure good plants should Order Early. See report of Chiswick trials in the *Gardeners' Magazine*, January 30.
Camden Nursery, Sissinghurst, Staplehurst, Kent.

Herbaceous and Alpine Plants.

THOMAS S. WARE'S Illustrated CATALOGUE of NEW, RARE, and CHOICE PERENNIALS for 1875 is ready, and will be sent on application.
Hale Farm Nursery, Tottenham, London, N.

FRUIT TREES.—Standard and Pyramid CHERRIES, APPLES, PEARS, and PLUMS, from 75s. per 100. GOOSEBERRIES, 3-yr. and 4-yr., from 10s. to 15s. per 100. CURRANTS, 3-yr. and 4-yr., from 6s. to 10s. per 100. Catalogues on application to
T. EYES, Gravesend Nurseries. Established 1810.

Verbenas, Verbenas, Verbenas.

WILLIAM BADMAN offers Purple, White, Scarlet, Crimson, and Rose Verbenas—good Plants from single pots, 12s. per 100; rooted cuttings, clean and healthy, 6s. per 100, 50s. per 1000, package included. Terms cash.
Cemetery Nursery, Gravesend.

Woking Nurseries, near Guildford, Surrey.

MESSRS. W. VIRGO and SON can still supply large quantities of all kinds of FRUIT TREES, EVERGREEN SHRUBS, and LARGE TREES for Belting; extra strong QUICKS, SCOTCH, LARCH, ASH, HAZEL, OSIER, BIRCH, &c.
Standard ROSES, 75s. p. 100; Half-standard do., 50s. p. 100.

Notice.

SEEDS, SEEDS.—Now on view, SAMPLE GROWTHS of 1874, at
TANTON'S SEED WAREHOUSE, Borough End, London Bridge, S.E.
CATALOGUES free.
Five per cent. discount and carriage free.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS: also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.
Mr. WEBB, Calcot, Reading.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

GRAPE VINES from EYES.—Well ripened, short-jointed, fruiting and planting Canes of most of the best kinds, including Black Hamburgh, Victoria Hamburgh, Gros Colman, Lady Downes, Muscat of Alexandria, Mrs. Pince's Muscat, Duchess of Buccleuch, Madresfield Court, &c. Price 3s. 6d. to 7s. 6d. each.
T. JACKSON AND SON, Nurseries, Kingston, Surrey.

Planting Season, 1874-75.

MESSRS. JOHN STANDISH AND CO. invite the attention of intending Planters to their large and valuable Stock, consisting of all the newest and best varieties of the Japanese Importations, as well as a vast quantity of SPECIMEN CONIFERÆ, HOLLIES, LAURELS, DECIDUOUS and EVERGREEN PLANTS, ROSES, FRUIT TREES, &c., all of which are in excellent condition for removal.
Their NEW CATALOGUE is now ready, and will be sent, post free, on application.
Royal Nurseries, Ascot, Berks.

NEW ROSES.

SIR GARNET WOLSELEY (Cranston's).
CRIMSON BEDDER (Cranston's).
CLIMBING JULES MARGOTTIN (Cranston's).
All the new Continental Roses for 1875—upwards of forty varieties.
Descriptive LIST on application to
CRANSTON AND MAYOS, King's Acre Nurseries, near Hereford.

ORCHARD PLANTING.—Stong Standard APPLES, strong Standard Table and Perry PEARS, Pyramid and Dwarf-trained PEARS. A choice Collection of ROSES; strong Common, Colchic, and Portugal LAURELS; LAURUSTINUS, BOX, YEW, and other Evergreens; Evergreen and Deciduous Flowering SHRUBS; Scotch and Spruce FIRS; CHESTNUT, LIMES, and other Forest Trees, up to 12 feet. Prices on application.
CHARLES BURGESS, The Nurseries, London Road, Cheltenham.

SEED OATS.—MESSRS. LITTLE AND BALLANTYNE have to offer some fine samples of Black Tartarian and White Potato Oats, Chevalier Barley, &c.
Royal Seed and Nursery Establishments, Carlisle.

Seedsmen to the Queen.

SEEDS OF FIRST QUALITY ONLY.

JOHN AND CHARLES LEE'S Descriptive Priced CATALOGUE of KITCHEN GARDEN and FLOWER SEEDS for 1875 will be forwarded, post free, on application. Please to write if not received in the First General Distribution.
Royal Vineyard Nursery and Seed Establishment, Hammersmith, London, W.

Gardens, Gardens, Gardens.

FURNISH YOUR VILLA GARDENS with OUR COLLECTIONS of choice Ornamental Trees, Shrubs, Roses and Fruit Bushes.

No. 1 Collection includes—
20 EVERGREEN SHRUBS.
25 FLOWERING SHRUBS.
25 STANDARD and DWARF ROSES.
25 CURRANTS, of sorts.
25 GOOSEBERRIES, of sorts.
10 ORNAMENTAL TREES.
One hundred and thirty fine plants for £5 5s.

No. 2 Collection,
Double the above, with greater variety.
Two hundred and sixty fine plants for £10.
Carriage paid to London.

MASTERS AND KINMONT, Exotic Nursery, Canterbury.

GLOXINIAS.—Twelve finest named Gloxinias, 21s., very large roots, fit for exhibition this spring, including many sorts not yet in commerce; smaller size, 10s. 6d. per dozen. Packed and delivered free to London on receipt of Post Office Order or Cheque.
J. H. LEY, Royal Nursery, London Road, Croydon.

CALADIUMS.—Twelve finest sorts, 21s., including many of the best introductions of late years; large roots, fit for exhibition this year, or smaller size, 10s. 6d. and 15s. per dozen. Package and delivery free to London on receipt of Post Office Order or Cheque.
J. H. LEY, Royal Nursery, London Road, Croydon.

ACHIMENES.—Thirty-six corns, in 12 finest sorts, 10s. 6d.; or 100 corns, in 24 finest sorts, 21. Free by post on receipt of Post Office Order.
J. H. LEY, Royal Nursery, London Road, Croydon.
N.B.—CATALOGUES free on application.

TO THE TRADE.

PEARS, extra fine dwarf-trained, all the leading kinds.
,, extra fine pyramids on Quince, 4-yr., 5-yr., and 6-yr. old.
PLUMS, extra fine dwarf-trained.
,, extra fine pyramids, fruiting.
CHERRIES, extra fine dwarf-trained.
,, pyramid, fruiting.
,, extra fine Morello, fruiting.
PEACHES, Maiden, twenty to thirty varieties.
THUJA AUREA, 1 to 1½ foot, 1½ to 2 feet, 2 to 2½ eet, 2½ to 3 feet; grand specimens.
,, WARIANA, 1, 2, to 3 feet.
,, GIGANTEA, 3, 4, to 5 feet.
YEWS, English, 2 to 2½ feet, 2½ to 3 feet, 3 to 3½ feet; fine.
THUJOPSIS BOREALIS, 3 to 3½ feet, 3½ to 4 feet; fine.
PINUS AUSTRIACA, several times transplanted, 2, 3, 4 to 5 feet.
Special quotations on application to
CRANSTON AND MAYOS, King's Acre Nurseries, near Hereford.

GLADIOLI.—All the First Prizes, for Eleven Years in succession, in Open Competition, offered at the Royal Horticultural Society and the Crystal Palace Shows, have been awarded to
KELWAY AND SON,
who are the Only Raisers and Propagators for Sale in the United Kingdom.
CATALOGUES, describing all the varieties worth growing, with Instructions for Cultivation, gratis to applicants.
Selections left to us, 25 for 21s., 25 for 42s., 25 for 63s., 25 for 105s., 25 for 210s.
Blooming Bulbs of our unbloomed seedlings, saved from the choicest varieties, 100s. per 100.
The Royal Nurseries, Langport, Somerset.

WRIGHT'S GIANT WHITE CELERY.—This is quite a distinct pure white variety; it is very crisp, and of excellent flavour, combining a robust, compact habit, forming very solid hearts, which blanch very easily. Heads of this variety have been grown weighing from 8 to 10 lb. each, and can be highly recommended for exhibition, private or market purposes. 1s. per ½ oz. packet.
WRIGHT'S RED GROVE and WHITE GROVE CELERIES.—These possess all the good properties of the Giant White, but do not grow quite so large. 1s. per ¼ oz. packets. The usual discount to the Trade.
The following fourteen firms have secured supplies of the above for this season, for which I beg to thank them, soliciting extended patronage:—

Hurst & Son, London.	Godwin, F. G., Sheffield.
Cooper, Robt., London.	Lawson Seed Co., Edinburgh.
Daniels Bros., Norwich.	Downie & Laird, Edinburgh.
Dickson, Brown & Tait, Manchester.	Drummond & Son, Sterling.
Dixon, E. P., Hull.	Howden & Co., Inverness.
Holmes, Ed., Lichfield.	Laird & Sinclair, Dundee.
Brotherton, Wm., Leeds.	Finney, S., & Co., Newcastle.
Nutting & Sons, London.	Umpleby, Geo., Leeds.

CUCUMBERS.—Wright's Wonder, fine white-spine, and Wright's Improved, black-spine; these will grow 24 to 30 inches long, are very prolific and of mild, good flavour. Pearson's Long Gun, Rollisson's Telegraph, Berkshire Champion, Improved Sion House, Masters' Early Prolific. 1s. per packet.
Lowest price quoted per 100 seeds on application.
W. WRIGHT, Seed Merchant and Nurseryman, Market Square, Retford, Notts.

THE MOST VALUABLE VEGETABLE PRIZE OF THE YEAR.

IMPORTANT ANNOUNCEMENT.

JAMES CARTER & CO.

Have the pleasure to announce, that
BY SPECIAL PERMISSION OF THE
Council of the Royal Horticultural Society,
THE COMPETITION FOR
THE CARTER CUP,
VALUE FIFTY GUINEAS,
TOGETHER WITH
THIRTY POUNDS IN MONEY PRIZES,
FOR VEGETABLES,
WILL TAKE PLACE AT
SOUTH KENSINGTON, on WEDNESDAY,
July 7, 1875.

Carters

THE ROYAL SEEDSMEN,
237 and 238, HIGH HOLBORN, LONDON, W.C.

CRANSTON'S NURSERIES, Established 1785.—The following CATALOGUES are just published, and will be forwarded on application:—
DESCRIPTIVE CATALOGUE of ROSES (1874 and 1875).
DESCRIPTIVE CATALOGUE of FRUIT TREES.
DESCRIPTIVE CATALOGUE of CONIFERS, SHRUBS, and FOREST TREES.
DESCRIPTIVE CATALOGUE of BULBS. Address,
CRANSTON AND MAYOS, King's Acre Nurseries, near Hereford.

Elms for Avenues.

WOOD AND INGRAM offer fine Huntingdom ELMS, 12 to 14 feet, 18s. per dozen, 130s. per 100; 14 to 16 feet, 24s. to 30s. per dozen.
The Nurseries, Huntingdon.

Surplus Nursery Stock.—Wholesale Prices.

WOOD AND INGRAM beg to offer:—
ROSES, Standard, their selection, in great variety, 12s. per dozen, 80s. per 100.
,, Dwarf, worked, selection, 6s. per dozen, 40s. per 100.
MAPLE, English, 4 to 6 feet, 4s. per 100.
ELM, English, 2-yr. seedling, 5s. per 1000; 2 to 3 feet, 20s. per 1000; 3 to 4 feet, 25s. per 1000; 4 to 5 feet, 4s. per 100.
APRICOTS, Moorpark, Standard-trained, extra strong, 5 to 6½ feet stems, heads 4 to 6 feet across, 7s. 6d. each.
CURRANTS, Red, extra fine, 14s. per 100.
The Nurseries, Huntingdon.

To Planters and the Trade.

MESSRS. MASTERS AND KINMONT beg to call the attention of Planters and the Trade to their stock of the following trees, which can be furnished at low prices:—
LIMES, 7 to 9 feet, clean grown.
THORNS, of sorts, Standard and Pyramid, including Paul's new Double Scarlet.
ASH, Weeping, 6 to 10 feet stems, good heads. [nock.
WILLOWS, Weeping, American, Babylonian, and Kilmar-
ELMS, of sorts, grafted, 5 to 7 feet, including Huntingdon, fastigiated, and cork-barked.
BIRCH, 8 to 10 feet.
PHILADELPHUS, of sorts.
VIBURNUM, of sorts.
LILAC, of sorts.
OAK, Scarlet, 6 to 8 feet.
YUCCA RECURVA, very fine.
ROSES, Standard and Half-Standard.
,, Dwarf, on Manetti.
CURRANTS, Black.
GOOSEBERRIES, of sorts.
ABIES CANADENSIS, 3 to 5 feet.
AUCUBA JAPONICA, 1 to 2 feet.
CUPRESSUS SEMPERVIRENS, 2½ to 4 feet.
Exotic and Vauxhall Nurseries, Canterbury.

CHARLES NOBLE begs to remind all engaged in Planting that in clearing a large portion of his Nursery Grounds he is offering, at very reduced prices, an immense stock; amongst other things the following may be worth notice:—

Spiræa palmata	Poplar, Black Italian
Rhododendrons	Sycamore, Purple and variegated
Andromeda floribunda	Laburnum, Purple and common
Kalmia latifolia	Chestnut, Scarlet and common
Skimmia japonica	Sorbus domestica and hybrida
Picea Nordmanniana	Almond, Fruiting
Arbor-vitæ, American	Birch, Silver, 8 to 14 feet
Cupressus Lawsoniana	Thorn, Paul's new double scarlet
Fir, Spruce, 3 to 8 feet	Deutzia crenata flore-pleno
Berberis Darwinii	Broom, white, 3 to 4 feet
Mahonia Aquifolia	Briar, sweet, 2 to 3 feet
Roses, dwarf hybrid perpetual	Sedum spectabilis
,, climbing	Peaches, Pears, and Plums
Elm, English and American	Gooseberries, in best varieties
Oak, English and Turkey	Currants, in best varieties
Poplar, new Silver	
,, Lombardy	

Special quotations for small or large quantities on application.
CLEMATIS, all the best known kinds.
A few thousand QUINCE STOCKS at 50s. per 1000.
CHARLES NOBLE, Bagshot, Surrey.

J. B. BROWN & CO.'S

NEW PRICE LIST, 1875.

(Corrected Prices owing to reduced Prices of Iron and Wire.)

THE MEDAL FOR MERIT AT THE VIENNA UNIVERSAL EXHIBITION, 1873,

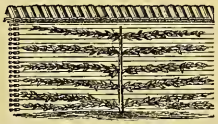
WAS AWARDED TO MESSRS. J. B. BROWN & CO., FOR "EXCELLENCE AND PERFECTION

IN MATERIAL AND WORKMANSHIP, LARGE EXTENT OF PRODUCTION, AND CHEAPNESS OF PRODUCE."

THE FRENCH SYSTEM OF WIRING GARDEN WALLS

AND ERECTING TRELLISES FOR TRAINING FRUIT TREES.

WIRING GARDEN WALLS.



Prices of Materials for Wall Wiring, and of Wire, &c., for Fruit Trellises.

Galvanised eyed wall spikes for guiding the wires along the wall, best description, 1*s.* per dozen; small wall eyes, not recommended, 9*d.* and 6*d.* per dozen.

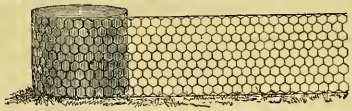
The stronger galvanised eyed spikes, for straining the wires from at the extreme ends of each line of wire, 1*s.* 10*d.* per dozen.

No. 14 Galvanised Wire, the smaller wire, 2*s.* per 100 yards, or 35*s.* per cwt., containing 2031 yards, mostly used for wiring walls.

Raidisseurs made of galvanised malleable iron, 2*s.* 6*d.* per dozen.

The Galvanised Key for winding the raidisseur, in order to tighten the wires, 4*d.* each.

IMPROVED GALVANISED WIRE NETTING.



The prices, as under, are per yard run, 24 inches wide. The Netting is, however, made various widths, as may be required—at proportionate prices.

Size of Mesh.	Mostly used for	Gauge	Or Light Quality.	Gauge	Or Medium Quality.	Gauge	Or Strong Quality.	Gauge	Or Extra Strong.
			s. d.		s. d.		s. d.		d.
2 inch	Dogs or Poultry ..	19	0 3¾	18	0 4½	17	0 5¾	16	7
1⅜ inch	Small Rabbits, &c.	19	0 4½	18	0 5¼	17	0 6½	16	8
1½ inch	Smallest Rabbits..	19	0 5¼	18	0 6¼	17	0 8	16	10
1¼ inch	Pheasantries, &c..	19	0 8	18	0 10	17	1 1½		
1 inch	Poultry, &c. ..	19	0 10	18	1 0½	17	1 4		
¾ inch	Poultry, &c. ..	20	1 1½	19	1 4	18	1 7		
⅝ inch	Aviaries, &c. ..	22	1 10	20	2 0	19	2 3		

SPECIALLY SELECTED FENCING WIRE.

FULL SIZE OF WIRE.

No. 4. 255 yards. No. 5. 303 yards. No. 6. 361 yards. No. 7. 428 yards. No. 8. 509 yards per cwt.

Gauge.	1 Cwt. contains about	Best Black Rolled Wire.	Best Drawn and Annealed Wire.	Best Drawn Gavanised Wire.	Smaller Quantities Drawn Wire.
		Per Cwt.	Per Cwt.	Per Cwt.	Per 100 Yards.
Nos.	Yards.	s. d.	s. d.	s. d.	s. d.
4	255	13 0	16 0	20 6	7 6
5	303	13 6	16 0	20 6	6 6
6	361	14 6	16 0	20 6	5 6
7	428	16 0	17 0	21 6	5 0
8	509	..	18 0	22 6	4 6

IRON AND WIRE TRELLIS FOR TRAINING FRUIT TREES.

Prices of Iron Standards, Stays, &c., for Fruit Trellises.

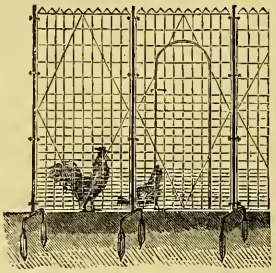
Extreme standards of T or angle iron for ends or angles of trellis, for straining the wires from, with self-fixing anchor feet bases, bored for wires from 7 to 10 inches apart, at prices as under. The T or angle iron stays for these standards are the same price as the standards :—

	Painted.	Galvanised.		Painted.	Galvanised.
5 feet high ..	6*s.* 0*d.* ..	8*s.* 6*d.*	8 feet high ..	9*s.* 0*d.* ..	12*s.* 0*d.*
6 feet high ..	6*s.* 9*d.* ..	9*s.* 6*d.*	9 feet high ..	10*s.* 0*d.* ..	13*s.* 0*d.*
7 feet high ..	8*s.* 0*d.* ..	11*s.* 0*d.*	10 feet high ..	12*s.* 0*d.* ..	15*s.* 0*d.*

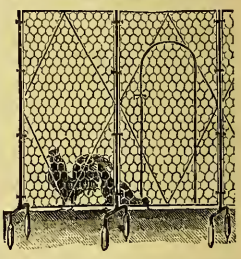
The intermediate T or angle standards, say about every 10 feet apart, are one-half the above prices.

No. 13 Galvanised Wire, the larger size for trellises, 2*s.* 6*d.* per 100 yards, or 32*s.* 6*d.* per cwt., containing 1589 yards.

IMPROVED GALVANISED POULTRY FENCES.



No. 1. Drawn to ¼ inch scale.



No. 2. Made of 1 inch Mesh Wire Netting.

These Poultry Fences are made in pieces 3 feet wide and 6 feet high, with iron standards fastened between each piece by means of small bolts and nuts. A run or pen can thus be formed of any length or shape without incurring any extra cost.

The prices are the same for either pattern, 6 feet high and 3 feet wide, 6*s.* 6*d.* per yard, including one japanned iron standard, with bolts and nuts. Doorways, 5 feet high and 2 feet wide, 4*s.* each, extra.

Angle Iron Standards, for angles or corners, which are recommended for neatness and strength, instead of intermediate flat standards, 3*s.* 6*d.* each, extra.

No. 1 IRON AND WIRE FENCE—for Cattle and Sheep.—3½ feet high, with Standards 7 feet apart, with 6 Wires, No. 4 gauge, 1*s.* per yard. Strong Pillars with Stays at each end of Fence, 35*s.* the set.

No. 2 FLAT BAR FENCE—for Heavy Stock.—3 feet 9 inches high, Top Bar ⅝ inch round, Lower Bars (flat) 1 inch wide by ¼ inch thick; Standards, 3 feet apart, 1⅛ inch by ⅜ inch; Joining Standards, 1⅜ inch by ⅜ inch—with five bars, 3*s.* 6*d.*; six bars, 3*s.* 9*d.* per yard.

PRICE LISTS, containing Prices of Iron Hurdles and other Specifications of Wire and Bar Fencing, also of Lawn Mowing Machines, New French Lawn Seats, Croquet Chairs, Garden Rollers, Liquid Manure Pumps, and Wrought Iron Cisterns, to be had on application.

MESSRS. J. B. BROWN & CO., 90, CANNON STREET, LONDON, E.C.

SATURDAY, FEBRUARY 20, 1875.

A HOLIDAY IN NORWAY.

(*Concluded from p. 202.*)

ALL travellers in Norway speak of the delicious milk of the country; its richness is quite remarkable, and differs from the milk of Alderney cows in being less suggestive of absolute butter. I drank it in many places, and found no exception to its excellence. Norwegian cows are small and hardy, and not unlike our unimproved Ayrshires. During the summer months they graze over a large extent of ground, on mountain sides, amongst woods, on heaths, or wherever pasturage, whether it be leaves of trees or herbage, can be found. This varied food, combining so many plants possessing both nourishing and tonic properties, gives that character to the milk that renders it so refreshing and agreeable. The more common plants of our own pastures are found in Norwegian fields. I noticed amongst grasses that the Poas were represented, with Cynosurus cristatus, Festucas, Anthoxanthum odoratum; and intermixed with them, in about the same proportion, the Clovers, Sorrel, Leontodon, and Ranunculus. However desirable it may be to increase the produce of our pastures—developing, by applications of manure, the more nutritious and fattening grasses, at the expense of the natural herbage—it is pretty certain that the quality of the milk and cheese from cows fed on such improved pasture is deteriorated. Stilton cheese is particularly affected by the land on which cows feed that produce it being dressed by stimulating manures.

The main roads for general traffic are well made, a variety of hard rock suitable for road material being everywhere at hand. The roads are kept in repair by the owners of land contiguous to them, whose names are inscribed on posts or tablets of stone at the commencement of the work they are responsible for. Many of the ancient and more difficult carriage tracts which led over the hills and down dangerous declivities have been abandoned, and others constructed by engineers, who, by blasting the rocks, have opened out passages along the mountain sides, continuing them along valleys that offer suitable levels, across rivers where necessary, and where ascents are unavoidable they have made the gradients as easy as possible, so that travelling on the high-roads is by no means so hazardous as it was less than a quarter of a century ago.

In pursuing the valley roads the rush and roar of waters sweeping down the rocky channels accompanies the traveller for days together, and it is an absolute relief to climb the hills above the road, and to penetrate the depths of a Pine forest—the sudden stillness after the tumult of rushing water falls with almost oppressive solemnity upon feelings alive to new impressions. The absence of animal life, not only from such solitudes, but throughout the country, is very observable. The joyous birds of our English woods are nowhere to be heard in the forests of Fir and Pine. Squirrels are sometimes seen in the Fir woods. In open spaces on the hill-sides, where the Cranberry grows and bears profusely, fieldfares are met with; the grey crows may be observed about cultivated land, feeding like our rook on grubs and insects; magpies find homes near every farmstead, and their interest in the eggs laid by the goodwife's hens is unflagging. The sparrow haunts the cornfields and yards, but he is not the noisy obtrusive robber of my acquaintance, but a quiet, sedate, subdued bird, seeming as if the weight of the long dark winters was upon his spirits. The wagtail and cuckoo are summer visitants. I saw the great northern diver in the Sogne Fjord, and once caught sight of an eagle. The ducks, occasionally observed on lakes, were too wary to permit approach and identification. Grouse, ptarmigan, blackcock, abound in certain districts, but a mere passing tourist seldom has an opportunity of seeing birds whose habits carry them away from roads and fields and cultivation.

Starting early from Tomlevolden I drove to Odnes, a station at the head of the Ronds Fjord, one of the great lakes and water routes for travellers proceeding to the south. The voyage was a very pleasant one down the lake, in a well-equipped and well-managed steamer. The mountain ranges that bound this inland sea are covered with Fir forests, in which open, verdant spaces occur with great regularity, betraying the presence of farmsteads, which are conveniently situated for access to the water, which is their highway, and a subsidiary field, yielding perennial crops of fish. Signal flags from the farmhouses warned the steamer of intending passengers, who pulled off in the light pointed Fir-built boats which one sees on fjord, lake, and river, and which appear to be as common a possession as a horse. Evidence of the extent of the timber trade is manifested by numerous rafts and floats of that commodity, either collected in depôts, on the shores of the lake, or floating down as if aware of their destination.

Approaching the lower end of the lake the accumulation of floating timber was so great, that, except a narrow channel left for the passage of boats, the whole of the lower end of the lake was covered, presenting a most singular appearance.

The railway station, Honesfos, which is within a short walk of the landing place, warns us that the excitement of mountain travelling is at an end—the wild rush of the horses down the hills, the toilsome climbing of the heights, the anxiety lest accommodation should be forestalled and the journey arrested at an impoverished station, the voyages down the fjords, the boat excursions up lakes—all hopes and fears, pleasures and discomforts are over, and we may resign ourself with becoming placidity to the prospect of an easy, uneventful journey, the end of which will be a city possessing all the luxuries of an advanced civilisation.

Happily the rate of speed is not so great as to deny the traveller the pleasure of observing the romantic river scenery, which is frequently brought to view by the passage of the line along the valleys through which the waters, fed by the Ronds Fjord, pour with fretful haste.

The channel down which the water rushes has too many rocky impediments to allow of its navigation by boats; but it is nevertheless made available for the transport of timber, which, in the shape of roughly trimmed poles, is carried in immense quantities down the stream. An amusing aspect in the scene was the odd and seemingly prescient manner in which the poles held on their way, twisting and turning with the windings of the river, gathering in clusters, going singly, proceeding in file, tumbling over cascades, and, as if resting after a journey, masses would occasionally be seen collected in eddies or bays of the river. As the waters spread out over more level spaces we find the waifs and strays are collected, and appear in ordered rows, and, gaining the great timber depôt of the country, Drammen, the extent of the timber trade becomes more evident in the enormous accumulations that are found arranged by the river.

The railway crosses the Drammen River by means of a long wooden bridge, and presently passes up a very steep incline, along the slope

of a formidable hill, and winding amongst woods, past lakes, by scarped mountain sides, and along sheltered valleys, it reaches, but not before darkness has overtaken us, the city of Christiania.

Traversing for the first time a country so remarkable in its physical features and interesting, and in some respects exceptional, in various departments of natural history, it is not to be wondered at that the tourist should desire to seek within the walls of the National Museum for the information such institutions are established to furnish. Unluckily the Professor we desired to see was away exploring the mountain regions of the country; his assistant was also absent, and after losing precious hours I could only get a hasty and unsatisfactory view of one small division of a very important and wealthy museum.

Entrance to the Botanic Garden is not surrounded with the restrictions that defy the most pertinacious applicant for admission to the museum. Judging by the limited attractions of the garden, and the general indifference of the people to the pursuits of natural science, an influx of visitors is the last event anticipated. The surprised look of the good woman who answered the door of the curator's house, and directed me to the garden, led me to think that a visitor was a *rara avis* indeed.

The situation of the garden is favourable, being on a slope with a good southern exposure. The soil grows native plants (weeds) to perfection, and there was no spot on it in which they were not abundantly represented. Indeed, it required in many cases special powers of vision to discriminate between the cultivated and intrusive plant; yet it was evident, on looking over the sadly-neglected garden, that good practical and experimental work had been executed and more projected, but parsimony and neglect had replaced such enlightened directions and endeavours.

The hothouses illustrated what a few years of carelessness or disregard will do for such structures; they are in a ruinous condition and empty. Trees, both deciduous and evergreen, occupy good positions; collections of alpine and herbaceous plants have been formed, but in many cases labels alone remain to indicate the spots once worthily occupied. Hedges for shelter, formed of many hardy and suitable trees and shrubs, intersect the garden, and appeared to me as being of especial interest in a country at present without the advantage of living hedges. It was evident by what existed here that farmers need not be without such useful boundaries to their fields. There are hedges of Privet, Rhamnus catharticus, Spiræa, Caragana arborea [? Colutea arborescens], and Whitethorn; and, as illustrating the suitability of the country for many more trees than are generally or ever planted, I saw good examples of Larch, Lime, Elm, Ash, Beech, Horse Chestnut, Lombardy Poplar, Salix alba and other species, Black Poplar, and Sycamore, which had changed its smooth for a thick and corrugated bark, like that of the Elm; a collection of hardy Conifers, amongst which I could not find the most suitable for the country, Abies Douglasii; a fair collection of Cratægus and of Cerasus. Some small attempts at bedding out had been made, and a considerable space of ground was devoted to annuals. Wading through a wilderness of weeds very many interesting herbaceous plants were to be found set out on mounds in open quarters—the number of species of certain genera being unusually great. In one neglected corner I found blooming in great perfection and perfect beauty that gem of gems, Gentiana septemfida.

That a country so much dependent on the products of the fields for sustenance, and on its forests for fuel and for so many conveniences of life, should be so utterly regardless of its one national and experimental garden is a great reproach to it. Whether the responsibility rests with the Government, or with those who have the immediate control of such institutions, I am unable to say. Without adequate or intelligent labour, a curator can do little or nothing in an extensive garden; and I felt sincerely sorry for that polite and attentive official when I surveyed the field of his labours. *W. Ingram, Belvoir.*

New Garden Plants.

Milla (Eumilla) Leichtlinii, *sp. n., Baker.**

A native of the Southern Andes, imported to Europe by Herr Leichtlin, who presented seeds and a living plant a year ago to the Kew collection, which flowered again this year at the end of January and beginning of February. It is a well-marked species, nearest biflora (*Bot. Reg.*, t. 1555), and porrifolia (*Bot. Mag.*, t. 5977; *Refug.*, t. 258), in its very long flower-tube and very short peduncles and pedicels, but distinguishable at a glance.

Corm large, white, ovoid, 18—21 lines long, with fibres from the base. Leaves 6—8 to a corm, not more than 2—3 inches high at the flowering time, narrow, lorate, bright green, blunt, glabrous, under ¼ inch broad, membranously dilated at the base, afterwards growing out to half a foot or more. Umbels 2—3 to a root, their peduncles so short as scarcely to rise above the soil, 1—3 flowered. Spathe-valves 1—2, lanceolate, erect, 1½ inch long, reaching to the top of the flowers and, if two, connate above the base. Pedicels very short. Perianth 18—20 lines long, the tube green, twice as long as the segments, which are lanceolate, ½—¾ inch long, pure white on the face, with a conspicuous green keel down the back. Flowers slightly fragrant. Stamens all from near the throat of the tube; filaments flattened, greenish, 3—4 lines long. Anthers small, yellow, oblong, versatile. Ovary oblong, with very numerous horizontal ovules in each cell. Style reaching to the throat of the tube. Stigma obscurely three-lobed. Capsules oblong, ½ inch long. Seeds turgid, black, roundish. *J. G. B.*

Stephanolirion, *Baker,*† *genus novum* (Nat. order Liliaceæ, tribe Millæ).—S. narcissoides, *Baker, species sola.*

This interesting novelty was imported by Messrs. Veitch from Chili, and flowered in their London garden last September. Its general appearance at a first glance is most like that of the slender varieties of Narcissus Tazetta, with a white limb and orange crown, such as patulus of Loiseleur or Hermione ganymedoides of Jordan. But on a second look one sees that the plant is not Amaryllidaceous at all, but the ovary is free inside the perianth, and that the texture and shape of the flower is like that of one of the umbellate Millas, say porrifolia. It is, in fact, a Milla with a Narcissus-like crown. Though crowns are abundant in Amaryllidaceæ, there are only two small and little known genera of coronate Liliaceæ, Androstephium and Bessera, and in both these the crown is simply the united base of the filaments, not a distinct whorl, as we have here. So that we have to thank Messrs. Veitch for bringing to light an entirely new Liliaceous type.

Bulb globose, under 1 inch thick, clothed with several brown membranous tunics. Leaves about four to a bulb, developed at the same time as the flowers, erect, half a foot high, narrow linear glabrous acuminate, 2 lines broad. Scape slender terete purple, above 1 foot long. Umbel of 5—6 flowers. Valves of the spathe two, linear acuminate membranous, 12—15 lines long. Pedicels slender, ascending, ¾—1¼ inch long. Perianth hypocrateriform; tube scarcely half an inch long, cylindrical, dirty white, with six green bands decurrent from the midrib of the segments; segments six, spreading horizontally when fully expanded, oblanceolate, subacute, 8—9 lines long, ¼ inch broad, pure white on the face, with a slender, two-nerved greenish keel. Corona erect from the throat of the tube, bright orange, a line deep, irregularly slit down to the base, the lobes mostly quadrate. Stamens 6, the small sessile oblong yellow anthers packed tightly in two sets of three each in the upper half of the tube. Pistil (in the specimen seen) not reaching more than half way up the tube; ovary cylindrical, with numerous horizontal ovules in each of the three cells; style erect, much shorter than the ovary; stigma capitate. Fruit not yet known. *J. G. B.*

* *Milla Leichtlinii*, Baker.—Cormo magno ovoideo, foliis 6—8 erectis anguste loratis obtusis tempore florendi brevibus; scapis brevissimis; umbellis 1—3-floris; spathæ valvis 1—2 lanceolatis; pedicellis brevissimis; perianthii tubo pollicari anguste infundibulari; segmentis albis viridi-vittatis lanceolatis, tubo duplo brevioribus; staminibus prope faucem tubi obscure biseriatis, filamentis brevibus.

† *Stephanolirion*, Baker.—Perianthium corollinum hypocrateriforme tubo cylindrato; segmentis 6 oblanceolatis patulis tubo longioribus, dorso 2-nervatis; corona capistriformi erecta angusta petaloidea ad basin irregulariter fissa ad faucem tubi præditum. Antheræ 6 supra medium tubi insertæ sessiles biseriatæ parvæ oblongæ. Ovarium cylindratum triloculare; ovulis in loculo pluribus; stylo brevi cylindrato, stigmate capitato. Capsulam non vidi.

VRIESIA REGINA.

For a photograph of this magnificent Bromeliaceous plant (fig. 41) we are indebted to the courtesy of M. F. Antoine, the Director of the Emperor of Austria's private garden at Vienna, and under whose care the specimen in question flowered for the first time in Europe last summer. According to M. Ed. Morren, this plant is the same as was called by Lemaire Vriesia Glaziouana. It has also been known as Tillandsia regina, and Vriesia gigantea. For a full description of the plant, as well as for its synonymy, we refer the reader to an article in the *Belgique Horticole* (1874, 325), from the pen of Professor Morren, the learned investigator of the Bromeliaceæ, and whose collection of living species is, we believe, the most numerous in point of species of any that now exists.

The leaves of the plant in question are about 4 feet in length and 7 inches broad. The flower-stalk, which developed with great rapidity, attained a height of 7 feet. The flowers are arranged in two-ranked curved spikes, disposed in a branched panicle, and spring from the axils of rose-coloured bracts. The flowers are white, and have a strong perfume of Jasmine. The plant is a native of Rio Janeiro, where, according to M. Glaziou, it grows in the clefts of the rocks, flowering from October to December.

NOTES FROM A GARDEN IN CORNWALL.

A few notes from my garden in Cornwall will enable your readers to make comparisons with their own in other parts of the country. I will endeavour to give some of the local peculiarities, which have such an important influence on vegetation, and will explain many anomalies that would appear to a casual visitor.

A person travelling by rail from Exeter to Penzance might come to the conclusion that gardening in this county must be conducted under very adverse conditions, so bleak and sterile is the view on both sides until the town so famous for Broccoli and early Potatos is reached; and should he leave the rail and diverge to the right anywhere between those two places, he would not find much to interest him unless he searched diligently in the many sheltered fertile valleys, where there are to be found numerous interesting and pretty places. On the left, or south side of the line, is what may be truly termed the garden of Cornwall; between Plymouth and Truro almost every acre of land is in a high state of cultivation, and the unsightly mine engine-houses and refuse heaps are few and far between. On this more favoured spot is my little garden with its limited surroundings. The house, and what for convenience sake I call the flower garden, are situated on the extreme margin of a flat piece of table-land, and the other portion of the garden, which is far more floral than vegetable, is situated on a rather steep descent dipping to the south-west. The length of this garden is about 120 yards; the difference in level is 56 feet, and this difference gives a remarkable diversity of soils and climate, quite peculiar to this county.

At the bottom of the garden is an excellent spring of water, clear as crystal, and constant in its supply, rising to the surface within a few feet of the garden fence, which is of the true Cornish type—half wall, half hedge. This stream first does duty in a bed of Water-cresses, which I find a valuable addition to our culinary department. If they are constantly pinched over from this time on a level with the water, they remain tender and crisp all through the summer, and yield a constant supply. From this the water passes through the hedge to a small pond in the garden, which is wholly occupied with Aponogeton distachyon—a plant truly at home in this county, and greatly to be admired. With me it flowers through the entire summer and half the winter. This season I have been able to gather its delightfully fragrant blossoms every month. In the opposite corner of the garden is another small pond, made last year to accommodate a miscellaneous collection of hardy aquatics; into this the seeds of the Aponogeton have been conveyed by the stream, and threaten soon to take sole possession of this, as it did in the other case.

I am now adopting an expedient, in the vain hope of raising my molehill into a mountain, or to endeavour to make two or more subjects occupy the space of which it were better, if possible, that one alone held possession; and in a new alpine garden I have in hand I am sinking large pots (they are better known by the name of pan mugs) to the level of the ground, and conveying a stream of water through one to the other. In this situation I have never

known the water to freeze, and this gives me hopes that many aquatics, hitherto considered tender, will do with me here, and as a first experiment I have procured a root of Nymphæa cœrulea, a very common Cape aquatic. As Cape plants, particularly bulbs, do well with me, I have thought it a suitable place for trial after the Aponogeton from the same place.

The geology of my garden is what the Cornish miners call killas, that is, an argillaceous, slaty rock, with occasional veins of quartz; this is first overlaid with a friable shaly marl, and then with very porous yellow loam, containing iron in considerable quantities, but very little lime. The soil varies in thickness from 12 to 18 inches, on the summit of the ridge to 8, 10, or more feet in the valley. With such loose open soil and the shaly rock beneath, we are not troubled with stagnant water; and, though it may rain in torrents for days together, as it frequently does here, so soon as the rain ceases we are able to work in the ground. For the same reason we suffer from drought in the summer. The same conditions exist in most parts of this county, which will account for several plants having become naturalised and rather common here, as several species and varieties of the Tazetta group of Narcissus, and many interesting forms of Primulaceæ, &c.

This peculiar subsoil, the mildness of the climate during my six to seven years' experience, and the knowledge that undoubted records exist of very ancient mining and cultural operations, would lead one to expect to find many more examples than we do of large and rare trees and shrubs from temperate climes. But the reason is that of a certainty sooner or later—

Fig. 41.—Vriesia regina (much reduced).

as in the winter of 1861 and 1862, when the severe weather endured for many weeks—Cornwall, with its extremely moist atmosphere and semi-tropical vegetation, suffers greatly; and it is sad to reflect that the noble examples frequently met with of such things as Embrothrium coccineum, Eriobotrya japonica, Benthamia fragifera, Pinus longifolia, &c., and even Pinus insignis, at times suffer greatly. I think the evil might be greatly avoided by planting such things on the more elevated land instead of, as is now nearly always the case, in the sheltered damp valleys, which in winter are mostly dripping as from a recent shower, and in summer form a warm vapour bath. The rapid growth in such situations produces a very succulent vegetation, ill suited to withstand severe frost. In the more exposed parts the growth if not so rapid would be much more enduring, and would well repay the little extra care required in sheltering and nursing the plants while young.

Undoubtedly one of the greatest drawbacks to the successful cultivation of many things, particularly fruits, is the extreme mildness of the winter, which excites a too early development, so that the spring frosts in a moist atmosphere destroy the early buds and blossoms; consequently, Peaches, Nectarines, and Apricots, are a very uncertain crop. But a new enemy has taken the field, or rather garden, of late, in that beautiful pest, the bullfinch (better known here by the name of "hoop"). Knowing the enemy I had to contend with, I have diligently shot all I possibly could, but with all my care they have stripped all Cherry, Plum, and Gooseberry fruit-buds, destroying all hopes of any fruit this season, and I find they have not entirely neglected the Peaches. Not in my garden alone, but everywhere in the county, more or less, it is doing damage, the extent of which it is difficult to realise; and unless joint action is taken to get rid of them it will be useless to attempt to grow Plums and Cherries. The trees are not covered with nets most part of the year.

The weather during the present season has so far been remarkable. Since Christmas rain has fallen almost daily, and I understand from the Registrar in Truro that during that time about 16 inches have fallen. The ground has not been covered with snow, there have been only occasional showers of hail, and the thermometers in my garden have never registered more than 9° of frost, and that but on one occasion, when it continued for only an hour or two: the general average of extreme cold has been about 5° below freezing point. Some plants, in addition to Aponogeton already mentioned, have been growing and producing a succession of flowers all winter, and I have always been able to gather a respectable bouquet of Tea Roses, Violets, Triteleia alliacea, Vittadenia (Erigeron) triloba, evergreen Candytuft (Iberis), shrubby Veronicas, Convolvulus Cneorum, Laurustinus, Anemones, Coronilla glauca, Tritoma intermedia, Mignonette, &c. December and January have added Cyclamen ibericum, Atkinsii, Coum, and even persicum; also Winter Aconite, Helleborus, several species, Grevillea rosmarinifolia, white Primroses, coloured Polyanthus, &c.; and now at the beginning of February they are too many to enumerate, but the most conspicuous are Habrothamnus elegans, Pyrus japonica, Iris reticulata, Hepaticas, Primula Palinuri, Cytisus candicans—this shrub is nearly always in flower—Lithospermum prostratum, several Muscaris and Bellevalias, &c. About the middle of last month I gathered seventy species of flowers from the open garden. In addition to the weather reports in the *Gardeners' Chronicle*, we have had with us true harbingers of the severity of the weather in the North: vast numbers of starlings, fieldfares, and redwings, which always flock here and remain through the winter, have this season mustered ten times stronger than I have seen them before, and now as I write the field in front of my window is literally covered over with them—they are there in thousands. While the cold continued in the North they might be seen arriving in large flocks all the day long and apparently very

feeble, but a few days' rest here and the exertion of clearing the Thorns and Hollies of their berries soon restored them. *J. S. T.*

THE ROYAL HORTICULTURAL SOCIETY.

Will you allow me space to direct the attention of the Fellows of the Royal Horticultural Society to a subject which, I believe, must soon occupy them, and which it is well that they should be timeously turning over in their minds—the steps that must be taken either for the rehabilitation or reconstitution of the Society.

It is long since I have addressed you on the subject. I have not opened my lips, nor inked my pen, by way of advice or comment on the management of the present Council since I resigned my place as one of the old Council in 1873. I have felt that both the old and the new Council have been on their trial, and that it did not become one on his trial to obtrude advice. You will easily believe that it has cost me some self-restraint to keep silence; for after the long series of years during which I have been connected with the Society in one capacity or another, I should be a very heartless fellow if I had no sympathy with its difficulties, or no feeling for its distresses. But my mouth is now unsealed. The attempt to establish a skating rink, the late report of the Council, the speech of the chairman at the annual meeting, and, more than all, the condition in which the Society is now landed, are all proofs or acknowledgments in favour of the policy of the old Council. I consider, therefore, that I am now free to speak my mind like any other man, and I trust to your allowing me the exercise of my recovered speech by hearing my first say, even although it may not, in all respects, correspond with your views.

The Society is now in such a critical state that it depends upon the action of the Council in the next fortnight whether it shall continue as a Society or be broken up. There seem to be four events upon the cards at the present moment. The Council may succeed in their negotiations with the Commissioners, and obtain favourable terms from them. If they get what the Commissioners were understood to be willing to grant to the old Council in 1872, and what they were turned out for proposing to take, then all may still be well. If I recollect aright, the Commissioners were willing to take the whole of the debenture debt (£50,000) off the shoulders of the Society, to give it gratuitously all the accommodation it can require for its working operations, for its meetings, and for its shows; to keep up the garden at South Kensington at its own cost, to pay a liberal price for the plants and property of the Society in the gardens, which it was supposed would be sufficient to pay off all the Society's debts, and leave it something to start comfortably with, the only return being the surrender of the lease; and I cannot help thinking that any fair man will acknowledge that such terms would be not only generous on the part of the Commissioners, but noble, and worthy of the Prince whose plans they administer. Indeed, according to my purblind view (and it is well that the Fellows should be occasionally reminded that every one does not regard the Commissioners with the same antipathy as my old colleague, Mr. Bateman), if we look only at the acts of the Commissioners, their conduct to the Society has been characterised by the same liberality and generosity throughout. It is not my business to defend them, nor do they need my defence, but I might challenge any man, if you leave out of view gossip and reports as to their intentions, and look only at their acts, to point to an act which is not of this character. In taking up and redintegrating a penniless Society, and entrusting to it the administration of property of great value, the Commissioners naturally and properly reserved a controlling power; and all the misunderstandings and cross purposes which have subsequently arisen, have flowed from the mode in which it was arranged by the advisers of the Commissioners and those of the Council that that control should be exercised: but that they did not hit upon a wise means of exercising it is a detail for which the Commissioners should not be blamed. Whenever the Society has come face to face with them they have been dealt with in a most liberal and friendly spirit. I therefore, as I have already said, am quite prepared for such terms as the above being granted by the Commissioners. The Society, as a horticultural society, could want nothing more; and, were the horticultural element alone consulted, it would, I am sure, leap at the offer. But will the present Council accept such terms? It is not with them a mere question of *amour propre*, but one of principle. Two antagonistic motives stand opposed to each other—exclusiveness against freeness. They voted out the old Council because it was prepared to sacrifice the exclusive right to the gardens for the countervailing advantages, and insisted that not an item of their exclusive privileges should be given up; but if they surrender the lease these, or at all events all control of these, must go. These exclusive privileges are wholly opposed to the principle on which the Commissioners have always acted. Their object is to effect a great public benefit, to improve the masses, to educate and refine them, and the way in which they have hitherto tried to work out their principle is by throwing open works of art and beauty to the view of the masses, and encouraging them to come freely and imbibe their essence. That object will not be served, so far as the Horticultural Society is concerned, by any arrangement such as you have suggested for granting a new lease either to the Society or the local Fellows; and, unless I am greatly deceived, no arrangement with the Commissioners will be possible which does not put in their hands the power of using the gardens as they please as an adjunct to the other means of education carried on in the neighbourhood. For the local Fellows to accept any terms abandoning their exclusive garden privileges would be to surrender at discretion. It is undoubtedly (according to my view always, of course, understood) the duty of the Council as guardians of the interests of the Society to accept such terms if offered; but whether the majority that is in it of local non-horticultural Fellows may think so too, is another question. Let us hope that, like M. Favre and his celebrated "not an inch of our territory, &c.," they may find themselves forced by the necessity of circumstances to sacrifice their most cherished determination. If they do so they will certainly be entitled to the gratitude of the Society, although they may lay themselves open to the remark that they were not so public-spirited in 1873 as they are in 1875. The result of such a settlement would be twofold. First, we should require a new charter. The present one is so involved with the agreement with the Commissioners that it would be unworkable when that agreement was withdrawn, and, second, we should lose a considerable number of our non-horticultural local Fellows. But we could then afford the loss; and I have the bad taste to think the loss would be a gain to horticulture. This is one of the events that are on the cards. Another is that the Council may decline to accept terms from the Commissioners which are satisfactory to the horticultural mind of the Society; in that case it seems to me that the horticulturists should insist on its being done in spite of the resistance of the Council and of the local Fellows; and if defeated by them again, as they were in 1873 and 1874 by the local Fellows, the third or fourth contingency would alternatively ensue. There would be an effort to carry on the Society in the way suggested by the Council in their report, viz., by increasing the subscriptions of the local Fellows, and this would either succeed so far as to pay a years' rent and so tide over the crisis with the Commissioners for another five years, or it would fail. It is unnecessary to consider anything more than the amount of success implied in the getting the rent paid. Anything like progress is out of the question: with a failing exchequer and diminished means of action no one can anticipate anything but a still more rapid decline than has already taken place during the last two years. If, as Mr. Haughton stated (I take his figures, for he was not contradicted, and I have not time to pick them out for myself), the receipts from the subscriptions of Fellows have diminished £1,100 in the time during which they have been in office, which, however, practically only represents the result of the first year's operations (the subscriptions falling due in January), we may reasonably fear that the falling off next year will be still greater—a fear not diminished by the ominous silence of the report as to the number of new Fellows and of resignations during the year just closed, a feature which would naturally have been put well forward had it been satisfactory. Horticulture must, therefore, inevitably suffer; and if horticultural inducements to join or continue a Fellow be withdrawn, the horticultural Fellows themselves will withdraw also. Independently of that, it would be unbusiness-like, and show little knowledge of human nature, not to recognise the fact that the mere publication of such a dolorous report must in itself already have done an infinite amount of damage to the Society. I do not blame the Council for publishing the report, for that they could not help, but they cannot escape the responsibility for the results of their policy, which would appear to have had such an unfortunate result.

It will take much time and much labour before its effect can be effaced. The inevitable result of such combined curtailment of means must, as is proved by the present budget, be a reduction of expenses, and that can only be effected at the expense of horticulture. Even although, therefore, the Council should succeed by the means proposed or otherwise in raising funds sufficient to enable them to preserve the lease and their exclusive privileges, it would not better horticulture; on the contrary, I regard such a success on the part of the Council as the most disastrous thing that could happen to the horticultural element of the Society. Still loaded with debenture interest and the expense of keeping up the garden at South Kensington, we should have the miserable prospect of the present year rendered the permanent condition of affairs so long as the rent could be met. It would retain the horticulturists in a sort of death in life state, attached to the corpse of the Society, unable to do anything, but unwilling to depart, and lingering by the side of the defunct in the vain hope of its resurrection.

Far better for horticulture would be the fourth contingency which is before us, viz., that the Council fail in their efforts to raise the subscriptions sufficiently to meet next rent. This would no doubt leave the Society at the absolute mercy of the Commissioners, but practically it is so already. They have only to refuse to treat, and it is almost a foregone conclusion that the dreaded contingency must occur. The voidance of the lease would make it more difficult for them to be liberal, but I still believe they would deal nobly with us. The money raised by debenture has been spent on their property, and from an equitable point of view we have a claim for unexhausted improvements. The Society, moreover, is not a private or personal one, with exclusive aims. Rightly regarded, it is maintained for objects which tend not indirectly to the national advantage. That such considerations would influence the Commissioners is very possible, and that not much more stringent terms might be got by the plea *ad misericordiam* than might be obtained now is not improbable; but a heavy responsibility would rest upon those who should risk the present almost certainty of obtaining terms by which our creditors may be paid for the problematical chance of an eleemosynary "dole." *Andrew Murray.*

PILEWORT.

"The first gilt thing
Which wears the trembling pearls of spring."

To the poet Wordsworth, who penned the above lines, this plant was welcome. Troubled for many years with weak lungs, he longed as the winter slowly rolled on for spring to come again, and about the first sign which greeted him was the homely Pilewort (Ranunculus Ficaria). We cannot, therefore, wonder why he so joyously sang its many charms, nor why it should find a place at last on the monument in Grassmere church. After all, we have no plant in our flora which so truly tells us of the approach of spring as the Pilewort. Both the Whitlow-grass (Draba verna) and Snowdrop, sometimes looked upon as the harbingers of warm days, more often bloom in January than in March. Gerarde, with his usual quaintness, says:—"It commeth forth about the calends of March, and floureth a little after; it beginneth to fade away in Aprill, it is quite gone in May, afterwards it is hard to be found, yea, scarcely the root."

Why is it locally named Small Celandine, or Lesser Celandine? Even in the north of France it is still called by the peasantry "Petite Chelidoine;" it is so named by Wordsworth, as also by several other poets:—

"Peeping from 'neath thy leaves of green,
In early spring thy flower is seen,
And bright thy yellow petals shine,
Thou pretty, little Celandine."

Some of our early Floras describe it as Lesser Celandine; this is, however, a deceptive and confusing name; it is really a corruption of Chelidonium, and the name Celandine should with propriety only be applied to Chelidonium majus. The true English name is Pilewort, which is doubtless given to it from the shape and appearance of its tubercled roots. Our old herbalists, who followed the doctrine of signatures, must have supposed a striking resemblance betwixt the tubercles and hæmorrhoids (piles); thus it was for many years applied to this distressing disease; hence its trivial name, Pilewort. Culpepper remarks as follows:—"Here is another secret for my countrymen and women,—a couple of them together. Pilewort made into an oil, ointment, or plaster, readily cures both the piles or hæmorrhoids, and the king's-evil. The very herb borne about one's body next the skin helps in such diseases, though it never touched the place grieved. Let poor people make much for their uses. With this I cured my own daughter of the king's-evil." Again, in Green's *Universal Herbal* we note:—"The particular form of the roots probably recommended this plant as a cure for the piles, and this fancied quality was the origin of the English name. The roots are sometimes washed bare by the rains, and this induced the ignorant and superstitious to imagine that it rained Wheat, to which the uncovered tubercles bear a little resemblance."

Green's description is more sensible than many other herbalists' in later years. We cannot find the virtues which are so highly extolled by Culpepper. Even village doctresses seem to be averse to its use, and to discard it from their practice as worthless or injurious. Perhaps our enemy has been as jealous of the Pilewort as he was of the Devil's-bit Scabious. *Vide* Gerarde.

By some botanical authors it is made into a distinct genus—Ficaria ranunculoides vel. F. verna, from its possessing three deciduous, instead of five persistent sepals, and nine petals instead of five, as in Ranunculus. We confess it is unlike the Buttercups, both in habit and general appearance, although the characters on which the genus is founded are very slight.

Two varieties are now recognised by British botanists, distinguished by the variation in the leaf. Our readers should keep a look-out in their several districts, as the distribution is but imperfectly understood at present. The one named R. divergens (F. Schultz) appears to be the most frequent, whereas, so far as we are informed, R. incumbens is rare in our northern counties.

Every one at all observant must have noticed the peculiar whitening of the burnished golden petals, after they have been fully expanded about a fortnight. Sometimes they are found with white patches scattered about, at others it commences at the tip, and runs half, or two-thirds down the petals. Underneath the white patch appears as if the cellular matter was in a state of decay. The corolla is not marcescent, as in the bell-flower (Campanulas). The term marcescent cannot be applied to a deciduous corolla, and without doubt the petals of this plant are deciduous. I am not aware that any satisfactory reason has been assigned for this peculiar phenomenon, which does not exist only in this species, but may be witnessed in several Buttercups. The changes going on in the petals of the Alkanet, Evening Primrose, &c., are different to those in the Pilewort. In the Evening

Primrose (Œnothera) the corolla does not suffer any loss of colour; it is only more intense, as from light yellow often to bright pink or purple; on the contrary the Alkanet changes from blue to pink.

May not the following be assigned as one reason for this change?—at all events, it is in harmony with first principles. At the season when the Pilewort begins to bloom very few flowers are to be met with. The brilliant petals may, then, be designed to attract insects, so as to bring about more effectually the fertilisation of the ovules. This being accomplished, the corolla begins at once to exhibit the white blotches. After the whitened and withered-looking petals appear the bee never visits the flower. I speak from my own limited observation, which may not be in strict accordance with the observation of other botanists. Observe, the carpels are but loosely attached to the receptacle, and are easily displaced. If they fall before they are fully matured, of course germination cannot take place; thus the speckled petals may be produced solely at this stage to repel bees and other insects. The petals vary much both in number and size: this may depend to a great extent on the richness or fertility of the soil in which they are growing. *R.*

Fig. 42.—Hymenanthera crassifolia.

A, B, Front and back of calyx, &c., from which berry has dropped, showing remains of anthers (A) and sepals (B), enlarged two diameters; C, Transverse section of berry.

HYMENANTHERA CRASSIFOLIA.*

This is a striking shrub, hardy near London, and having much the appearance of Arctostaphylos Uva-ursi; the structure of its flowers is, however, unmistakably that of Violaceæ. The shrub is erect or partially procumbent, with stiff cylindrical or somewhat angular branches ramifying at acute angles, and covered with an ash-coloured, wrinkled rind, thinly beset with whitish strigose hairs. The leaves are alternate or tufted, spreading, very variable in the native specimens, but in the living specimen before us uniform, about ⅛ inch long, scarcely ¼ inch broad, leathery, with a few minute whitish scales on both surfaces, paler beneath, linear-spathulate, entire, rounded or slightly emarginate at the apex, tapering at the base into a very short stalk. Stipules ultimately deciduous, minute membranous deltoid. Flower-stalks solitary, axillary, scarcely exceeding the leaf-stalk, ultimately bent downwards. Bracts three, minute roundish membranous erose, one at the base, two at the apex of the flower-stalk. Sepals five, persistent, orbicular, imbricate, membranous, and erose at the margins. Petals five, persistent, rather longer than the sepals, reflected at the tips. Stamens five, inseparate at the base; filaments very short, broad. Anthers two-celled, connective, prolonged into a broad lancet-shaped appendage, entire (or sometimes erose?) at the margins. Ovary not seen in our specimens. Berry surrounded by the remains of the flower, and also by the remains of the style, about ¼ inch long, oblong-obtuse, white externally, with a purplish pulp within. Seed, one or two. Testa hard, bony. Embryo straight in the axis of fleshy albumen.

The shrub, whose main characteristics we have above detailed from fresh specimens kindly furnished by Messrs. Veitch, is a welcome addition to our lists of hardy shrubs, among which its habit, neat foliage, and white berries give it a distinctive character. Botanically it is interesting as a shrubby violaceous plant, having, on superficial glance, nothing of the Violet about it. The structure of the flowers and seed is, however, quite that of the Violet order, as indicated to us by Professor Oliver. In the New Zealand *Flora* Dr. Hooker describes the berries as blue-purple, but this probably arose from an inspection of dried specimens only, wherein the white skin has become transparent, and allowed the remains of the purplish pulp above referred to to shine through. In our specimen the berries were chiefly one-seeded—rarely two-seeded, as in native plants. *M. T. M.*

* *Hymenanthera crassifolia*, Hook. fil., Fl. Nov. Zealand (1854), i. 17, t. 7.—Ramulis crassis puberulis; foliis 3 lin.—unc. longis lineari spatulatis v. rhomheo-ovatis obtusis integrimis sinuato-dentatisve, crassis coriaceis ∴ petalis sepalisque eroso-dentatis. North Island, &c.; see also Hook. fil., *Handbook of the New Zealand Flora* (1864), pp. 18, 725.

FERTILISATION OF THE CEREALS.

By Alexander Stephen Wilson.*

To the position taken in my last paper on the fertilisation of the so-called European cereals (*Gardeners' Chronicle*, pp. 340, 375, vol. i., 1874), that these grasses were self-fertilised; that the act of fertilisation in those cases in which the flower opens is probably performed in the opening, and is necessarily confined to the twenty or thirty minutes during which the flower remains open, certain objections were taken. It was objected that I appeared to make the mistake that fertilisation took place when the pollen was shed, which, as was illustrated by the case of many plants, it was said, was not necessary.

The meaning of the word fertilisation is partly a matter of convention. It may mean that act of the anthers by which they project or discharge the pollen, which, falling directly on the pistil, shall produce the embryo; or it may mean the falling of the pollen on the ovule after being carried a distance by the wind; or it may apply to the instant in which the elements of the pollen set up that action in the ovule which produces a new plant.

It is with the first meaning that these papers are concerned. I find that many of the cereal florets never open at all, and that in the case of those which do open, part of the pollen is discharged inside the cup. The discharge and the contact may be very nearly simultaneous, or the pollen may adhere to the inner sides of the paleæ, and may not touch the stigmas until the paleæ are again squeezed close to the stigmas. It is the discharge which is here called fertilisation, so that in florets which open and close again in twenty or thirty minutes, this fertilisation must, by its definition, take place in these few minutes. In florets which do not open, but simply become more or less inflated, the process is the same; discharge and contact closely follow each other, and this process is here called fertilisation. How long the pollen may lie dormant on the stigma, or how long it may take, in any form, to reach the ovule, I am not aware that any one has determined. If it be said that fertilisation does not take place till some of the matter of the pollen has reached the ovule, the two meanings are not contradictory, but refer to different stages of the same process.

Last season (1874) I had opportunities of observing the flowering of a Wheat not referred to in previous notes. This was the Polish Wheat (Triticum polonicum). The descriptions of it which I have seen are somewhat defective. The glumes or outer chaff-scales are more than an inch in length and somewhat shorter than the outer pale of the lowest floret, which is frequently an inch and a half in length. The inner pale of the lowest floret is less than half the length of the outer; the second floret on the spikelet is shorter than the first, the third than the second, the fourth is sborter than the third, while the fifth and sixth are rudimentary. Only the two lower florets are awned. But the peculiarity which distinguishes this from all other Wheats is, that while in other Wheats the inner florets of the spike reach further up the rachis than the outer and form a convex outline, the outer florets of the Polish Wheat reach highest, so that the spikelet has a concave outline.

In this Wheat two of the anthers are usually enclosed within the reflexed edges of the inner pale. They are pushed upwards in flowering. But the outer pales of the two lower florets are so large that the filaments of the anthers never acquire length to carry the anthers outside. They are not prevented from getting outside, as in some other Wheats, by the edges of the outer pale enfolding the edges of the inner. The two pales are quite unconnected, and the anthers, though free to come out, are overlapped by the great size of the outer pale. The anthers of the third and fourth florets sometimes appear outside, when hanging favourably for falling out between the pales. But, from the structure of these pales, almost all the pollen must be discharged inside; so that cross-fertilisation seems to be very rarely possible.

* Read at the February meeting of the Edinburgh Botanical Society.

And, from some peculiarity unknown to the writer, self-fertilisation was less successfully accomplished in this Wheat than in others growing beside it.

In order to test more fully whether self-fertilisation was adequate, or whether foreign pollen was necessary, two clear bottles were attached to two poles inserted in the ground, and into each bottle an ear of Barley, near the time of flowering, was introduced, and the bottles corked, leaving only a notch for the culm. They fertilised and ripened in the bottles as if no bottles had been present; one presenting two barren florets, which may often be seen in ordinary culture, the other being fully fertilised. Into each of two other stone bottles, and therefore dark, two ears of Wheat were introduced, as in the previous case. These ears were as fully fertilised in the dark bottles as the same Wheat in the open air. But I discovered that such experiments were being performed in all directions through the cornfields, and that I had only to read off the results.

In fields of Barley I found here and there solitary ears of Oats; they were as fully fertilised as the ears in Oat fields.

In a field of Oats I found two spikes of spring Wheat and no others, and there was not a field of Wheat for miles from the spot in any direction; they were both, in succession, fully fertilised.

In various Oat fields solitary ears of various Barleys were found, and all were as fully fertilised as if they had been surrounded by flowering Barley.

In a field of hay, which had carried Oats the previous year, a good many dwarfed panicles of Oats were found, struggling up through the seeds which had lain through the winter. Some of them carried but a single floret, some two or three, some five or six. They were all fully fertilised.

On roads and railways here and there dwarfish specimens of the cereals were also found, and fertilisation in these was as completely effected as if they had been taken from the midst of thousands of others.

At a later period of the season, after the crops were ripe, Turnip fields threw up a green panicle here and there, and in these also fertilisation was in no degree deficient.

Of course it is well known that some of the pollen may be carried to great distances. The pollen of the cereals, in the condition in which it is discharged, falls in air with considerable rapidity. The flowers of Wheat, Barley, Rye and Oats, which do open, remain open but for a very brief period. Only two or three florets on a spike are open at one time. Unless, therefore, a constant stream of pollen were passing over a spike of Wheat for a week, it could not be wholly cross-fertilised. This would require the concurrence of a properly directed wind, and that the fertilising source should be at the same stage of maturity as the subject to be fertilised. In the case of Oats, the locusta of which is pendulous, and the ovary of which is covered from above, cross-fertilisation could only be effected by pollen moving first in a horizontal direction, and then rising up into the flower against the force of gravity. That single ears of Wheat growing miles away from all other Wheat, or panicles of Oats six inches above the ground amongst the roots of grass, or ears of Barley enclosed in bottles, should be cross-fertilised, seems impossible.

A former paper may have given the impression that all the florets of Wheat, Rye, Barley, and Oats close again in twenty or thirty minutes. There are some exceptions to this in the case of Rye. Some of the florets of Rye never close after opening. Now, if it were the case that the spikes of Rye were more fully fertilised than the spikes of Barley, this fact, coupled with the possibility of cross-fertilisation, might be held to explain this fuller fertilisation of Rye. But further observation confirms the fact previously stated, that Rye is the most imperfectly fertilised of the four grasses under review.

Certain botanists have assumed the responsibility of maintaining that Nature abhors self-fertilisation. If she does, her practice falls short of her principles. But what is self-fertilisation? and what is cross-fertilisation? Consider a Wheat plant. The seed falls into a poor soil, and only a single stem and a single spike is produced. The pollen and the ovule enclosed in each floret have a certain relationship to each other; what that relationship is, in terms of the production of a new plant, we do not know. But is this relationship between the pollen in one floret and the ovule in another floret of the same spike a different relationship from that between the pollen and ovule in the same floret?

Suppose, again, that the seed falls into a rich soil, and produces fifty stems and fifty spikes; is the relationship between the pollen on one spike and the ovules on another different from the relationship between the pollen and ovule in any single floret?

Suppose, further, that a Wheat plant of fifty tillers is torn asunder when young, divided into ten plants, and grown in ten different fields. Is the relationship between the pollen of one plant and the ovules of another different from the relationship between the pollen and ovule of a single floret in the supposed single stem?

If what is usually called cross-fertilisation—the conjunction of pollen from one floret with the ovule of another—bring different elements together from those brought together by self-fertilisation, this is a physiological difference of real value. But, if in "cross" fertilisation the pollen transferred contains nothing but what is contained in the home pollen, then cross-fertilisation and self-fertilisation, dealing with the same elements, are physiologically identical. To call the process self-fertilisation when the pollen comes half an inch to the stigma, and cross-fertilisation when it comes half a dozen yards, seems to be the making of a distinction in advance of any real knowledge. If a botanist, by using the word cross-fertilisation, wishes his hearer to understand that a different vegetable element is involved from that which is involved when he uses the term self-fertilisation, it is incumbent on him to fix in his own mind what is his own meaning.

OPEN-AIR VEGETATION

AT THE ROYAL BOTANIC GARDEN, EDINBURGH.*

THIS winter, so far as it has gone, has been remarkable for its severity, particularly during the month of December last, when the thermometer was observed on twenty-seven mornings at or below the freezing point. The lowest markings were on the mornings of the 15th, 23d, 25th, 28th, 29th, and 30th, indicating respectively 17°, 18°, 17°, 13°, 5°, and 15°, while the highest night temperatures were on the 1st, 4th, 5th, and 6th, indicating 33°, 33°, 40°, and 38°. The united morning frosts during that one month amounted to 277°, being 31° more than was registered throughout the whole of the winter months last year, which was 246°, and of this number 36° only were recorded during the month of December.

The last very severe frost experienced at Edinburgh was during December, 1860, when the united degrees of frosts of that month amounted to 267°; although the amount is 10° less than in December last year, the mischief done to vegetation was very much greater (see *Transactions of the Edinburgh Botanical Society for* 1860-61). The lowest point indicated during the winter of 1860 was 5°, or 10° less than was indicated during last December.

After the disappearance of the frost on January 1, the weather for some time was dull, and comparatively little injury to vegetation has as yet been observed; had the weather been clear and sunny, vegetation, in all probability, would have shown greater damage. Some plants, however, have suffered considerably. A few points of some of the Cupressineæ are observed to be a little browned, particularly in low situations. The leaves of the Golden Queen Holly are also much discoloured. The green Hollies, particularly the tree forms, have parted with a large quantity of their leaves. The Phormium tenax, or New Zealand Flax, as well as the Cordyline angustifolia, have suffered severely. Many of the latter plants have stood unprotected on the rock garden during the last five years, some having attained the height of 6 feet. During December, 1870, we had 168° of frost, and several of the Cordylines at that time were killed to the ground, but again pushed up from the lower portion of the stem, and afterwards became fine plants; hopes are therefore entertained that the injured specimens will all break out again, the plants being considerably stronger than they were when last damaged. In consequence of a coating of snow being on the ground during the severest frost, it will be some time before the mischief done to herbaceous vegetation can be known.

During last month (January, 1875) the thermometer was fourteen times at or below the freezing point, indicating together 73°, while the previous January (1874) only indicated 32°. During the last month the lowest markings were on the mornings of the 1st, 8th, 23d, 25th, 26th, and 30th, indicating 13°, 26°, 28°, 29°, 25°, and 26°, while the highest morning markings were on the 10th, 11th, 14th, 16th, 19th, and 28th, indicating 38°, 39°, 39°, 42°, 42°, and 44°. Owing to the severe frost experienced during December, 1874, vegetation has been very much retarded. The following plants have bloomed in the open air during the month:—

Jan. 15. Corylus Avellana	Jan. 21. Leucojum vernum
,, 18. Galanthus nivalis	,, ,, Veronica alpestris
,, ,, Tussilago fragrans	,, 23. Crocus susianus
,, 20. Primula denticulata	,, ,, Scilla præcox
,, ,, Erica herbacea alba vera	,, 24. Crocus Imperati
,, 21. Hepatica triloba	,, 25. Hepatica angulosa
	,, 30. Eranthis hyemalis

On the first day of January this year the only open-air flowers that could be procured were Jasminum nudiflorum, four species of Helleborus, and Gentiana acaulis; while on January 1, 1874, no less than 138 specimens and varieties were collected in bloom. (See *Transactions of the Botanical Society* for 1874, p. 62.)

* Read at the February meeting of the Edinburgh Botanical Society. By James McNab, Curator.

PLANT GOSSIP.

THAT interesting novelty, FUCHSIA PROCUMBENS, which was exhibited by Mr. F. R. Kinghorn, of Richmond, in August last, has verified the prediction made as to its probable hardihood. Mr. Kinghorn planted out two examples of it at the end of last summer on a piece of rockwork in his Sheen Road Nurseries, and he informs us that it has stood unharmed by the frost of January last. This fact adds considerably to its value as a decorative plant for rockwork and sloping banks in the summer, in which position its curious, erect, brilliant head of flowers will be shown off to the best advantage.

—— It is surprising how well the beautiful early spring flowering MYOSOTIS DISSITIFLORA has stood the excessive rainfall and severe frost of the present winter, even in situations where the soil about the roots is of a cold clayey nature. It suffered much more during the comparatively mild winter of 1873-74, than amid the almost arctic severity of the opening days of January in the present year. Even where growing under apparently trying circumstances the plants are rapidly making nice tufts, and are fast developing their flower-buds. Old plants left over from last year have stood almost as well as seedlings. Attempts made to pot up this vernal gem so as to have it in flower early under glass have not been crowned with marked success; it does not do kindly in pots, and the best plan is to lift the tufts at this season of the year, when the buds begin to show themselves, placing them in 48-pots, and then keeping them in a cold frame till the plants begin to send up the flower-spikes. They should be lifted from the ground with nice balls of earth adhering to the roots. It is a matter for wonder that this lovely Forget-me-not does not find its way into Covent Garden Market in the spring.

—— The RHODODENDRONS are naturally regarded as ornamental rather than useful, but Dr. Brandis states that the beautiful R. arboreum, a Himalayan species, which is one of the most striking features of the "hollow walk" in Kew Gardens in early spring, is of some economical importance. On the ranges of the Himalayas it attains a height of from 30 to 40 feet, with a girth of 7 or 8 feet, and the hard close-grained wood is employed for building, made into dishes, and used for fuel and charcoal. Although the flower-buds and young leaves are believed to be poisonous to cattle, the flowers are eaten, and made into a pleasant subacid jelly. They are also applied for headache, and offered in temples, as those of R. ponticum are used in decorating the altars of churches. Two or three other Himalayan species are of some slight importance; the leaves of R. campanulatum are brought to the plains and used as snuff, while those of R. lepidotum and the beautiful R. anthopogon are employed as stimulants in native medicine.

—— In the *Hamburger Gartenzeitung* for January a M. Rothe professes to have made the discovery that the tying material commonly used in gardens under the names of MANILLA BAST and RAPHIA BAST (and in this country probably what is known as Raffia grass), is a kind of seaweed, Nereocystis Lütkeana. The writer says that the whole structure of this product proves that it is neither the bast fibre of a tree nor the vascular bundles of a Palm, and points to a lower organisation. It seems to us extremely doubtful whether M. Rothe ever saw the seaweed he has attempted to describe. He supports this unlucky guess of his on the facts that the tough hollow stems of this tree-like seaweed are employed by the natives of North-west America as siphons to run the water out of their canoes, and the laminæ or branches are twisted and used as fishing lines. But it is only in the fresh state, we imagine, that it can be used for these purposes. Mr. Jackson, the curator of the Economic Museum at Kew, kindly gave us all the information he could. Certainly the specimens of Nereocystis in the museum, whether natural or in the form of fishing lines, &c., were the very reverse of tough, and about as much use for tying as the famous sawdust rope! Mr. Jackson gave it as his opinion that the Raffia grass was the same as the undoubted material received direct from Madagascar as the young undeveloped foliage of Raphia Raffia, or, if not actually the same, at any rate the product of a Palm. In South America a similar product is obtained from Mauritia flexuosa, one of the most valuable Palms of the Rio Negro region. In both cases it is only the outer skin of the leaves that is used, and this is peeled off in strips while the leaves are still young and tender. Mr. Jackson gave us a piece for microscopical examination and comparison, and there is little doubt that it is the product of a Palm, and not a seaweed.

—— What is the EUCALYPTUS COLOSSEA we read about in so many French journals at the present time, and even in Baron Mueller's reports? This question has been repeatedly put to us, which is not surprising, as it is not mentioned in Bentham and

Mueller's *Flora Australiensis*. It is a peculiarity of Baron Mueller that he rarely sends out specimens or seeds of plants without provisional names, and it frequently happens that these provisional names cannot be retained, on account of the plant having been previously described, or from some other cause. This practice has the great disadvantage of making a plant known in gardens by a name not taken up in botanical works; and a plant once thoroughly known under a certain name by gardeners, retains it to the end. Of this we might adduce numerous instances. In Mueller's *Fragmenta Phytographiæ Australis* there is a bare mention of a Eucalyptus colossea, but no description, and we have been unable to find any description of a species bearing this name. It appears to be quite evident that Mueller has applied the name to two distinct plants himself, for he now speaks of a Eucalyptus colossea in the Victorian territory, which cannot be the same as that mentioned above, or it would have appeared in the *Flora Australiensis*. A comparison of the two works named will show that some of the evidently bad names are not taken up in the latter. Mr. Ramel, writing in the *Illustration Horticole*, says that the E. diversicolor of the *Flora Australiensis* was sent to him by Mueller as E. colossea, and that he intends retaining the latter name for it, as more appropriate, &c. In the *Journal of Botany* Baron Mueller expressly mentions E. colossea as one of the tallest trees of West Australia. It seems, therefore, that this name should have appeared in the *Flora Australiensis*, otherwise how are we to know what is intended by a name?

—— The question of the true Oxlip, and how it may be distinguished, is one which frequently crops up in horticultural journals. Botanists are more or less agreed in regarding as a distinct species or form the Primula elatior of Jacquin, which was at one time known as the "Bardfield Oxlip"; but it does not seem to be so well-known to horticulturists that this plant is very valuable as a spring border flower. A correspondent who has grown it for many years from Essex specimens is not only quite satisfied of its distinctness, which he was previously inclined to doubt, but regards it as one of the most ornamental of its race. Without enumerating the botanical characters by which the Bardfield Oxlip may be recognised, it may be observed that it differs from the false Oxlips—whether hybrids or developed Primroses—in its more compact umbel, in its paler and more drooping flowers, in the comparatively direct growth of the leaves, and in the peculiar and somewhat unpleasant odour of the blossoms, which recalls that of the Grape Hyacinth. The scapes rise much more boldly above the leaves—we have seen them nearly 2 feet high, and the plant remains in blossom for a longer period, and comes into flower later than other Oxlips. Those of our readers who have friends in Suffolk, Cambridgeshire, or Essex—the three counties in which P. elatior occurs—would do well to secure from them roots of this handsome plant.

BRITISH GARDENERS.—XII.

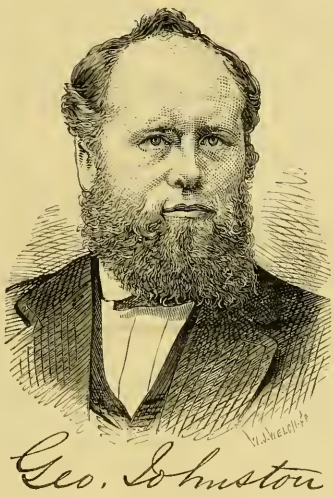
George Johnston.

Amongst the younger Scottish gardeners who have achieved success in their profession, we must assign no mean position to the subject of our present memoir, Mr. George Johnston, whose name has often been found well up amongst the prize winners at great horticultural gatherings, and whose productions have taken the first position at some of the International shows. Our former volumes bear record of these facts. Mr. Johnston has been an exhibitor of fruit since 1868; and we find that he has won over £300 in prizes, chiefly for large general collections of fruit, and for Grapes, at the various International shows, including those of Edinburgh, Glasgow, Manchester, and Belfast—upwards of a third of that sum being won by exhibits comprised under seven entries; while as an exhibitor of Peaches, Figs, and Melons, he has been equally successful. Some of his examples of Pine-growing have won for him the certificate of the Royal Horticultural Society.

George Johnston was born at Fingask, in the parish of Kirkill, Inverness-shire, on October 31, 1837. When seventeen years of age he was apprenticed for three years to Mr. Findlay, at Rulig, the seat of James Bailie Fraser, Esq., in the above parish. Mr. Findlay was a model gardener, and Rulig at that time was quite a model place, and an excellent school for young men, everything relating to gardening being carried out in the most thorough manner. He was very particular in the training of his pupils, and would see that they handled their tools properly, and got through their work in an active and systematic manner. He was also a keen competitor at the Inverness shows, and was always very successful. "Indeed," writes Mr. Johnston, "I never knew any one to surpass him in growing all kinds of soft-wooded specimen plants, and the many valuable lessons I received from him are still fresh in my memory. The fine Cedar grove at Rulig is worth going miles to see.

"After my time expired at Rulig, my first journeyman's place was at Red Castle, in Ross-shire, the seat of the Hon. Henry Bailie, under Mr. Fraser, who still holds the situation of gardener there, and is justly looked upon as one of the best judges and cultivators of fruits, especially Grapes and pot Figs, in that part of the country. All kinds of hardy fruits receive much attention from Mr. Fraser, and the climate being a favourable one, the finest kinds of Plums and Pears are extensively cultivated, and as a rule very successfully. Grapes and other fruits under glass are grown extensively and well at Red Castle, and of these I had the charge for one season. In 1860 I went to Balbirnie, in Fife, the residence of John Balfour, Esq., where I took charge of the flower gardens, under Mr. Edwards, who was then gardener. I held that situation for one year, when I got advanced to the charge of the forcing-houses. Mr. Edwards, who was a clever gardener, carried out many important improvements at this fine place; he was also a highly educated man, and offered his aid frankly and freely to any of his men who wished to improve themselves.

"My next engagement was in 1862, with Mr. Fowler, at Castle Kennedy, as foreman in the forcing department. The far-famed Castle Kennedy Grapes were at that time beginning to be spoken about, and I shall never forget the first sight I got of these extra-



ordinary Vines and their magnificent crop. I have a strong impression that I have never seen anything since to surpass them. It would be quite superfluous for me to add a single remark about either Mr. Fowler or Castle Kennedy. Mr. Fowler has most deservedly made his mark in the horticultural world, and to him I owe more gratitude than to any other horticulturist. When I went to Castle Kennedy the Grapes were in their glory. The Vines in the new vineries were bearing their second crop of fruit; and at that date (November, 1862) there were hanging in these houses some of the finest Grapes I ever saw, and which made such an impression on my mind that I can never forget them. They comprised Muscat of Alexandria, Muscat Hamburgh, Trebbiano, Gros Guillaume, and White Nice—all very large in bunch and berry, and faultless in finish. As is well-known, Mr. Fowler was a most successful exhibitor for many years.

"In the autumn of 1864 I was engaged, on Mr. Fowler's recommendation, as gardener to Henry Fernie, Esq., Mill Bank House, Liverpool, a situation I held till the winter of 1865-66, when Mr. Fowler recommended me to my present employer, the Earl of Strathmore. His lordship at that time was making arrangements for the formation of the new garden establishment at Glamis Castle, including kitchen and flower gardens, with all the glass-houses and many miles of drives, as well as extensive additions to the lawns and shrubberies. I at once took charge of the works, with the view to their being carried out in a thorough and practical way, under Mr. Fowler's directions. This was a grand opportunity for a young man, as I then was; and although the responsibility seemed at first rather heavy, the facilities which in the end such an opening were sure to afford rendered my task comparatively easy. My employer entered fully into the spirit of the work, including every matter of detail in connection therewith, sparing no expense to secure thorough efficiency in all the arrangements, and taking particular interest in those which affected the accommodation and comfort of the garden *employés*. The arrangements in this respect are most complete, and are not surpassed by those existing in any garden in the kingdom, thanks to Mr. Fowler's good judgment, and Lord Strathmore's liberality.

"The construction, heating, ventilation, and general plan of the glass-houses are of the most complete and efficient character, as is everything else in connection with the forcing department, reflecting the greatest credit on Mr. Fowler, who was architect for the whole.

"Few men, I believe, at my age have had a better opportunity of achieving success, seeing that I have had the oversight from beginning to end of the formation of a first-class garden establishment, and that I have had for the last nine years every encouragement from my employers, who, in their love of gardening and their knowledge of the art, and in their kind consideration for those in their employment, are certainly unsurpassed."

ALSTRÖMERIAS.

How rarely one meets with these, and yet how beautiful and easily managed they are. For supplying cut flowers during the summer months there is nothing to equal them, either for beauty or lasting qualities. Many of the best varieties rival some of the Orchids, which they closely resemble, both in the singular form of the individual flowers, as well as in their delicately marbled or spotted petals. The flowers, too, are of great substance, and as the stems are very open and soft, this accounts for their great lasting properties when cut. In the herbaceous border they are unrivalled, and a stand of cut flowers without Alströmerias is deficient in one of the choicest and most attractive of the many choice things belonging to that class of plants.

Perhaps it is on account of the difficulty of transplanting them that one so seldom sees them, for it requires very deep digging indeed to find their fleshy tuberous roots, and when found they do not bear removal at all well, and the chances are that one not only loses those removed, but the parent plant as well if rudely interfered with. The best way to get them established is to sow the seed where they are to remain, unless the roots can be purchased in pots from the nurseries, in which case they are sure to succeed; but to grow them in perfection the ground must be properly prepared for them. This must be done by trenching at least 2 feet, or as deep as the nature of the soil will allow, and if the subsoil is naturally dry and sandy it will not require any artificial drainage. The bottom should, however, be broken up, mixing in at the same time a good dressing of thoroughly rotten leaf-mould or mild short dung. If the subsoil is at all wet or retentive, the bottom must be well drained by putting in 6 inches or so of broken bricks or some other absorbent material.

The soil should be dug out at least a yard deep before putting in the broken bricks, and over this some dry strawy litter should be shaken, so as to prevent the soil from blocking up the drainage. If the natural soil is tolerably light and sandy, a little rotten manure or leaf-soil added will make just the bed for them. If cold and adhesive, it will be necessary to add a portion of fresh light soil, leaf-mould and sand, or the tubers will be likely to rot during the winter.

The plants may be planted from a foot to 18 inches apart, at a depth of 6 or 8 inches. If plants cannot be obtained in pots, sow the seed 3 or 4 inches deep and the above distance apart. While growing and blooming they should receive a thorough good soaking of water, as they will continue much longer in bloom if assisted in this way, especially if the ground is previously mulched over with spent Mushroom dung or leaf-soil, and a mulching of some kind should always precede the water-pot, where its appearance is not objectionable.

Before winter sets in they should receive an additional quantity of either of the above materials, to protect the roots from severe frost. Once planted the roots should never be disturbed. If they require cleaning it should be done by hand, and the use of the hoe or fork interdicted.

After blooming, if the seed is not required, it should be picked off, as its removal will add to the strength and vigour of the plant, and cause them to produce a finer head of bloom than they would do if allowed to mature seed. In removing the seed vessels, care should be taken not to injure or remove any portion of the stems or leaves, as these are necessary to mature the tuberous roots, but as soon as these are ripe and discoloured they may be removed. In choosing a site for their cultivation, it should be as open and sunny as possible, as they delight in plenty of light and air.

J. Sheppard, Woolverstone Park.

The Villa Garden.

WINTER PRUNING OF WALL TREES.—We have already treated of the winter management of the Apricot and Peach on walls, and now that the weather is dry and frosty, and the borders can be trodden on without doing them much injury, the work should be pushed on as fast as possible. This leads us to treat of the Pear, Plum, and Cherry, as a continuation of the remarks given on p. 150. Pears and Plums are planted as frequently against the walls of Villa Gardens as the Apricot and Peach, and they invariably have the east or south-east aspect.

THE PEAR.—There is one advantage of growing Pears on walls—that the fruit comes much finer, and often much better ripened, than when grown on standard or espalier trees. The modes of training are as various as those mentioned in the case of the Peach, but, as a general rule, however high or low the walls, the branches are trained horizontally. What, then, should be done to such trees at this season of the year?

In the case of Pears grown on walls, what is termed spur pruning is the mode followed; that is, all the small branches thrown out from the main branches trained horizontally are cut back to short spurs.

In the case of a Pear tree that is in a good fruitful condition, a one-year-old shoot, after the fall of the leaf, is usually furnished with small-pointed buds from base to point. In the following season some of these buds will produce growth that developes into shoots like that which bears them. Others, instead of throwing out a shoot, simply put forth two or three leaves, and extend a little from the main branch; and by-and-bye, at the fall of the year, they will be seen to have a round plump bud at the extremity of each. This is a blossom-bud, and in the course of the winter pruning they should be preserved, for it is from such that fruit must be looked for the following summer, the same being produced on the extremity of the growing points. When the fruit is gathered the point of the shoots is invariably barren, and in a season or two this forms what is termed a spur, and gives forth, perhaps, three or four—more or less—blossom buds, which in their turn become spurs. It will be at once apparent that an accumulation of these spurs forms a large cluster, year after year, as they make growth, and by growing out from the walls have an awkward look and become inconvenient. If the branches are vigorous and healthy, the spurs may be thinned out by cutting them back to near the main branch, when the small incipient buds just visible at the base of each spur will be developed in course of time, and will go through the same regular course as the primary buds. If a few of the largest of these spurs are annually removed from the branch, it may always be kept with a sufficient number to bear a good crop of fruit, while the annual removal of a few of the most advanced will keep the branch in order, as long as it may continue in health.

In strong clay soils, the Pear on walls makes a very strong growth, and in small gardens, where villas are built in lines, and the walls are of necessity low, it is difficult to get fruit, for the trees, when they make a luxuriant growth, go very much to wood. It is difficult to know what treatment to recommend under such circumstances; the soil was never meant for fruit culture. Perhaps the best course to adopt would be to dig out a good portion of the stiff rank soil about the roots, and replace it with lighter material, taking out about one-third or so at a time, and so gradually effecting a renewal of the soil in which the tree is growing. Pears really want plenty of room for development; they are very rapid growers, and attain a great height, therefore the sides and fronts of dwelling-houses, if the aspect be suitable, are more favourable than walls, if the ground suits the roots, and the tree is healthy.

THE PLUM.—This fine fruit, when planted against walls, should be in a soil that is freely drained. A bed of alluvial gravel forms an excellent subsoil, and the roots do not penetrate into it, but are kept near the surface. It is essential to the well-being and fruitfulness of the Plum that the roots do not go deeply into the soil.

The principal training and pruning can be made at the end of the summer or early in autumn, or during mild weather in winter or spring, if it cannot be conveniently done at the fall of the leaf.

The well-being of the Plum tree depends very much on the summer pruning, which will be treated of at the proper time. At this season of the year the cultivator should cut back the young shoots to four or six buds, leaving the central or leading shoot somewhat longer. The fruit-buds are produced on the lateral shoots, and it is necessary in the summer to pinch off the ends of these when they are likely to grow strong. The aim of the cultivator should be to get these distributed over the tree; and at this season of the year they must be thinned out where they are too thick, or laid in proper position if necessary. A great deal of the pruning is actually done during the summer.

THE CHERRY.—The Cherry, when planted against walls, requires a good soil to do it justice. Not that it is necessary to be profuse of manure, but in a light good loam it will do well.

The Cherry can be, and is, trained both in the horizontal and fan fashion; and what the cultivator should aim to produce is strong and healthy branches from 6 to 9 inches apart. The great object should be to cover the wall with good fruit-bearing wood, leaving sufficient room for the fruit to hang free of the branches. The fruit is produced chiefly on short spurs, which grow on the branches at two years old. The Morello Cherry, which is usually planted on north walls, bears fruit on the one-year-old branches, and generally on short shoots. The Cherry is easily regulated as to pruning and training; the great thing is to keep the branches moderately thin and regular in their arrangement.

It is very difficult to give precise details as to pruning to suit all cases. Our advice to villa gardeners is to call in the friendly counsel of some practical gardener who is a good fruit cultivator; and an occasional illustration or two as to the best mode of pruning, at the proper seasons of the year, will be of great advantage to any one willing to be a learner in respect of this important detail of practical gardening.

THE FARM.

AGRICULTURAL STATISTICS.—From the recently issued *Agricultural Returns of Great Britain for the year* 1874 we take the following extracts:—

The total number of acres of cultivated land returned in 1874 as under crops, bare fallow, and grass, for the whole of the United Kingdom, was 47,143,000 acres, divided thus: in Great Britain 31,267,000 acres, in Ireland 15,752,000 acres, the Isle of Man 94,000 acres, and the Channel Islands 30,000 acres.

Besides the acreage returned as under cultivation, about 2,187,000 acres were occupied by woods and plantations in Great Britain, and 325,000 acres in Ireland.

The total acreage returned as under cultivation in Great Britain shows a gradual increase year by year. This increase has amounted in the six years from 1868 to 1874 to 970,000 acres, or 4.2 per cent. in England; to 175,000 acres, or 7 per cent. in Wales; to 166,000 acres, or 3.8 per cent. in Scotland; and to 1,311,000 acres, or 4.3 per cent. for the whole of Great Britain. What portion of this increase is due to the greater care and accuracy of occupiers of land in making the returns it is not possible to determine, but although a large allowance must probably be made on this account, there cannot be a doubt but that several thousands of acres of fresh land are annually brought under the plough or improved for pasturage. The reclamation of waste land is mentioned by the collecting officers as having taken place, and having caused additions to the cultivated acreage in many parts of the country. In fact it is specially alluded to by the officers in ten English, eight Welsh, and in as many as fourteen Scotch counties.

The increased acreage returned was chiefly for arable land between the years 1868 and 1872, more especially in England; but in 1873 and 1874 there was a falling off of arable acreage, and a more decided increase in the acreage of permament pasture.

Although agricultural labourers may still be more than equal to the demand for them in some parts of the country, their aggregate number in Great Britain continues to diminish. By the census returns, farm labourers fell off in England and Wales from 958,000 in 1861, to 798,000 in 1871, or by nearly 17 per cent.; and in Scotland from 105,000 in 1861, to 93,000 in 1871, or by nearly 12 per cent.

Indoor farm servants, of whom about five-sixths are males, and many of whom probably are out-of-door labourers living in farmhouses, numbered in England and Wales 205,000 in 1861 and 159,000 in 1871, showing a decrease at the rate of 22 per cent.; and in Scotland the number of the same class was 63,000 in 1861 and 61,000 in 1871, showing a smaller falling off, at the rate of about 4 per cent.

According to the census returns of 1871, the total number of persons engaged in the management and working of the soil (including farmers and graziers, farm bailiffs, labourers, farm servants (indoor), and shepherds, was 1,246,000 in England and Wales; 220,000 in Scotland; and 931,706 in Ireland. In England alone the number was 1,153,000. These numbers, compared with the total acreage returned as under cultivation in 1874, show for England, with 56 per cent. of acreage under the plough, that, upon an average, 100 acres are managed and worked by 4.8 persons, and for Ireland, with only 33 per cent. of arable acreage, that six persons are engaged in the cultivation of every 100 acres. But if allowance be made for the different proportions of arable land in the two countries, a much greater difference in the average number of persons employed to cultivate the soil would be shown.

The total acreage of land returned as under cultivation in 1874 in the United Kingdom (including the islands), and amounting to 47,143,000 acres, was, as nearly as possible, equally divided into the two great classes of arable land and permanent pasture. But whilst for the whole kingdom the percentage proportions of arable land and permanent pasture were 49.8 and 50.2, there was no such near approximation in any one of the separate divisions of the country.

The arable land returned for the United Kingdom in 1874, and amounting to 23,463,000 acres, was apportioned to the principal classes of crops in the proportion of 48 per cent. for corn crops, 21 per cent. for green crops (including Potatos), 3 per cent. for bare fallow, and 27 per cent. for artificial grasses, leaving a small proportion over for Hops and Flax. In England rather more than one-half, or 55 per cent. of the arable acreage, was occupied by corn crops, 20 per cent. by green crops, and 19 per cent. by artificial grasses. In Wales the proportion of the arable land devoted to corn crops was large, being about one-half, or 49 per cent.; the proportion for green crops was only about 12 per cent., and artificial grasses had as much as 35 per cent. In Scotland, the corn crops did not take more than 40 per cent. of the arable acreage, the green crops reached 20 per cent., and the artificial grasses had as much as 39 per cent. In Ireland the corn crops were only upon about one-third, or 36 per cent., of the arable acreage, the green crops (including Potatos) upon 25 per cent., and the artificial grasses upon 36 per cent.

The total extent of land returned in 1874 for the United Kingdom (including the islands) as under corn crops of all kinds, including Peas and Beans, was 11,364,000 acres, of which 3,830,000 acres, or nearly 34 per cent., were under Wheat, 2,507,000 acres, or 22 per cent., were under Barley, 4,088,000 acres, or 36 per cent., were under Oats, and 938,000 acres, or 8 per cent., were under Rye, Peas, and Beans. A very large proportion of the Wheat acreage belonged to England—as much as 88 per cent., or nearly nine-tenths of the whole Wheat crop of the kingdom. Of the acreage under Barley a large portion was also in England, to the extent of 75 per cent., or three-fourths of the whole crop. The acreage under Oats was more equally divided between the chief portions of the Kingdom: 33 per cent. was in England, 24 per cent. in Scotland, and 36 per cent. in Ireland.

Green crops, including Potatos, were grown upon 4,957,000 acres in the United Kingdom in 1874. Of this acreage, 50 per cent., or one-half, was used for Turnips and Swedes, and 28 per cent. for Potatos. As much as 63 per cent. of the total acreage under Turnips and Swedes was returned for England, against 20 per cent. for Scotland, and 13 per cent. for Ireland. Of the total acreage returned for Potatos, England had only 22 per cent., Scotland 11 per cent., and Ireland as much as 63 per cent.

Looking at the returns for the separate divisions of the kingdom, it will be seen that in England a considerable part of the land under green crops is appropriated to other crops than Potatos and Turnips. These two descriptions of crops did not occupy more than 67 per cent. of the green crop acreage in England, against 88 per cent. in Wales, 96 per cent. in Scotland, and 90 per cent. in Ireland.

The land returned in 1874 for Clover and other artificial grasses under rotation, amounted for the United Kingdom to 6,284,000, or 26 per cent. of all the land under tillage. There was more land by 1,328,000 acres under the artifical grasses than under root and other green crops. In England there was no great difference in the acreage under green crops and under artificial grasses. In Wales, artificial grasses had nearly three times as much acreage as the green crops; in Scotland about twice as much, and in Ireland about one-half as much again. Differences in the rotation of crops and systems of cattle-feeding, as adopted in the separate divisions of the kingdom, will partly account for these variations.

The amount of arable and grass land returned as used also for fruit trees of every kind, is for the most part included in the returns for crops and grass, and should not, therefore, be added to the general acreage. In 1874 the land returned as used also for orchards was 145,622 acres in England, 2994 in Wales, and 1910 in Scotland.

The separate returns for land used by market gardeners for the growth of vegetables and other garden produce, show in 1874 an acreage of 34,689 for England, 477 for Wales, and 2741 for Scotland. An increased demand for fruit and vegetables is stated by some of the collecting officers to have led to the extension of orchards and market gardens in the neighbourhood of towns. For land used by nurserymen for the growth of trees, shrubs, &c., the returns for 1874 show an acreage of 9245 for England, 630 for Wales, and 1868 for Scotland.

As the extent of woods and plantations does not vary greatly from year to year, annual returns are not obtained for land so occupied, and the acreage is

given for 1874 at 2,187,000 acres for Great Britain, as ascertained in 1872, and 325,000 acres were returned for Ireland.

Forestry.

Planting is now the forester's chief occupation. Where the operations are conducted upon an extensive scale, the work on some estates is steadily prosecuted at all seasons, weather permitting, between the months of October and April, both inclusive. It used to be a maxim with the ancients to plant during all the months of the year in which the letter "R" occurs, and this gives a long calendar, extending to eight months. Much has been both spoken and written upon the subject of "the best season of the year for planting forest trees," and having planted (partly by way of experiment) during every month of the year, I am in a favourable position to give an opinion, both as to the most and least favourable seasons or periods of the year for planting operations. Confining my remarks for the present to Scotch Pine, my conviction is that better results proceed from planting in October and November than at any other period, and worse results from planting in June and July than any other time. The state of the weather and condition of the soil, however, both at the time of planting and subsequently, influence and alter in a very marked degree the growth of the plants, one year compared with another.

It is no uncommon practice with foresters to go over the newly-planted ground about the month of August, and ascertain the actual percentage of deaths that have occurred, and upon this data base their calculations of success or failure. Now, it must be borne in mind that there are other and even greater evils and worse results connected with planting than a comparatively high death-rate. I would rather see 15, or even 20 per cent. of deaths in a new plantation, and the remainder healthy and vigorous, than only 5 per cent. of deaths with a general sickliness pervading the whole crop.

One very unfavourable result arises from planting in June or July, namely, the loss of that year's longitudinal growth: the top and side shoots being at that period only in a half-formed condition, invariably shrivel and decay. The loss of one year's growth, though very considerable, in a 1000-acre plantation, does not in any true way represent the actual amount of the loss sustained; for the loss of the leading shoot of a Scotch Pine tree may in a certain sense be regarded as an irremediable evil, extending its baleful effects throughout the existence of the plantation. Too much importance cannot therefore well be attached to the preservation of the top growth of the plants, and every precaution should betaken to secure it. If the top bud, which may be regarded as the future top shoot encased in its scaly cell, is unfavourably influenced in any way, so that its product is either sickly or distorted, the future development of the tree will be thereby greatly marred. In order, therefore, that the newly-planted tree be enabled to perform all its functions properly and perfectly, the following amongst other matters should be attended to:—

First: The plants in the nursery ground should be well furnished with lateral branches close to the surface of the ground, and the growth of the plants should be rather under than over vigorous—in other words, grown upon soil not over rich.

Second: That the nursery ground from whence the plants are taken be dry, free, and open, with a mixture of sand in it, so that the plants may be well furnished with abundance of healthy fibrous roots.

Third: That the plants in the nursery have been either removed the year previous to planting out, dug round, or otherwise treated so as to retard the top growth and increase the root growth.

Fourth: Every precaution should be taken so that the plants may be grown in and lifted from a loose sandy loam or sandy moss, and not from clay or even certain kinds of peat soil. Probably more failures, at least of large plants, result from lifting trees out of stiff or tenacious clays and planting them in dry sandy loam than by any other cause. In all such cases the roots, on being submitted to the change of soil, rot and decay, and the plant thenceforth is left to struggle and produce for itself a new class of roots suited to its changed condition.

Fifth: Do not plant deep. If the herbage is so rank as to necessitate burying the plants deeply in order to reach the active soil, better to pare off the turf, and thus avoid the very injurious results of deep planting. Large transplanted trees are apt to suffer greatly by the loose soil in which they are planted subsiding and carrying down the whole structure of the tree along with it. *C. Y. Michie, Cullen.*

Notices of Books.

A Flora of Canada, edited by Dr. A. M. Ross, has just been published at Toronto. It contains the following families:—"Caperidaceæ, Lentilulaceæ, Orobandaceæ, Plantinaceæ," and many others, which might be taken as new, only they betray the same origin as some well-known families. It is really too bad that a "Doctor" should be allowed to publish such a specimen of bad spelling as his catalogue (it is nothing more) is from beginning to end. We frequently have occasion to remind gardeners that this subject deserves more attention than some of them bestow upon it; but some men who are very clever cultivators have not the advantage of anything beyond the most elementary education, and in their case there is something to be said in extenuation.

—— A number of the *Journal of the Linnean Society* (botanical section) has just been issued. Its principal contents comprise a note on the bracts of Crucifers, by Dr. Masters; Observations on the Vegetable Productions of Baghdad, by Surgeon-Major Colville; On the Restiaceæ of Thunberg's Herbarium, by Dr. Masters; On Indian Gentians, by C. B. Clarke, Esq.; On a Fruit from Comassi, by Professor Oliver, said to be the only specimen of botanical interest received at Kew from the Ashanti Expedition. It proved to be a fruit of a new species of Duboseia, a remarkable Tiliaceous genus. On the Lichen Flora of New Zealand, by Dr. Stirton; and Notes on Phylica arborea, together with some Notes on the Vegetation of Amsterdam Island, by Dr. Hooker. From this latter paper we glean the following interesting particulars:—Amsterdam Island, lat. 37° 52′ S., long. 77° 35′ E., has been stated to be covered with trees, while St. Paul's Island, 50 miles to the south of it, is destitute even of a shrub. The great difficulty of effecting a landing on Amsterdam Island has prevented its flora from being investigated, but in October, 1873, Commodore Goodenough, of H M S. *Pearl*, landed on Amsterdam Island, brought off a specimen of what he considered to be the only tree growing on the islet, a frond of a Fern, and an armful of Cabbages, "pulled" from the deserted garden of departed whalers. The tree proves to be Phylica arborea, a native of Tristan d'Acunha, lat. 37° 6′ S., long. 12° 2′ W., "a most singular fact, considering that about 5000 miles of ocean intervene between these oceanic specks of land." The present species of Phylica "connects botanically the three remote islets of St. Helena, Tristan d'Acunha, and Amsterdam, with one another and with the African continent. Speculations as to the causes that have led to the establishment of P. arborea on Tristan d'Acunha and Amsterdam are "hopelessly vague." In the enumeration of the plants of the southern of the two islands (St. Paul's) mention is made of the curious fact that Lycopodium cernuum grows in the immediate neighbourhood of hot springs of a temperature of 114°. In this way a tropical species is enabled to extend beyond its proper latitudinal range. This fact was long since remarked in the case of the same plant in the Azore islands. Dr. Hooker mentions additional instances of a like phenomenon in the case of Gleichenia dichotoma, Nephrodium molle, N. unitum, and N. suberosum, in the northern island of New Zealand. Nymphæa Lotus (var. thermalis) also grows in the hot springs of Hungary; and the writer of these lines collected in a warm spring near Vöslau, in Austria, quantities of a species of mollusc, Neritina, whose proper habitat is much further south.

Florists' Flowers.

That section of Pinks adapted for forcing—for out of the great group of florists' or exhibition varieties found in a catalogue like that of Mr. C. Turner but few are suited for forcing—is gradually being augmented, though the growth of numbers is necessarily slow, and the appearance of new varieties infrequent.

The old Anna Boleyn Pink will be familiar to all wholove their gardens and cultivate some old-fashioned flowers. Then there is the Paddington Pink, with its deep purple and white flowers; and Rubens, having crimson-purple flowers, and of a dwarf and free habit. These have been grown for many years past, because of their great usefulness and their free-blooming properties.

A few years ago these old types were considerably improved on by some varieties raised by Mr. James Clark, of Bury St. Edmunds, a well-known florist in the eastern counties. The latest of his flowers, or at least one of the latest, is Lord Lyons, a very fine and showy variety, having deep rosy purple flowers, full, smooth, remarkably free, and very early.

I have heard it stated that this fine Pink is not of a robust habit; and I must confess I was surprised to hear the statement. Since Mr. Clark sent it to me in 1867 I have constantly grown it in the open border, and have found it all that could be desired as a garden Pink. It makes a dwarf but very dense growth, and flowers as freely as one could desire to have blossoms produced in a border Pink. I have frequently potted up plants to bring on early in a cold house, but have never succeeded with them. I think it is a little impatient of pot culture.

Mrs. Pettifer is a pretty, free-blooming, early Pink, that forces well, and has white flowers with the colour that generally appears in the florists' varieties as a lacing grouped in the centre. The broad white edge surrounding this gives it a charming appearance. The fine purity of the white self Pink, Lady Blanche, and its great adaptability for forcing, makes it a great favourite among those whose business it is to provide cut flowers early in the season. The blossoms are well described as of a "good useful size," that is, they are small, and can be worked into bouquets and buttonholes; the flowers are smooth and moderately full, the pod does not burst, it is of free habit, and blooms most profusely, and it is thoroughly first-class in every respect. Messrs. Standish & Co. grow this largely.

A really scarlet Pink has recently been added to the forcing section. It is a fine bright scarlet self, the flowers large, full, and very compact, of very dwarf habit, and blooming very profusely. This is named coccinea, and it also forces remarkably well. It was raised a few years ago by Mr. W. Lee, and sent out by Mr. C. Turner. It can be seen in fine perfection at the Slough Nurseries in the spring, as Mr. Turner grows a large quantity of it for cutting from.

The culture of forcing Pinks differs in detail from that employed in respect of the laced varieties. At Slough they are propagated as soon as pipings can be obtained, and they strike freely in a gentle bottom-heat. When they are strong enough, and have become duly hardened to exposure, they are planted out in a prepared bed, and kept growing freely all the summer, and potted up early in the autumn. An ordinary soil for Pinks suits them well; and during the winter the plants should have the protection of a cold frame. The size of the pots must be regulated according to the plants; but forcing Pinks should not be over-potted.

In order to have Pinks well in flower it is very essential that they be well-established in pots. It is also very necessary that they be brought on into flower gradually, and not forced in too great heat. The plants should be placed as near the glass as possible, and as they throw up their flower-stems and expand their blossoms a little weak manure-water should be given about twice a week. *R. D.*

Law Notes.

A Salesman's Action Disputed.—*Thomas* v. *Hill.*—This was an adjourned action, heard in the Westminster County Court, before F. Bayley, Esq., in which the plaintiff, a salesman, carrying on business in Covent Garden, sued the defendant, another salesman, of the Borough Market, to recover the sum of £9 16*s.* for two casks of Horse Radish. Mr. Robert Willis, solicitor, called Mr. Pratt, the plaintiff, who stated that the defendant ordered one cask of Horse Radish containing eighty-four bundles, at 1*s.* 2*d.* per bundle, for which the witness gave a delivery note to the wharf clerk, and that on the following day he received an order from the defendant's son for a second cask at the same price as the former one, and for which he (the witness) also signed a delivery note. Subsequently, on the Saturday following the transaction, when he applied to the defendant for the amount, he refused, stating he had only received one cask. After several applications had been made for payment, without avail, the present action was brought.

The defendant being called, said in the first cask there were only seventy-four and not eighty-four bundles, as stated, and that he had paid the amount due on the first cask into court. George Stone, clerk at the Southwark Wharf, was called to prove the delivery of one cask to the defendant, but said he had no authority to deliver the second, and it still remained at the wharf, at the plaintiff's risk.

The learned Judge now said there was no proof of the delivery of the second cask, and he should therefore nonsuit the plaintiff. Mr. Willis applied for an adjournment, but the learned Judge, remarking that this was the second time the defendant had been in court, refused the application.—Nonsuit entered.

HORTICULTURAL EXHIBITIONS, 1875.

MARCH.

3.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.

10 and 11.—Leeds Horticultural Gardens Company. Spring Flower Show. Sec. and Manager, James Birbeck, 103, Hyde Park Road, Leeds.

16.—Manchester Botanical and Horticultural Society's Floral Meeting in the Town Hall. Manager, Bruce Findlay.

17.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.

24.—Glasgow and West of Scotland Horticultural Society. Spring Exhibition. Sec., F. G. Dougall, 167, Canning Street, Glasgow.

31.—Royal Botanic Society, Regent's Park. Spring Show. Sec., W. Sowerby.

APRIL.

4.—Special Exhibition of the Royal Horticultural Society of Antwerp.

7.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.

21.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.

22.—Royal Horticultural Society of Ireland. Spring Exhibition. Sec., A. Balfe, 28, Westland Row, Dublin.

27.—Manchester Botanical and Horticultural Society. Exhibition of Auriculas, &c., in the Town Hall. Manager, Bruce Findlay.

28.—Royal Botanic Society, Regent's Park. Spring Show. Sec., W. Sowerby.

THE

Gardeners' Chronicle.

SATURDAY, FEBRUARY 20, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY,	Feb. 23	Sale of Poultry and Pigeons, at Stevens' Rooms. Sale of Nursery Stock at the Exotic Nursery, Tooting, S.W., by Protheroe & Morris.
WEDNESDAY,	Feb. 24	Sale of Hardy Trees and Shrubs, Roses, Gladioli, &c., at Stevens' Rooms. Lecture at the Royal Horticultural Society, at 8 P.M.
THURSDAY,	Feb. 25	Sale of Lilium auratum from Japan, at Stevens' Rooms. Clearance Sale at the Frimley Park Nursery, by Protheroe & Morris.
FRIDAY,	Feb. 26	Sale of Entomological Books, &c., at Stevens' Rooms.
SATURDAY,	Feb. 27	Sale of Roses, Fruit Trees, Shrubs, Bulbs, &c., at Stevens' Rooms.

EACH year it is becoming more and more difficult to answer the questions that pour in upon us from all quarters—WHEN, HOW, AND TO WHAT EXTENT SHALL WE PRUNE OUR ROSES? In the good old times, when Roses were few and almost all of one character, such as the Damask, Provence, or Moss Rose, almost every grower pruned his Roses with as little ceremony as he did his Gooseberry or Currant bushes. As soon as convenient after the fall of the leaf the Roses were pruned or sheared overhead to keep them in form or within reasonable limits, and also to add to the size and beauty of the flower by concentrating the vital force provided by bountiful Nature for the manufacture of many Rosebuds, into a few of unusual size and abnormal intensity of colour, or fulness of fragrance. And for these objects the old modes and time of pruning were sound in theory and successful in practice. Crippling as little as any system of pruning could the powers of the roots, it concentrated vital force into fewer channels or outlets, with the legitimate and deserved result of enlarging the individual flowers. It was also successful in limiting the area of the plant, and improving its form. Both are essential in most gardens.

Perhaps no garden was ever overdone with Roses; but it is one of the highest objects of successful cultivation to get as many flowers as possible from a given space. Skilful pruning insures this object. It also places the flower in the best position for pleasing effect, and the perpetual well-being and well-doing of plants. The law of natural growth seems to lie as far and as fast as possible from old centres; in other words, the strength and the beauty of plants left to Nature is in their heads. Each has a leader, and all the power of the plant is bent on following it. The result is—strength ahead and weakness behind; and to such a degree is this carried that growth is in many cases almost wholly confined to the upper portions of plants, and the lower buds are too weak to break at all, or, if strength enough is left to enable them to break, they break to starve, as all the food of the plant is drawn to its head. Cut off its head by pruning it back, and its strength is thus distributed among the buds left, and the plant breaks back and clothes its base with growth and beauty. Hence pruning is an expedient for ensuring a diffusion of force and its distribution to any and every part of the plant. It thus helps us to mould plants into form, and secure an aggregate amount of produce or of bloom within the most limited area.

The practice of our forefathers illustrated all this, though few of them stayed to formulate the theory on which that success rested. But pruning for these objects only, they were pruned at the best time as soon after the fall of the leaf as may be. Thus the entire root-action of the plant throughout the winter and spring months was turned to account in filling up the strength and vital force of the buds left at the base of the beheaded shoots. That the roots fulfil some such mission is not a matter of theory but of observation. Observe the buds in November, when the leaves fall, and the same buds at the end of February, and note the difference. Whence comes it? In great degree, no doubt, from the altered condition of the buds themselves. They have been moving onwards as to a large extent independent centres of growth, but they have likewise been filled fuller by the ministry of the roots—a ministry that rests not wholly at any time during the life of plants, unless when forcibly frozen into inaction by the severity of the cold. By early pruning we utilise this filling-up process of the roots, and turn the supplies into the buds left—a point of vital importance to the strength and beauty of the coming Roses.

So far the true theory and practice of pruning Roses is almost as simple and exact as a mathematical proposition, or a problem in the rule of three. As this is to that, so is that to the answer required, and so also is the pruning of Roses to the moulding into shape and the distribution of their blossoms all over them, instead of having them chiefly or only on their crowns. But operations on living plants, as on animals, are subject to disturbances and modifications from a variety of causes. For instance, we have no longer to deal with a class of Roses of uniform character that yield a harvest of beauty and sweetness in June, mature their wood, and rest quietly in comparative idleness till the next June. On the contrary, the restlessness that pervades life—horticultural as well as all other phases of existence—seems to have entered into the very blood of our Roses, and to have excited them and their cultivators to such an extent that nothing less than Perpetual Roses will now satisfy cultivators.

It would be beside our present purpose to attempt to show how this new blood has been infused. Suffice it to say that nearly all our best Roses are more or less embued with the new tendency towards perpetual growth, and that the force of this tendency is developed to the utmost by special culture, in order, as far as possible, to adorn our gardens with the beauty and sweeten them with the odour of Roses from May to December.

This change of character, condition, and object, has necessarily brought about changes of culture, and especially of pruning. To prune for one perfect harvest of Roses is one thing, to prune for two or more within the compass of a season is another, and a widely different thing. And the latter has now become by far the more important, and expert cultivators have now determined the best time and the most perfect mode of pruning to yield the most perfect flowers when wanted, and to insure successive displays from May to November, and in open weather till the end of the year.

As to the time to prune, that must largely depend upon the previous question of the time of flowering. We can determine the latter, to a great extent, by adjusting the former. In general terms, and barring accidents from late spring frosts, the earlier we prune the earlier we gather Roses. Hence, if we want late Roses we prune late, and in our attempts to adjust the time of the Rose harvest the pruning of Roses may be performed in any month from November to April. Of course there are great risks in pruning so early or so late. In the former case, the more highly excitable our modern races of Roses the greater the danger of the blossom being cut off by late frosts. And by pruning so late as April we weaken the Rose plants tremendously, by depleting them of the strength cut away in the already broken buds, and leaving the crippled remainder of the vital force to plump out and up the weak buds left into strong growth or fine blossoms—a task well nigh impossible, for it is proved by experience that the strongest plants may be reduced to a state of weakness, ending in death, by late pruning persisted in for several seasons. Unless, then, for special and exceptional reasons, the question when to prune Hybrid Perpetual Roses may be answered thus—February; that is, take the happy mean between the two extremes of too early and too late, and the result will prove satisfactory. But continuous blooming can only be ensured by continuous and successive pruning. Therefore, while the general stock of Roses should be pruned in February, part of them should be pruned earlier and part later; and of course the pruning continues throughout the summer. As soon as China, Tea, Noisette, and Perpetual Roses have finished flowering, the flowering shoots should be cut back to within a bud or two of their base. This forces them to break strong, and consequently to flower again, and thus the supply of bloom is kept up. Again, by pruning Tea and China Roses as late as May they will make a grand show in July, just when the summer and perpetual Roses are in the sere and yellow leaf. On the same principle, too, we can anticipate the season of Roses. Prune Banksian Roses in July, and they will flower early in May; prune Maréchal Niel Rose in October, slightly protect it, if need be, during winter and spring, and it also will flower in May, to be followed by Gloire de Dijon or other Teas, treated in the same manner. So that in fact it comes to this, that those who would gather sweets from Roses throughout the season, must be also pruning Roses, perhaps nine months out of the twelve, if not each month in the year.

As to the how and to what extent Roses should be pruned, the only general rule that can be laid down is—the weakest most, the strongest least. This is just the opposite to what has so generally been done. The attempt to enforce weakness at the point of the knife, has by no means passed away with our remote horticultural progenitors. In a certain condition of the plant, as we have already seen, this may be the result of pruning or further depleting an already exhausted reservoir of vitality; but, as a rule, excessive pruning has quite the opposite effect. It concentrates force, and thus adds to the strength of weakly plants. Therefore, the weaker the variety the more severely it should be pruned, and *vice versâ*. The fact is, almost each Rose needs a special time and mode of pruning to do it the fullest measure of justice. Prune all alike, and to the same extent, and reap mediocre flowers. Prune each in accordance with its idiosyncrasy of habit, constitution, season, and each Rose will be perfect. Scarcely any horticultural practice has been performed on more haphazard rule of

FIG. 44.—ALOE FEROX, AND OTHER SUCCULENTS, IN THE GARDEN OF M. THURET, AT ANTIBES.

thumb methods than that of the pruning of Roses. The immense advances that have been made in the number, quality, cultivation, and showing of Roses is fast forcing this vital matter of the true mode and extent of pruning them to best purpose, on the attention of cultivators; and it may be added, that never will Roses be pruned as they ought to be, until profound skill and special knowledge regulate and control each cut of the knife.

—— THE illustration which we give this week (fig. 44) represents another view in the rich garden of M. THURET, of Antibes. We have on several occasions mentioned the splendid collections of SUCCULENT PLANTS in this garden, and an inspection of the cut suffices to show that we have not indulged in exaggeration. Our view shows a perfect forest of Aloes, with a noble plant of A. ferox in the foreground. This is a species long known in British gardens, and is remarkable for its thick leaves beset with short conical spines. The flowers are yellow, and their magnificent aspect may be inferred from the cut. The collection of Aloes at Kew is very rich, and many have bloomed during the present season. At Mr. PEACOCK'S, at Hammersmith, and also in the Botanic Garden, Oxford, are also fine collections of this too much neglected genus. Some of the Aloes assume the form and dimensions of trees, as mentioned in an article on the subject (*Gardeners' Chronicle*, 1874, i. 567, with illustrations) from the pen of Professor DYER. The drug aloes is obtained from the dried juice of various species.

—— To the kindness of Colonel TREVOR CLARKE we are indebted for a curious flower of CROCUS AUREUS, in which the segments of the flower are all more or less three-lobed, and banded with stripes of paler yellow. It appears as if Nature had been un certain whether to make a petal or a stamen, and so has effected a compromise between the two—the central lobe repesenting the connective, the two side ones the anther lobes. Although a similar malformation is, according to our experience, not uncommon, yet we do not remember to have seen so perfect an instance.

—— We understand that Mr. WILLIAM LEWIN, of Upleatham, succeeds the late Mr. MICHAEL GRAY, as gardener to the Earl of ZETLAND, at Aske Hall, Richmond, Yorkshire.—Mr. BOOTHROYD, well known in Kent as a good plant grower, is leaving Woodville Hall, near Dover, in consequence of the death of his employer.—Mr. JAMES SMITH, late of Exton Park, is appointed to succeed Mr. SLOW, at Mentmore, Bucks.

—— STEPHANOPHYSUM BAIKIEI is one of the most beautiful of the rarer and least known members

of the rather neglected order Acanthaceæ. During the past winter it has been flowering in the Begonia-house and Palm-stove at Kew. It is one of the many interesting plants received there some years ago from the Niger Expedition, under the command of Dr. BAIKIE, after whom the name was given. A good figure is published in the *Botanical Magazine* of 1859. The leaves are ovate-lanceolate, about 6 inches in length, and of good appearance. The flowers are scarlet, tubular, about 2 inches long, and curved, produced in terminal panicles, with racemose or spicate branches. Its habit requires a little management, in the way of cutting back, in order to ensure a well-furnished specimen.

—— The next evening meeting of the ROYAL HORTICULTURAL SOCIETY will take place on Wednesday next, February 24, at 8 o'clock, when Dr. MAXWELL T. MASTERS, F.R.S., will lecture on "Charles Darwin as a Horticulturist."

—— With reference to the ROYAL HORTICULTURAL SOCIETY'S SCHEDULE of arrangements for 1875, notice has been given that the following shows will not be held, viz., March 17, April 21, September 1, and November 10.

—— The PELARGONIUM SOCIETY is progressing, though its ranks are not filling up so rapidly as we should have expected and desired—perhaps from an erroneous impression, strengthened by its present year's schedule, that it is to devote itself solely to the Zonals. The following new members have been added since the last meeting, namely:—Mrs. Carter, Faversham; Dr. Sankey, Cheltenham; Thos. Kibble, Tunbridge; H. G. Quilter, Aston, Birmingham; Miss Skipworth, Derby; Messrs. Veitch & Sons, Chelsea; F. Campion, Red Hill; J. F. West, Reigate; and several other subscriptions have been promised. We trust that sufficient subscribers may be induced to join the Society to enable the committee another season to offer encouragement to all classes of Pelargoniums.

—— We are glad to learn that MR. ORMSON, the well known horticultural builder, of Stanley Bridge, Chelsea, has recovered from his late serious illness.

—— Mr. A. MCKENZIE, of Alexandra Palace and Park, having nearly completed the outdoor works and glass structures there, is prepared to take commissions in landscape gardening, and the improvement of landed estates. Although enabled to enlarge his sphere of operations, Mr. MCKENZIE will continue on the official staff of the Alexandra Palace Company.

—— Notwithstanding that gardeners, as a general rule, consider the WRINKLED MARROW PEAS to be the best flavoured, experience has yet shown that, in the case of a dry season, the round early varieties are often better than the wrinkled kinds, as the latter are apt to become hard and flinty, whereas the round varieties do not partake of this character so much, especially when picked young. Experience gained in several quarters determined this opinion last season when the trying drought set in, and in the case of one large market gardener, who grew for market large breadths of First Crop Blue and Veitch's Perfection—the latter, owing to the drought, being ready to gather almost as soon as the former—his testimony was most emphatically given in favour of the superiority of First Crop Blue.

—— The report for the year 1873-74 of Dr. KING as Superintendent of the CALCUTTA BOTANICAL GARDEN, shows how serious have been the effects of the cyclones of 1864 and 1867 in uprooting so many of the noble trees for which the garden was once famous, and which were so important for purposes of shade. Among matters of merely local interest, we find other statements of more general importance such as the fact that in Sikkim, owing to the success of the method of propagating by root and leaf-cuttings, the number of Ipecacuanha plants has been raised to over 63,000. Attention has also been given to the propagation and distribution of the Mahogany, which succeeds well in Bengal. The question of the difficulty of importing Sweet Chestnut seeds alive into India has already been noted in our columns, with special reference to the mode of keeping in sand practised with so much success by Mr. A. SMEE (see p. 118). The total number of Cinchona plants of various species grown in the Government plantations at Sikkim is no less than 3,251,275. About two thousand acres are devoted to the cultivation. It is found that the Cinchona cannot be induced to grow in places that do not exactly suit it, hence selection of site has to be made with more than ordinary care. How desirable it is to extend the culture is shown by the fact, that quinine is still almost unattainable by the mass of the population, who have to use a very inefficient substitute.

—— READ'S NEW HYBRID SCARLET-FLESHED MELON is considered by growers to be much superior to many of the Scarlet-fleshed Melons in cultivation. It has a very thin rind, like some of the best of the green-fleshed types. The flesh is of a bright pale scarlet hue, of exquisite flavour, rich and melting. An old Melon-grower, of considerable repute, regards it as the best introduction to the class of scarlet-fleshed Melons that has taken place for some time past.

—— His Royal Highness the Prince of WALES has consented to preside at the annual dinner of the ROYAL AGRICULTURAL BENEVOLENT INSTITUTION. The date has not yet been fixed.

—— The following circular with reference to the PROPOSED POTATO SHOW has been widely distributed:—

"Woodbine House, Beckenham, Kent,
"February 1, 1875.

"Dear Sir,—I beg to call your attention to a proposal to hold in or near London, during the ensuing autumn, an exhibition of Potatos on a large and attractive scale. The Potato being a subject of great national importance, seeing how largely it is used as an article of food, it is very desirable that the utmost encouragement should be given to its cultivation and improvement, and that new and improved varieties should be brought more prominently before the public. For this end the intended exhibition is proposed, and my present object is to ascertain how far those more immediately interested in the improvement and cultivation of the Potato will promise their co-operation and pecuniary support. Should the answers received by me in reply to this note be favourable, an influential committee will be immediately formed, to whom would be entrusted all the necessary arrangements. Soliciting an early reply and the promise of your personal support, I am, dear sir, yours respectfully, PETER MCKINLAY."

—— A name familiar enough to botanists, but as puzzling to the uninitiated as was either Opoponax or Ozokerit, is now making its appearance on the "knife-boards" of omnibuses and in other vehicles for advertising. This is PSIDIUM, and its present prominence is due to the same firm who a few years back placarded nearly every available space with the first of the names above mentioned. We believe we are correct in stating that the name has been adopted by Messrs. PIESSE & LUBIN for a new perfume which they will shortly bring before the public. The scent, however, has nothing to do with the Guava, as might be imagined, but is so called because its odour is intended to resemble that of a freshly-cut Pomegranate, of which fruit Psidium was the ancient Greek name.

—— Some curious statistics relative to the CONSUMPTION OF WOOD IN FRANCE have recently appeared in the *Independence Belge*, of which the following is only a small item. Every person in France consumes on the average daily five lucifer matches, so that 4,600,000,000 matches are consumed monthly by the entire population. A large quantity of soft wood is used for making toys, and, to give an idea of the magnitude of this trade, it will be sufficient to take one article alone—children's drums—of which in Paris alone 200,000 are sold every month. The total number made annually in France is estimated at 30,000,000, whilst a considerable quantity of wood must be consumed to supply 60,000,000 of drumsticks.

—— The plan adopted by that well-known amateur Potato cultivator and exhibitor, Mr. PETER MCKINLAY, of Beckenham, of securing for his Potato crops immunity from disease by planting the late varieties first and the early ripeners last, thus inverting the ordinary method, seems to be one worthy of imitation by cultivators of this popular esculent. Mr. MCKINLAY claims two advantages as resulting from the adoption of this plan:—First, that the late varieties are thereby assisted to ripen early, before the disease puts in an appearance; and, secondly, the crop is pretty well matured before drought sets in. The early varieties, as an invariable rule, throw a short haulm, and even if planted a month or so later than usual, they yet turn in nearly as quickly as when planted early. The later varieties are got into growth earlier than usual, and as a matter of course ripen earlier. In cases where autumn planting cannot be carried out as it is by the Rev. W. F. RADCLYFFE and others, the next best course is to follow the example of Mr. MCKINLAY.

—— Mr. Councillor ROGERS, of the Red Lodge Nursery, Southampton, has just made to the corporation of that town the valuable and acceptable present of several hundreds of TREES of various kinds to complete the planting of the PUBLIC PARKS in the centre of the town. Southampton is well supplied with public lands, and the conversion of a large portion of them some years since into admirably laid out parks has been attended with the happiest results, as they are at once an ornament to the town and a source of delight to the inhabitants. The grand natural park on the northern border of the town, generally known as the common, but which is a superbly wooded expanse of some 300 acres, is an appanage of which any town might well be proud, and it is of no small advantage to the borough that it has in its councils a gentleman possessed of such eminently practical knowledge and abilities as Mr. W. ROGERS.

—— In a short article on TOUGHENED GLASS, here reproduced, the *Times* remarks:—

"It has long been known that when glass is heated to redness, and kept at that temperature for a considerable time, its physical properties are changed in a remarkable manner. Thus it becomes opaque or feebly translucent, much harder and tougher, and somewhat like porcelain in appearance. This change is termed 'devitrification,' and is caused by the conversion of the glass into a confusedly-crystalline mass, of which sections are beautiful objects when seen with a microscope in polarised light. The subject was investigated by the renowned French philosopher, REAUMUR, early in the last century; and to objects of devitrified glass the name of REAUMUR'S porcelain is usually applied. It has been reserved for another Frenchman, a gentleman farmer, to discover the singular fact that when glass is heated to redness and then cooled or annealed in oil, its toughness is greatly increased, or, what is equivalent, its fragility is greatly diminished, while its transparency remains the same. Thus, suppose a rectangular pane of glass placed flatwise, and supported on two of its opposite edges, to break when a given weight is allowed to fall upon it—say, from the height of 2 feet—it would, after having been toughened in the manner above stated, resist the same weight falling upon it from the height of 6 feet or 8 feet. It is strange that, although glass has been manufactured during the last 2000 years, yet such a simple and probably very important fact as this should only recently have been found out, and equally strange that the discoverer should be a gentleman farmer. The foregoing information on the new process of toughening glass is given on the authority of Mr. C. W. SIEMENS, F.R.S., who is well-known in connection with telegraphy and the furnace which bears his name. His brother, an eminent glass-maker at Dresden, has tried the process, and pronounces it to be certain and unquestionable."

—— We copy the subjoined from the Irish *Gardeners' Record*. The statements made are so remarkable that it would be well if our contemporary could induce his correspondent to give fuller details of his method of procedure, and specially what, if any, means he took to prevent "cross fertilisation" of his GRAFTED CABBAGES:—

"Some three years ago there was a prominence given to this subject" [the influence of stock on scion] "in the pages of the *Record*, and, although not altogether ignorant of the results obtained, I was tempted to try my hand with a different class of subject to those that I had previously been in the habit of operating with, hoping thereby to obtain more apparent demonstration of the influence exercised by the stock on the scion and *vice versâ*. The results have been very satisfactory so far. For the purpose I made choice of two varieties of the Cabbage—Enfield Market as the stock, and the Red Dutch as the graft, choosing the darkest plant that my then seed-bed afforded. The grafting was performed at the end of April, 1872; they united very freely, and the scion grew very luxuriantly. It is well known that, under ordinary circumstances, each of those Cabbages produces very close, firm heads, but in this case the graft showed no inclination to do so; it remained open, with a slightly apparent dash of stock blood. At the end of spring, 1873, it threw up a very strong, straggling, flowering stem, from 7 feet to 8 feet in height, the individual flowers being particularly large, but by no means abundant; consequently the quantity of seed ripened was not large. During the first week of February, 1874, a portion of the seed was sown, the result of which is that I have obtained a somewhat interesting lot of Cabbages, Kale plants (very dark and curled, nearly, if not altogether, as dark as such as Dell's and Belvoir Castle Beets), Savoys, and Red Cabbage, a considerable number partaking of the character of the stock family. Although imbued with the blood of the graft, that of the stock predominates in the majority of cases, and, strange to say, all the progeny appear to be more or less deficient of the tendency to Cabbage. *C. P., Co. Cork.*"

—— The HALIFAX FLORAL AND HORTICULTURAL SOCIETY will hold its annual exhibition in the grounds at Craven Lodge on Whit Monday and Tuesday, May 17 and 18.

—— We gather from the *Kent Herald* that the ASHFORD GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION is progressing. Nearly thirty gentlemen's and working gardeners have become members, and the gardeners to His Royal Highness the Duke of EDINBURGH, Sir H. J. TUFTON, Bart., Sir W. KNATCHBULL, Bart., M.P., the Right Hon. E. H. K. HUGESSEN, M.P., C. S. HARDY, Esq., and other county gentlemen of the neighbourhood, are favourable to the movement, and are likely to take an active part in forwarding it.

—— The *Banffshire Journal* says that the trunk of a massive tree in front of a house occupied by Mr. LOW, blacksmith, Ellon, referred to by Dr. JOHNSON in his *Tour through Scotland* as one of the only two trees in Scotland capable of sustaining a man in being hanged (the other being in Perthshire), has just been destroyed. It is well known, adds the *Journal*, that the Doctor got the blinds of his carriage pulled up so that he might not to see the avenue of fine trees while going up to Cullen House.

Home Correspondence.

Fuchsias.—Three or four of the older hardy varieties have stood in the shrubberies here for the past thirty years, and for how much longer I cannot tell. In mild winters, or with protection, a few feet of the old wood could be saved, but as they stand entirely unprotected, they are every season cut down to the ground. All these hardy varieties I had previously met with in situations I was living in for eight or ten years before; so that Riccartoni, to my knowledge, dates six years farther back than 1841, as the time that I refer to was forty years ago. Two very handsome plants of it were trained as creepers up the conservatory at Woodhill, near Aberdeen, then the property of Geo. Hogarth, Esq. F. Riccartoni I always understood was a seedling raised at Riccarton Castle, in the south of Scotland. No mention is made of it in Loudon's *Hortus Britannicus*, although he has fulgens in 1837, which is of more recent introduction. F. excorticata I also met with at the same place, and have seldom seen since. The sorts I allude to as being so hardy are Riccartoni, gracilis, and coccinea; the latter I find very free in flowering, and of dwarfer habit than the others. I strike it freely in autumn, and use it for flower gardening purposes. Two other old sorts I still retain, are globosa and microphylla. These are not so hardy, although they will stand out-of-doors in winter. The latter, I expect, may be the thymifolia of your correspondent, Mr. Hemsley. While writing this I have received intimation of the death of Benjamin Reid, Esq., the oldest nurseryman in Aberdeen, who, from his connection with Woodhill, could have given the particulars as to the introduction of the two Fuchsias above referred to. *R. Farquhar, Fyvie Castle.* [F. thymifolia and F. microphylla are distinct small-growing species. Eds.]

—— Mr. Hemsley may like to learn the origin of the first white Fuchsia—Venus Victrix. It was a chance seedling raised thirty-five or forty years ago at Horsmonden Park, in Kent. The gardener, Mr. Gulliver, seeing a ripe berry on one of his pots, smeared it with his thumb on the surface of the mould. In the following spring several seedling plants appeared, which were potted off, and one of these proved to be this very elegant and novel variety. It was sold to Mr. Cripps for £15. I had these particulars from Mr. Gulliver himself. *S. S.*

—— Your correspondent, Mr. Hemsley, p. 179, is anxious to know the origin of Fuchsia Riccartoni, and he has been replied to by Mr. W. Tillery, but I think the version he gives is hardly the correct one, as I know Fuchsia Riccartoni was raised by the late Mr. John Young, gardener at Riccarton, near Edinburgh, afterwards gardener at Archerfield for many years. It was raised from a pod of seed from the old globosa, and this variety took such a stride beyond the other seedlings in growth that it received a little extra attention from Mr. Young—on account of its strong growing habit, and being much dissimilar from the other seedlings. Mr. Young grew it in a rather close house, and it was fully two years old before it flowered, and that very sparingly. It was considered at the time to be a shy flowerer, and I believe I was the first to get a cutting of it, which I struck and planted out. I lifted it again in autumn, and had it planted out the following season, when it made extraordinary growth, and flowered most abundantly. Mr. Young then distributed it very freely, and planting it out became general all over the country. The remark I have heard him make several times was, "I have made no money by it, but I have the satisfaction to know that I have raised something to beautify my country." *John Downie, West Coates, Edinburgh.*

—— This fine old Fuchsia had its origin at Riccarton, the seat of Sir Wm. Gibson Craig, Bart., near Edinburgh. Its name has no connection with Riccarton, near Kilmarnock, as Mr. Tillery supposes, although it is very probable the young man he speaks of took it with him into Ayrshire from the Edinburgh Botanic Garden. It was raised from seed by the late Mr. Young, when gardener at Riccarton. I regret I cannot give the exact date, but it must have been betwixt the years 1830 and 1835. I have heard Mr. Young say it was a seedling from globosa. It is quite hardy on the east and on the west coasts of Scotland. *J. W. Kinmont, Exotic Nursery, Canterbury.*

—— Miss Gibson Craig answers my inquiry, as to the origin of Fuchsia Riccartoni, as follows:—It "was raised at Riccarton (near Edinburgh), I should think certainly above forty years ago at least, by our then admirable gardener, John Young. One parent was globosa, but which the other was I do not know." On the east coast here we never require to protect it. It grows to the top of our sea-wall, 10 feet, where spray occasionally comes over in easterly gales, and we also grow it in our autumn border as bushes, 2½ or 3 feet high. The wall plants were cut down like the Myrtles in 1860-61, but this year it has not suffered above 7 feet from the ground, as far as we can as yet judge. *F. J. Hope, Wardie Lodge, Feb.* 16.

Zéphirine Grégoire Pear.—I send you a sample of Zéphirine Grégoire Pear, which sort I think ought to be better known to gardeners and more cultivated. As a late Pear, I think it is superior to most. I find it has this peculiarity, to grow it in perfection it should hang on the tree till the beginning of November, and indeed until it begins to drop pretty freely (if grown on a pyramid, the fruit is not damaged by falling). I find, if picked with other late Pears towards the end of October, when apparently ready for gathering, it frequently shrivels and never ripens properly. The specimens I send you I think you will find excellent. [Yes, very good. Eds.] You named this Pear for me some years ago, and I have recommended it to many of my friends. *John Barnett, Coleraine House, Stamford Hill.*

Plants from the Straits of Magellan.—Mr. Tillery's interesting letter, proving that Fuchsia Riccartoni is from the Straits of Magellan, confirms the opinion which I formed after reading Cunningham's *Natural History* of that region, namely, that we are not, as gardeners, sufficiently acquainted with its flora. Desfontainea spinosa is stated in the botanical dictionaries to be from Peru, and yet it is found growing abundantly in the Straits. Is it not possible that we may have got a more tender species? Pernettya mucronata is described by Dr. Cunningham as 8 feet high; have we not a more stunted variety from the Falkland Islands? Drymis Winteri does not appear to be hardy here, and yet the cold of Punta Arenas must be rather severe. I should imagine the climate of the Straits of Magellan to resemble that of the Forth and Clyde if united—cold and dry to the eastward, milder and more humid at the western extremity. My plant of Embothrium coccineum appears to have had its younger shoots pinched by the severe frost, but I hope that it is not seriously injured. What is known of E. Despardii? I received some seeds from Ushniah, but have not yet heard of their germinating. They were sent by Mr. Bridges, the devoted missionary near Cape Horn. I use the adjective in its most literal sense, and am sure that no one can read a description of the settlement, in the South American *Missionary Magazine*, without feeling impelled to contribute something to its support. He describes the climate as so severe that they are unable to fell timber during four months in winter; a shrub from such a locality would certainly prove hardy, and be a most valuable addition to our gardens. *H. K., Sussex.*

An Early Spring "Button-hole."—Some of your correspondents are fond of describing their experiences in the making up of effective button-holes. Mine consists entirely of hardy flowers, but of course allied to a spray of the Maidenhair Fern, but which in my case, for consistency's sake, is of the hardy [?] Adiantum Capillus-Veneris. A spray of Fern behind, then a spike of the small dark blue Scilla bifolia, beneath which on either side is a flower of the lovely single white Hepatica, a bloom of the single red Hepatica in the centre, and a small spray of the charming pale-blue Myosotis dissitiflora beneath. This was a very pleasing combination, none the less so that the flowers did not shudder when taken into the cold external air. Those who grow only exotics and hothouse flowers have not all the beauties of Flora at their command, whilst all the wealth in the kingdom could not invest them with those charms that our lowly but hardy spring flowers ever will possess in the esteem of the public. *D.*

Paper Protectors.—Our crop of early Potatos under glass has been easily and completely saved, while that of neighbours has been lost, by the use of newspapers spread over the haulm during the late severe weather. People hardly realise the extent of defence afforded by paper; its utility is almost unknown as yet. The newspapers were suffered, in our case, to remain on during the succeeding sunshine, so as to avert sudden changes of temperature. Should additional protection be needed, it would be easy to paste together any convenient number of newspapers, and fold the edges over twine (as a boy does for his kite), and these, suspended some inches above the others spread over the haulm, would enclose between the layers enough fixed air to protect anything. In 1873 we had the dubious honour of affording the earliest recorded instance of diseased Potatos; since then we have been quite free, and have transferred our crown to our neighbours, besides saving every leaf while theirs perished. *T. Brehaut, Richmond House, Guernsey.*

Substitute for Grass in Shady Lawns.—Should your correspondent "Lux" (p. 184) be tempted to experiment with Yarrow as a substitute for grass, it may possibly assist him to mention that it grows in large quantities in the neighbourhood of Chepstow, especially on the Gloucestershire side of the Wye; and if he has friends through whom he could set the children to collect the heads in the season, he might easily get as much as he wished. The plant there seems (where growing in grass) especially to prefer the edge, where its roots can creep into the gravel path or the broken limestone road, to the better soil of the plot itself; from which, and from the size of its leaves when in healthy growth, I should doubt its answering for a lawn, which would require the plants to be closely set to secure a continuous green surface, but I have never seen it grown, so only guess. If your correspondent wishes, I could give him a gardener's address, who possibly might next season procure it for him. For a small plot the common wild Thyme makes a most lovely substitute for grass; it requires absolutely no care, nothing but leaving alone, keeping itself in the perfection of neatness summer and winter, and always presenting a soft dark green carpet, excepting at its blossoming season, when the sprinkling all over of its tiny purple flowers has a charming temporary effect. Where I knew it the plant had spread from a neighbouring bed, and was gradually spreading onwards, taking the place thoroughly of the grass. The little plot was then about 10 feet long, and besides its general trimness made a good well rounded-up edge over the gravel walk. The locality was only shaded during part of the day, but I think the Thyme would have succeeded well with less light. *O.*

Notes on Streptocarpus.—There is now coming into bloom in my cool stove-house a beautiful species of the above-named genus—which is not by any means as frequently cultivated as it deserves to be. I received it towards the close of last year from the Glasnevin Botanical Gardens, where they had it without any specific or distinguishing name, but believed it to be Streptocarpus Saundersii. It now turns out not to be that plant, as figured in the eighty-seventh volume of the *Botanical Magazine*, tab. 5251, but S. polyanthus, figured in the eighty-first volume of the same work, tab. 4850. These two plants are what are termed monophyllous, each plant producing only a single leaf, which is of great size and substance, often reaching a foot in length and 8 or 9 inches in breadth, closely adhering to the earth and hanging down over the side of the pot; from the base or axil of this large leaf rise the flower-scapes, which are produced in great abundance, and usually begin to appear about this time of the year, continuing to produce their beautiful flowers for two or three months in constant succession. The individual flowers of Streptocarpus polyanthus resemble a large Violet in shape, and are of a clear pure lavender colour; it was introduced from Natal in the year 1853, by Captain Garden, by the merest chance, some seeds of the plant having fallen among the roots of some living Ferns. The blossoms of S. Saundersii, which is perhaps the most beautiful of the four, are of a delicate greyish blue colour, with two distinctly-marked purple spots or blotches at the opening of the throat. When the plate for the *Botanical Magazine* was drawn from a fine potful of the plant in the collection of W. Wilson Saunders, Esq., of Reigate (to whom seeds had been sent from Natal by Mr. Plant, and after whom it is named), no less than twenty-one flower-scapes had been produced from the bases of the three large leaves contained in the pot, and over 120 flowers were then in perfection. The two other species as yet introduced are not monophyllous, and are of much less robust growth, and also much less free-flowering than the two first described; the first of them, Streptocarpus Gardeni, named after the introducer of the fine S. polyanthus, only producing two pale lilac flowers on each stem; while the second, S. Rexii, seldom, if ever, produces more than a single flower on each stem, its blooms, however, are of a deeper shade of lavender colour, prettily streaked with purple, and continue to be produced for from six weeks to two months, thriving well also in an ordinary greenhouse. The first-named of these is figured in volume eighty-one of the *Botanical Magazine*, tab. 4862, and the second-named in Edward's *Botanical Register*, volume fourteen, tab. 1173. S. Rexii is the only one of the four commonly met with, and I should be glad if any of your readers could put me in the way of obtaining either plants or seeds of S. Saundersii or S. Gardenii, as both are well worth growing. I may add that I have only once met with the former in the collection of a London nurseryman, and the plant I then obtained having died without flowering, when I inquired for it again it could no longer be supplied. *W. E. Gumbleton, Belgrove, Queenstown.*

The Royal Ashleaf Potato.—Mr. Rivers, in a letter of to-day (February 13), wishes me to correct an error as regards this valuable Potato. It was brought out by him, but was raised by his friend, Mr. James Ashwen of Evesham, in 1858. He adds, "the Royal Horticultural Society make it a synonym, as Myatt's. I wish you would make this right, as I am too old—seventy-eighth year." Long may he live! To no living man do we horticulturists and pomologists owe a greater debt of gratitude. The Royal Ashleaf is not Myatt's, nor is it Veitch's Ashleaf, though there is some likeness in all. The same may be said of the Lapstone and its race, Hero, Taylor's Hybrid, and

Pebble White. Taylor's Hybrid has blue flowers, the other three have white flowers. Years ago Mr. Rivers wished me to correct this error, and I ought to have complied. [The error has often been corrected, but a garden-name sticks, *nomen cavendum!*] The following, as well as I can remember, was what he told me: "I was staying with my friend, Mr. Ashwen, at Evesham, and he gave me and Mr. John Spencer, head gardener at Bowood, now steward, three seedling Potatos—A., B., and C.—to try. We both fixed on the one now called the Royal Ashleaf. As I brought it out, the salesmen, for their purposes, attributed its origin to me. This I corrected at the time, but it has ever since gone by the name of Rivers' Royal Ashleaf." *W. F. Radclyffe, Okeford Fitzpaine.*

Rating of Greenhouses.—The letter in your impression for February 6 (p. 181), from Mr. Turtle, of East Wickham, respecting the rating of nurserymen's greenhouses, encourages us to hope that the time is near at hand when the trade generally will combine to resist what we consider an unjustifiable and illegal rate. That it is illegal there can be very little doubt, from the fact of the great inequality which exists in rating greenhouses, and from the parish authorities in so many instances compromising with nurserymen who have resisted the rate. Others, who have calmly submitted, have been crushed under the heavy assessment. There are not many florists so excessively rated as Mr. Turtle, whose rafter-roof greenhouses we have valued, and know them to be of temporary and hazardous construction, and built to last only for the short term of his lease. His home nursery, which is assessed at £150, he has instructed us to let on a repairing lease at £50 per annum, but we have not yet been able to procure him a tenant. We are aware of other small plots occupied by men making strenuous efforts to become florists, but we fear that the parish authorities have so taxed their industry, in consequence of their having ventured to complete a small span-roof pit, or some such structure, that they will not be able to attain to that honourable distinction. Those of the trade with whom we have discussed the question of rating greenhouses, seem particularly anxious to have a case tried at the Queen's Bench, and have promised to send in their subscriptions as soon as a committee is formed for that object. *Protheroe & Morris*, 98, *Gracechurch Street, E.C.* [This is a matter upon which we are constantly receiving complaints, and which the trade should, for their own protection, take steps to rectify. EDS.]

Curmeria picturata and Gunnera brephogea.—I beg to say a few words about two plants, in addition to Cattleya gigas and Tillandsia musaica, viz., Curmeria picturata and Gunnera brephogea, to show that M. Linden has made a mistake about their introduction. Curmeria picturata was not discovered by M. Roezl, as M. Linden states in his *Illustration Horticole*. I first found it, in the month of August, 1868, on the Magdalena River, when going down from Sonson to Nare, in order to ship some boxes of plants. It grows in the fertile soil of the forests (in humid places) between San Carlos and Canoas. It was in this rich place for new and rare plants that I was so fortunate as to meet with the gorgeous Maranta hieroglyphica, Aphelandra fascinator, and Anthurium crystallinum. There were also intermingled with the original green ones some rare plants of Curmeria picturata of a dark violet or salmon colour. In 1868 I passed three times over this same route before returning to Europe. It was in the year 1871 that M. Linden told M. Roezl, who was then collecting plants for him at Buenaventura (on the western side of New Grenada) to make his way through the Cauca Valley up to the State of Antioquia, in order to take advantage of some discoveries of mine made at Sonson, Medellin, and Frontino. When he reached Antioquia he directed his steps down towards Nare, thus it was that M. Roezl came in contact with Curmeria picturata. Afterwards M. Roezl went to Ocaña, and he sent home with others some plants of Tillandsia musaica, which was discovered by me in the year 1867. Gunnera brephogea.—It seems that M. Linden, when publishing the account of this new Gunnera in his *Illustration Horticole*, forgot that it was found and introduced to him twice by me—first by seeds in the year 1868, and then in 1872 by seeds, and also by some small living plants. I collected on my memorable journey in the State of Antioquia four different Gunneras, two of these (including the above, which bears the No. 298 in my plant-list of that country) coming from Sonson; they are of small size, and grow imbedded in the sandy but heavy humid soil of the river banks. The third comes from a highly elevated part of the Paramo de Ruiz, a very considerable snow-capped mountain, where it acquires extraordinarily strong large dimensions. It grows there in its own way, quite distinct, and constituting compact and extensive masses—a forest in the forest! The fourth Gunnera, introduced by me, stands on the highway between Rio Negro and Medellin, and grows, as do the two first ones, in wet places. I procured large quantities of the seeds of nearly all, especially of that in question. I scattered the seed about where it would do good throughout my stores, sprinkling them in the sphagnum and in the bulbs of the Orchids as well as into the earth destined to be packed with certain bulbs, stems, roots, &c., and even amongst the trunks of the Gunneras. Gunnera brephogea, therefore, is not at all *un enfant trouvé*; it is a legitimate inmate of M. Linden's stoves, as well as many others brought in by his collectors. This manner of proceeding with seeds will be the only practicable one for many plants of an unusually doubtful character; it was regularly employed by me. There is a fifth Gunnera, occurring in the same State of Antioquia, which is worthy of mention: it occurs in the vicinity of Frontino, far beyond the above named ones, where it grows in a higher temperature, at about 6000—7000 feet; it is of medium size, and prefers open swampy slightly shaded places, and is subject to great changes in its habit. *G. Wallis.* [We have received from M. Linden a letter in reply to M. Wallis, and which we hope to insert in our next issue. EDS.]

Grafting on the Quince Stock.—Can any of your readers inform me of the success attending grafting from trees on the Quince stock? Having had nearly forty years' practice at budding and grafting, I never heard of the practice being successful, and have only known one nurseryman who practised it. He used to say that he saddle-grafted them, and they did well. I have tried the practice many times, but have never succeeded. Seeing the statement made respecting the beautiful specimen of Beurré Clairgeau illustrated at p. 141, I am curious to know if it is much practised? I have always attributed my failures to the redundancy of sap in the stock, which invariably glutted the scion before it became fairly attached to it. My usual and most successful practice is to bud them in the autumn, but not until the sap is on the decline, as the buds are liable to become surcharged and pushed ont, or, should they adhere to the scion, to commence growing the same autumn, which invariably spoils the shoots which would be produced the ensuing season. Growing Pears upon Quince stocks is an easy and simple process, when the essential elements of success are attended to. Some varieties, such as Marie Louise, the celebrated Uvedale's St. Germain, or Belle de Jersey, Beurré Rance, Knight's Monarch, and others, do not thrive so well in some soils on this stock as could be wished; hence the free or Pear stock is generally used for them. The superb specimens produced in the Channel Islands and on the neighbouring coast of France, which have of late been exhibited at the Kensington fruit shows, must strike all admirers of fine fruit with astonishment. The beauty and size are the results of the well applied skill of the growers, but when one dozen of these remarkable fruits are grown it must not be forgotten there are often thousands of inferior size and quality. They are the *crème de la crême* of the most successful growers' productions, who are often surprised at the result of their own handiwork, favoured by soil and situation. It is a peculiar feature in the cultivation of Pears, that some growers are successful with one variety, and others with another, as evidenced at our local exhibitions, where growers are expected to exhibit their own productions. *Charles B. Saunders, Jersey.*

Transplanting Evergreens.—In the *Gardeners' Chronicle* of the 2d ult. (p. 11), your correspondent, Mr. Sheppard, who is inclined to spring planting, asks the question: "What say others?" &c. If I had had my say a dozen years ago, I should likely have opposed his opinion. No doubt it is well that the lessons we learn in youth should abide by us, nevertheless it is sometimes necessary that some of these be unlearned, and that we strike out in the very opposite direction. Having been trained from childhood to believe that late autumn and winter was the right time to plant, it was not easy to lay aside the belief, but, forced by circumstances, bit by bit I came to the conclusion that spring and early summer was by far the best season, and the only thing I have found not to succeed is the Rose on the Briar. In 1871, when remodelling a mansion and grounds belonging to the estate, it was necessary to hide some unsightly objects. For one of these, in the end of April, I lifted a pair of Spruce Firs—how old they were I know not; they, with many others, had been originally planted for cover, and had been frequently headed down, but for some years past they had been left alone, and had reached a little over 30 feet high. The young growths were started, some of them about an inch long. Our means of transportation was very bad—a two-wheeled timber truck, over the "bed" of which they had to be pulled and made fast to the pole. We had to take them about a mile, and before they reached their destination scarcely a particle of soil remained upon their roots; these were planted in a terribly exposed place, but never seemed to cease growth. Strong piles were necessary to keep them in an upright position, but, notwithstanding these, during a heavy gale in the following winter one of them was blown down, the roots very much broken off, and it died the following summer. During the operations it was necessary to move many very large shrubs—common and Portugal Laurels, Boxes, Yews, Hollies, &c. Many of them might have been considered hopeless, and chopped up; but we had ground to cover, and, having strong faith in the season, they were all transplanted, and I may say the deaths were *nil*. We continued moving up to June 12, when everything in this neighbourhood, but the ordinary garden operations, must cease for haymaking. Want of men makes this absolutely necessary. My employer here had frequently wished an Oak to be planted in an open space on the side of the carriage drive; accordingly, in the autumn of 1872, a tree was selected, 31 feet high. It was dug round, and left till the following April, when the timber truck was again brought into requisition. A lifting machine to have carried it in an upright position could not have been employed, the arch over the front entrance not being high enough, and fine trees, with branches too low, surrounded all the other gates. Like the Spruce Firs, it was necessarily brought over the truck. It had a good ball, which remained intact during the journey of half a mile. It was just bursting into leaf, the development of which went on without any apparent check, until a terrible night's frost destroyed its leaves and those of all its neighbours. For weeks afterwards they looked as if they had been scorched by fire. This, no doubt, was very trying to a newly-lifted tree. After a considerable time it broke again, and by the autumn had made shoots 6 inches long. Last spring it again suffered from the same cause, on April 29; but now its buds are plump and sound, and it looks as if it meant to catch the giants round about it. I could mention many cases of successful transplanting at the same season, but will trouble your readers with only another. In the beginning of the same year, 1873, it was considered necessary to hide a newly-erected building; and as there are acres of common Laurel, we are never at a loss for material. They are very old, and growing in dense thickets under trees—plants varying from 5 to 15 feet high and by no means in good condition for lifting. I purposely put off beginning as late as I could, so as just to have time to get the job finished before haytime. We began on May 26 and finished on June 9. Many of the young shoots were 6 inches long, these flagged while we were moving, but when once in the pits and well watered they soon recovered: we supplied them liberally with strong manure and refuse soil, and at the end of three weeks, when I examined them, I found their white roots like crowquills pushing in all directions, and by the end of July the foliage was of a beautiful dark green colour, and remains so now. There is no doubt it is sometimes necessary to do such work in the winter time when the weather is open. I had to do so the winter before last, in making a large Rhododendron bed. Laurels had to be dug up; they were all transplanted, and although not many of them died, yet they did not make such progress through the following summer, and also lost a great many of their leaves. April and the beginning of May for deciduous trees, and June for evergreens.—Some may be ready to doubt, and say the sun would scorch them up. Well I had a case in point in the summer before last—it was about the middle of July, on a showery day, when, as we could not get into the hay-field, we moved a few Laurels. The sun when it gleamed between the showers was excessively hot. The following day the weather cleared up and remained hot with bright sunshine for several days afterwards, and these poor Laurels had the full benefit of the sun's rays from about 9 A.M. till late in the afternoon. The remark made some weeks afterwards by one who saw them moved, and no doubt thought I was rather "queer," was, "Why, they have not lost a leaf!" Perhaps this was not strictly correct, but it was not far wrong. Any one doubting may easily convince himself during the coming summer. Plant a few evergreens of any kind; let them be fully exposed to the sun's rays; only keep them moist at the roots, and by the autumn all scruples will be gone. *D. Buchanan, Dyrham Park.*

Hardiness of the Eucalyptus.—I raised plants of the following varieties of Eucalyptus from seed in the year 1871:—E. globulus, E. elata, E. Lehmanni, E. splendens, E. stricta, and E. oppositifolia. Until last summer I grew them in pots and wintered them indoors, but last summer I had them planted out in the pleasure ground, and by the autumn some of them had grown too large to be accommodated under glass again, so I planted them in a sheltered situation in the American garden. The result is that they are all killed down to the ground by the late frost (the lowest registered here was 20°). The situation they were planted in is rather damp, but against that I may say that they were grown under conditions calculated to enable them to resist frost, that is, in pots standing on ashes, and not over well supplied with water, so that the growth they made was very firm and well matured, and when planted out last summer it was in open situations and on gravelly soil, so that they did not grow very luxuriantly. The plants may stand our now and then severe winters on the south coast, but I fear they cannot be depended on for permanent plant-

ing anywhere in the midland counties. It would be interesting to know from your correspondent, "T. W. M.," how many degrees of frost his plants withstood. *Owen Thomas, Drayton Manor Gardens.*

Leptotes bicolor.—This is a charming Orchid, of very easy culture, which might be found in every Orchid-house or even greenhouse with a moderate artificial heat. It thrives well on a block of Thorn or Oak wood, with a little sphagnum moss. The little quill-like leaves contrast well with the white flowers, for the plant forms a dwarf mass of flowers and leaves. The plant here, on a block of wood, is only about 8 inches by 5, and it has about a hundred flowers on it, which form on the top of the leaves in twos and threes. Its beauty lasts fully a month. Fancy a little gem like this lasting so long at this dull, flowerless season. As a lady said to me the other day, "What a lovely bouquet it would make, but what a shame it would be to cut it." The blotch of purple on the lip enhances its beauty, and when our olfactory nerves are pure and not tainted with any artificial odour, one discerns a slight perfume when the sun is on the plant, but it is slight. In Leptotes bicolor we have one of the most valuable of Orchids for this season of the year, not only on account of its colour, but from its free-and-easy growing propensity under very ordinary care, and its longevity and adaptability for chaste personal floral decoration; and hence it is worth recommending to the notice of every one on the outlook for really useful plants. *H. K. F.*

Reports of Societies.

Royal Horticultural: *Feb.* 17.—W. Burnley Hume, Esq., in the chair. The Rev. M. J. Berkeley made some observations on several subjects which came before the Fruit and Floral Committees, including some specimens of the so-called Primula altaica, which he believed did not belong to the species, properly so called, of which he hoped to be able to say something at the next meeting; and a plant, shown by Mr. Bennett, of Thunbergia Harrisii splendens, which very closely resembled T. laurifolia, and he thought it was a question if both were not varieties of the same species.* Mr. Berkeley stated that, since the lecture delivered by him on February 3, he had placed some old specimens of Micrococcus prodigiosus (Blood Rain) on rice paste, and that they had spread as far as could be expected from the state of the weather. He hoped to repeat the experiment in July. The matter is the more interesting as Mr. Stephens has asserted that the plant retains its power of vegetation after it has been in an oven forty-eight hours.

SCIENTIFIC COMMITTEE.—Andrew Murray, Esq., in the chair.

Double Cinerarias.—The Rev. M. J. Berkeley showed, on the part of Mr. Bennett, The Gardens, Hatfield, a so-called double Cineraria, in which the flowers were in an abortive condition, and had remained so since Christmas. The appearance was very similar to that of a number of young Cauliflowers.

Seville Long-Pod Bean.—Mr. Barr sent specimens of the seeds of this variety perforated by the larva of a kind of weevil, Bruchus rufimanus, which attacks the ripe seeds in the warehouse. Mr. Barr remarked that this Bean, in his experience, rarely produced an abundant crop in this country, on which account he supposed that the plant was not thoroughly acclimatised, and stated, in confirmation, that MM. Vilmorin, of Paris, were similarly unable to grow their seed in France, but procured their stock annually from Seville. Dr. Hogg, on the other hand, stated that the Bean in question produced an abundant crop at Chiswick. Dr. Hogg further remarked that Peas introduced to this country from a warm climate were for a year or two very early in ripening, but lost this quality very soon. Brussels Sprouts also degenerated in a similar manner.

Fuchsia procumbens.—Dr. Masters showed, on behalf of Mr. Kinghorn, a fruit of Fuchsia procumbens, figured in our columns some time since (fig. 60, p. 291, vol. ii., 1874). The fruit is about ½ inch long, obovoid, pink, and covered with a glaucous bloom. The pretty fruit are an additional attraction to this interesting species, which we are glad to find is likely to be hardy.

Copper-web Fungus.—Dr. Masters also showed a Potato from Mr. Fryer, covered with the Copper-web Fungus (Rhizoctonium).

Datura arborea.—The Chairman showed specimens of this in a wild or probably naturalised state, and which he had procured from California, where its beautiful flowers are used to decorate dinner-tables, &c.

Tea Leaves affected with a Lichen.—Professor Thiselton Dyer showed leaves of Thea Bohea, from Natal Botanic Garden, attacked with what Mr. Berkeley believes to be Strigula Feei, Mont. Mr. Keit, the curator of the Natal Botanic Garden, says that it "makes its appearance as a minute speck, of brown colour, enlarged in circumference gradually until the end of the season, when the margin assumes a pale green colour, and ceases to grow." According to Mr. Berkeley "the brown substance is a species of Cephaleuros, according to Fries. . . . I have not seen this before. It consists of decumbent articulated threads, each of which has at its tip a globose sporangium. It is very near to Chroolepus, and if some lichens are parasitic on Chroolepus, this may be so on Cephaleuros."

Terrestrial Radiation.—Professor Dyer then made the following communication to the committee, basing his remarks upon the observations of Mr. Buchan:—"The effects of terrestrial radiation are at the maximum when the air is calm and very dry, and its temperature rather low. If, however, the cold air produced

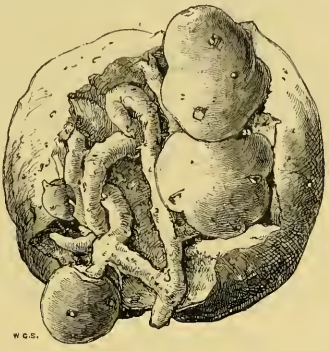


FIG. 45.—TUBERS PRODUCED IN THE INTERIOR OF THE POTATO.

through the influence of terrestrial radiation be allowed to accumulate close to the ground, no small amount of damage may be done by a comparatively slight frost. On sloping ground such accumulation of cold air cannot go on, because, cold air being heavier than air which is warmer, as soon as the air in immediate contact with sloping ground is cooled it flows down to a lower level, just as water would do, and its place is taken by the warmer current of air immediately over the downward-flowing cold current of air. In this way a higher night temperature is maintained in situations where the ground slopes down to lower levels, and accordingly such situations should be

FIG. 46.—BUDS PRODUCED FROM THE PITH OF SEAKALE.

chosen for those plants which, at any stage of their growth, are peculiarly liable to be injured by frost.

"If the air be not calm, but a wind—even a slight wind—be blowing, the different layers of air are thereby mixed; and thus the air cooled by contact with the cold ground is not suffered to rest on the ground, but is mixed with the air above it, and the temperature is thus prevented from falling so low as it otherwise would."

These remarks were made in describing the destruction by frost of some beds of seedling Ash trees which had been covered by an old fishing net. Mr. Buchan proceeds:—

"The steady blowing light wind was sufficient to disturb the air cooled by contact with the ground, and mix it with the stratum of air lying immediately over it, in all places where the wind was felt. Over the beds unprotected by the net the wind passed freely and unchecked, and there, consequently, the temperature did not fall lower than was necessary to brown without destroying the young seedlings. But to the bed protected by the net the wind had no access owing to the intervention of the net; and there, consequently, the air strata not mixing, the temperature fell so much lower than over the beds adjoining as to destroy the seedlings." *Trans. Bot. Soc. Edin.*, vol. xii., pp. 51, 52.

Insect Destructive to Orchids.—Professor Dyer then read the following letter from R. Jamie, Esq., on Baridius aterrimus, an insect most destructive to Phalænopsis and other Orchids at Singapore and Burmah:—

Extract from letter from J. Jamie, Esq., Singapore, dated May 16, 1874.

"These pests are still here, but not in such numbers as formerly. The damage they have done to the Orchids is beyond belief; nothing but actual sight would convince any one of their powers of destruction. I still have all my Orchids examined daily (and you can imagine the trouble when I tell you that I have thousands to go over), and yet the Orchids are destroyed. I am put to my wits' ends to circumvent these insects. If they only attacked one kind I should not think so much of it; but every kind is alike to them—terrestrial as well as epiphytal suffer. . . . A good many years ago, when I had no Orchids, I remember that those who had suffered from this same weevil; it is only within the last eighteen months or two years that this same weevil has again become so prevalent, and what has made them so, and why at such a long interval, is what I want to fathom, if possible."

New Potato Disease.—It was stated that the insect affecting the Potato, lately described by M. Boisduval (see p. 82), would probably turn out to be a common South European insect.

Tubers in the Interior of a Potato.—Prof. Dyer read a communication from Mr. Shirley Hibberd on this subject, in which he adverted to the possibility of obtaining buds from the very centre of a thin slice of the tuber, and this not once or twice but many times. Mr. Hibberd considers it a death-blow to the proposal to produce new varieties by grafting. Prof. Dyer considered that in the case in question the tubers had been produced by an inversion of the rind of the Potato and the gradual absorption of the cells of the central portion from the pressure exerted by the ingrowing tuber.

Dr. Masters had had similar specimens under examination, and confirmed to some extent Mr. Hibberd's assertion, that adventitious tubers might be formed in or near the centre of the tuber. In such cases Dr. Masters had always observed a formation of spiral vessels in the tuber at or about the point whence the adventitious tubers sprang. [A similar formation in the Potato is shown in fig. 45, and also in the pith of the Seakale, fig. 46—both reproduced from former volumes.] In other cases the adventitious tubers sprang from the ring of vessels just within the rind of the Potato. Another mode of explaining these productions was, that a shoot had perforated the one tuber, and produced in it another. The explanation given by Professor Dyer was a novel one, but one borne out by similar cases of inversion in the Turnip.

Ant-Galls on the Leaf-stalk of Melastomaceæ.—Professor Dyer then read the following letter, addressed by Mr. Trail to Dr. Hooker:—

Letter from J. W. H. Trail to Dr. Hooker.

"Santarem, Jan. 3, 1874.

* * * * *

"As regards the species of Melastomaceæ bearing bullæ on the leaves, I have found two species, one of which I take to be Myrmedone formicaria. This one is common both at Montalegre and at Prainha. In regard to both species I must say that after careful observation I am quite at a loss to determine the exact connection between the bullæ and the ants, of which at least three species inhabit them. Neither plant seems specially liable to the attacks of other insects, in fact, if possible, they are more free from such attacks than most other plants here.

"The leaves of the Myrmedone frequently bear hardly any trace of bullæ even on the same twig on which occur largely developed bullæ; and the same holds in regard to the other plants. . . . Ants are usually to be found in those on M. formicaria, but not by any means constantly, while sometimes they are taken possession of by solitary bees and wasps. The other plant is still more puzzling. Of it I have yet seen only two bushes. In one of them every bulla was tenanted by ants; oo the other not one was so occupied, though the bulliferous leaves bore numerous small ant-nests on their under-surface, commonly just over the orifices. I have also found hollow swellings inhabited by ants on the stem of a shrub near Pará, at Ereeé, and at Prainha; and also ants inhabiting swellings in the twigs of a species of Cassia."

Diseased Palm Roots.—Mr. Worthington Smith showed drawings of a curious hypertrophy of the cellular tissue in the root of a Palm. The rind had burst, and a cellular mass had protruded from the interior. [Of this we shall probably give an illustration shortly.]

FLORAL COMMITTEE.—Dr. Denny in the chair. The meeting held to-day was of an unimportant character. A very fine group of Cyclamens from Messrs. Veitch & Sons, and a beautifully grown lot of Primulas from Mr. Smith, of the Ealing Dean Nursery, formed the bulk of the contributions. The vote of thanks passed to Messrs. Veitch & Sons for the Cyclamens was well deserved, the plants being all that could be

* Mr. Bennett informs us that T. Harrisii splendens and T. laurifolia are identical in foliage and flowers, but that where the latter produces one flower the former produces fifty—a distinctive character worth considering from a horticultural point of view.

desired from a cultural point of view. Messrs. Veitch also gained a First-class Certificate for Abutilon Darwinii, a dull orange scarlet-flowered species, said to be an improvement on A. pictum; and a Second-class Certificate for Odontoglossum Warscewiczii, of which we hope to publish Professor Reichenbach's description next week. The Primulas, nicely done—especially the double red ones—and a small collection of Cyclamens from Mr. H. B. Smith were also accorded a vote of thanks; while a similar award was passed to Messrs. Hooper & Co., Covent Garden, for a dozen very strong growing but rather coarse Cyclamens. To Messrs. W. G. Caldwell & Son, Knutsford, for a specimen of Azalea amœna Caldwelli, a seedling from A. amœna, crossed with magnifica, and having flowers about twice its size, and of a brighter colour. To Mr. J. Woodfield, The Gardens, Osberton, for two very fine cut trusses of a grand variety of the magnificent waxy-white Rhododendron argenteum. To Mr. W. Perry, gr. to J. W. Miles, Esq., Shirehampton, for a basket of the purple-flowered Primula vulgaris, commonly but erroneously called Primula altaica. Mr. Taylor, gr., Longleat, sent several plants of the old favourite, Browallia elata, a pretty tender annual, whose bluish violet flowers have for some years been strangers to the exhibition boards; and from Mr. Bennett, Hatfield, came a small plant of Thunbergia Harrisii, one of the most valuable of winter decorative plants, producing in abundance, and that continuously, its large handsome blue flowers.

FRUIT COMMITTEE.—Henry Webb, Esq., in the chair. Mr. Speed, gr. to the Duke of Devonshire, Chatsworth, sent two dishes of fine fruit of the Cape Gooseberry, Physalis edulis; and Mr. James McRonald, nurseryman, Chichester, showed two fruits of a Pear named Gloria Mundi, too much like Jersey-grown specimens of Catillac to be considered distinct from that variety. Under the name of Wheeler's Favourite, a small Apple, which the committee considered to be the same as Aromatic Russet, came from Mr. Wheeler, Warminster; and Mr. Bennett, Hatfield, showed handsome fruits of Lowndes' Pippin Apple—a variety of good size, pale straw-yellow in colour on the shady side, and bright crimson facing the sun, admirable for the dessert or culinary purposes, a good keeper, and, as Mr. Bennett stated, a certain cropper. The Rev. G. Kemp exhibited specimens of Délices Evrard de Tournai and Beurré de Jonghe Pears, the latter being of excellent quality, somewhat resembling Beurré de Capiaumont, and valuable on account of its excellent keeping qualities. Mr. Berkeley stated a fact which most growers experience, that some varieties keep well and unimpaired in quality some years, but quite the opposite in others; but that Beurré de Jonghe had been proved to be continuously good. Mr. W. Taylor, gr., Longleat, showed some new Orangefield Tomatos and two brace of Dickson's Favourite Cucumber; and Messrs. James Carter & Co. contributed numerous samples of their improved Red-skinned Flourball, Brownell's Beauty, Snowflake, Extra Early Vermont, and American Bread-fruit Potatos. At the last meeting Mr. James Batters showed a dish of new Potatos, which the committee afterwards learned had been grown in pots, and now awarded him a Cultural Commendation.

Linnean: *January* 21.—Dr. G. J. Allman, F.R.S., President, in the chair. Dr. Hollis read a paper on Oak-galls. He divided Oak-galls into two classes, the one and the many celled. To the former class belong the woody marbled Oak-galls, the ligneous galls of Réaumur, and the Currant-galls; to the latter the spongy "Oak-apple" and the "Oak-spangles" of the leaves. The author described the structure and mode of growth of the different kinds, all of which he believed, with the exception of the "spangles," are formed during the growth of the leaf, the egg being laid in the bud. The origin of the different layers of tissue in the gall itself the author believed could be traced to the different layers of the leaf which produce it. The paper was illustrated by a splendid series of specimens from the Bethnal Green Museum, lent by Mr. A. Murray.

February 4.—Dr. G. J. Allman, F.R.S., President, in the chair. A letter from Mr. J. Gammie, on the peculiar appendage to the spadix of Arisaema speciosum was read. It had been supposed that the terminal appendage, which, as in many Aroids, is destitute of flowers, was in some way a contrivance for the cross-fertilisation of the flowers at the bottom of the spadix, but the author had not been able to detect that it was ever visited by insects. A paper was read by Mr. H. N. Moseley, on the Plants and Insects of Kerguelen's Land. It has been stated that the insects of these islands were entirely apterous; but, in addition to several wingless insects, Mr. Moseley had found a winged gnat. One of the insects was found in great quantities on the Kerguelen's Land Cabbage, Pringlea, but not on the inflorescence. A paper was read by Mr. Hiern, in the absence of the Rev. G. Henslow, on the Origin and prevailing Systems of Phyllotaxis. The author traced the origin of all other modes of phyllotaxis to modifications of the decussate as the simplest. A discussion ensued, in which Mr. Hiern, Professor Dyer, Dr. Masters, and Mr. A. W. Bennett took part.

Obituary.

DIED on the 7th inst., at Turkey Street, Enfield, after a short illness, BENJAMIN FIELDERS, aged eighty-two years. Outside the parish of Enfield Mr. Fielders was probably unknown to the present generation of gardeners, but thirty or forty years ago he was a man of mark at the London shows, winning several of the then Horticultural Society of London's medals with his Orchids, Grapes, and Pines, &c. He was at that time gardener to the late Mr. William Linwood, of Enfield, in whose service he continued for twenty-five years, subsequently entering the service of the late Mrs. Child, and the late Mr. Alderman Challis. About fifteen years ago Mr. Fielders partially retired from active service, and only at the request of the proprietor of Roselands, Waltham Cross—Mr. James Pateshall Jones—did he undertake the partial supervision of those gardens and pleasure grounds, which he continued to do until quite recently. Mr. Fielders was well known to Sir Joseph Paxton, and to the Pauls of three generations; and besides being a talented and most devoted horticulturist, he was esteemed by all who knew him for his industry, high character, and conscientiousness.

—— We have also to record the death of a highly accomplished patron of horticulture, in the person of Lady CULLUM, of Hardwicke House, Bury St. Edmunds, which sad event took place early in the morning of Wednesday last. Lady Cullum spent an hour or two in her garden nearly every day, and, singularly enough, her last act was the choice of a site for some upright Cypresses.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, FEBRUARY 17, 1875.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 Years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 60 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
Feb.	In.	In.	°	°	°	°	°	°			In.
11	29.97	+ 0.19	37.1	30.7	6.4	33.4	— 5.6	29.4	85	S.S.W.; S.	0.10
12	29.70	— 0.08	45.1	33.5	11.6	40.0	+ 1.1	39.1	97	S.S.W.	0.16
13	29.99	+ 0.10	44.0	37.4	6.6	39.8	+ 0.9	39.3	98	S.S.E.; S.S.W.	0.04
14	29.86	+ 0.05	50.7	42.0	8.7	46.6	+ 7.8	45.3	96	S.S.W.	0.01
15	30.10	+ 0.29	50.1	36.1	14.0	41.3	+ 2.6	39.0	92	WNW.; NNW	0.03
16	30.28	+ 0.47	44.9	30.8	14.1	36.6	— 2.1	33.5	89	NNW	0.00
17	30.06	+ 0.25	42.9	37.2	5.7	39.9	+ 1.2	36.7	89	NNE	0.03

Feb. 11.—Overcast and dull throughout. Heavy rain and sleet at night.
— 12.—Overcast, dull, and mild throughout; thin rain all morning. Slight fog in evening.
— 13.—Overcast and dull all day. Rain commenced to fall at 0.45 P.M., and continued all the afternoon.
— 14.—Overcast, dull, and rain at intervals throughout the day.
— 15.—A moderately fine day, though light clouds and slight fog prevailed in the morning.
— 16.—Fine, cold, and dense fog in morning, clear about noon. Overcast, and brisk wind afterwards.
— 17.—Overcast, and dull throughout, with thin rain in morning and evening.

—— In the neighbourhood of London the reading of the barometer at the level of the sea decreased from 30.20 inches at the beginning of the week to 30.13 inches by the morning of the 7th, increased to 30.26 inches by about mid-day on the 8th, decreased to 30.08 inches by the afternoon of the 9th, again increased to 30.22 inches by the night of the 10th, then decreased again to 29.88 inches by the afternoon of the 12th, then steadily increased to 30.10 inches by the morning of the 13th, and was 30.07 inches at the end of the week. The mean reading for the week was 31.11 inches, being 0.14 inch less than that of the preceding week.

The highest temperatures of the air at 4 feet above the ground ranged between 45° on the 12th and 33½° on the 9th, the mean for the week being 38°. The lowest temperatures of the air varied from 37⅛° on the 13th to 28¼° on the 9th, with a mean for the week of 31¾°. The mean daily range of temperature in the week was 6¾°, varying from 11⅛° on the 12th to 1¾° on the 10th. The mean daily temperatures of the air were as follows:—Feb. 7, 34°.7; 8th, 31°.4; 9th, 30°.7; 10th, 32°.6; 11th, 33°.4; 12th, 40°; 13th, 39°.8; and the departures from their respective averages were, —4°.4, —7°.7, —8°.4, —6°.4, —5°.6, + 1°.1, and + 0°.9. The mean temperature for the week was 34°.7, being 4°.4 below the average, as deduced from observations extending over a period of sixty years. The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in the sun's rays, were 58¾° and 53½° on the 8th and 13th, but on the 9th and 10th 39° and 36⅓° were the highest readings. The lowest readings of a thermometer on grass, with its bulb fully exposed to the sky, were 26⅜° on the 8th and 9th respectively, but on the 13th, 36° was the lowest reading. The mean for the week of these low readings was 29¼°.

The weather during the week was dull, cold, and showery, and the sky overcast throughout, with the exception of one day, viz., Monday, the 8th inst. The direction of the wind was variable, and its strength gentle. Rain fell on five days, the amount being 0.38 inch.

In England, the extreme high day temperatures observed at different parts of the country varied from 55° at Liverpool to 43° at Norwich and Leeds, the general average all over the country being 47¾°. The extreme low night temperatures ranged from 28¾° at Blackheath, and 23¼° at Portsmouth, with a general average of 27°. The extreme range of temperature from all stations was 20⅝°; the greatest range was at Liverpool, 27¾°, and the least at Leeds, 15°. The mean high temperature observed by day ranged from 41½° at Bristol to 35⅓° at Nottingham, with an average value of 38¾°. The mean low temperatures observed by night varied from 34½° at Bristol to 28¼° at Portsmouth, the general average being 31¼°. The mean daily range of temperature in the week was 7¼°, varying from 10¼° at Birmingham to 5° at Leeds. The mean temperature of the air for the week was 34¾°, being 4¾° less than the value for the corresponding week in 1874. The highest in the week occurred at Bristol, 37¾°, and the lowest at Nottingham, 31¾°. Rain fell on three or four days in the week at most stations, and the amounts collected varied from 1 inch at Portsmouth and Bristol to two-tenths of an inch at Sunderland, the average fall all over the country being four-tenths of an inch.

The weather during the week was cold, dull, with frequent showers of rain; the sky was nearly overcast throughout.

A little snow fell generally over the country on the 8th and 11th inst.

In Scotland, the highest temperatures by day ranged between 54° at Glasgow and 39° at Perth. The lowest temperatures by night varied from 28½° at Glasgow to 24° at Dundee, their averages being 50° and 26¾° respectively. The extreme range of temperature was 23¼°, ranging from 26° at Paisley to 14° at Perth. The mean temperature of the air for the week was 35¾°, being 1° higher than that of England, and 1° lower than the value for the corresponding week in last year. The highest was at Glasgow, 37½°, and the lowest at Perth, 32¾°. The fall of rain varied from 2¼ inches at Greenock to ¼ inch, nearly, at Leith. The average fall over the country was 1 inch.

At Dublin, the highest temperature was 55½°, the lowest 31¾°, the mean 43¾°, and the rainfall a quarter of an inch.

JAMES GLAISHER.

Variorum.

THE STINGING TREE.—One of the torments to which the traveller is subjected in the North Australian scrubs is the Stinging tree (Urtica gigas), which is very abundant, and ranges in size from a large shrub of 30 feet in height to a small plant measuring only a few inches. Its leaf is large and peculiar, from being covered with a short, silvery hair, which, when shaken, emits a fine pungent dust, most irritating to the skin and nostrils. If touched it causes most acute pain, which is felt for months afterwards—a dull, gnawing pain, accompanied by a burning sensation, particularly in the shoulder and under the arm, where small lumps often arise. Even when the sting has quite died away, the unwary bushman is forcibly reminded of his indiscretion each time that the affected part is brought into contact with water. The fruit is of a pink, fleshy colour, hanging in clusters, and looks so inviting that a stranger is irresistibly tempted to pluck it; but seldom more than once, for, though the Raspberry-like berries are harmless in themselves, some contact with the leaves is almost unavoidable. The blacks are said to eat the fruit, but for this I cannot vouch, though I have tasted one or two at odd times, and found them very pleasant. The worst of this Nettle is the tendency it exhibits to shoot up wherever a clearing has been effected. In passing through the dray tracks cut through the scrub, great caution was necessary to avoid the young plants that cropped up even in a few weeks. I have never known a case of its being fatal to human beings, but I have seen people subjected by it to great suffering, notably a scientific gentleman,

who plucked off a branch and carried it some distance as a curiosity, wondering the while what was causing the pain and numbness in his arm. Horses I have seen die in agony from the sting, the wounded parts becoming paralysed; but, strange to say, it does not seem to injure cattle, who dash through scrubs full of it without receiving any damage. This curious anomaly is well known to all bushmen. *From "Cassell's Illustrated Travels" for December.*

Tapioca.—This elegant and delicate starch is the product of a plant that is cultivated very extensively in the Malay Peninsula, where its culture is almost entirely in the hands of the Chinese. The tubers of the plant (Manihot utilissima), which weigh on an average from 10 lb. to 25 lb., are first scraped and then carefully washed; after which they are reduced to a pulp by being passed between rollers. This pulp is carefully washed and shaken up with abundance of water, until the fecula separates and passes through a very fine sieve into a tub placed beneath. The flour so obtained is repeatedly washed, and then placed on mats, and bleached by exposure to the sun and air. It is finally converted into the pearl tapioca of commerce by being placed in a cradle-shaped frame covered with canvas; it is slightly moistened, and subjected to a rotary motion, by which means it is granulated. It is next dried in the sun, and finally over the fire in an iron pan greased with vegetable tallow, and is then ready for the market. *Boston Journal of Chemistry.*

The Sundews. — Baron F. von Mueller, Melbourne, calls attention to the fact that some species of Australian Droseræ are not merely acrid, as the European ones are known to be, but that they are decidedly poisonous. He states that in over-stocked commons in Victoria many cattle have perished from feeding on the Sundew (Drosera), and that within the last few weeks a child died near Albury from eating some of the tubers of D. peltata as "native Onions." This plant has for some time past been considered injurious to sheep, but until very lately no one supposed that the Australian species were poisonous. Baron Mueller expresses his conviction that all the indigenous Sundews are poisonous; but, as far as observation goes, sheep and cattle do not eat them unless the season is unfavourable to vegetation, or the runs are overstocked. The species D. peltata is very common in the spring in fields near Sydney and Parramatta, and, indeed, everywhere on this side of the Blue Mountains; but no one ever suspected until very lately that it was capable of doing the mischief which is now attributed to it. One of the European Sundews (D. rotundifolia) is described in the *Pharmacopœia* as being "acrid, anti-arthritic, detersive, and, externally, rubefaciant," whilst the Brazilian D. communis is reported to be poisonous. The former species, however, although said to occasion the rot in sheep, and to curdle milk, has some redeeming qualities, for it will remove warts and corns, take away freckles and sunburn, and, when distilled with wine, will produce a very stimulating spirit. Respecting the properties of our indigenous species, little is yet known, excepting the fact of their absorbing insects, and of their deleterious tendency, but some persons have thought that a valuable dye might be procured from the West Australian D. gigantea, as it stains paper with a brilliant purple colour, which, on being treated with ammonia, yields a clear yellow. Now that public attention has been called to these plants, it would be well to institute a series of experiments on them with a view of testing their supposed poisonous and industrial properties. *Sydney Mail.*

Peat.—Of the fuels obtained from the earth's crust the most obvious and accessible is peat, whether fibrous, woody, or earthy. Peat is a product of temperate and coldly-temperate countries, and occupies extensive areas in our own islands, in Holland, Denmark, Germany, Russia, and Siberia, in the Old World; and in Canada, Hudson Bay territories, and Alaska, in the new. The colder latitudes of the southern hemisphere being chiefly occupied by the ocean, it has no great area for development, and appears in sporadic patches only in Patagonia and the Falkland Islands. It is strictly a vegetable accumulation — Mosses, Confervæ, Equisetums, Rushes, Grasses, Heaths, and other marsh plants, contributing to its growth—and occurs in all stages of consolidation, from the light fibrous turf of the surface, in which the several plants are apparent, to the dark compact peat below, in which the component species are with difficulty discernible. In some instances it has accumulated in boggy marshes, in others it occupies the sites of silted-up lakes; occasionally it has gathered over waterlogged and fallen forests, the decayed trees of which (Oak, Scotch Fir, Birch, Hazel, Alder, &c.) it still encloses; and not unfrequently it appears on moist hill-sides and high open moorlands. Many of the British peat-mosses are in a dead state, and undergoing waste and disintegration, with only a small proportion in a living or growing condition. This result has been brought about by drainage, felling of forests, and other causes affecting the rainfall and climate; but in other countries, where human interference has been less felt, peat-mosses are still on the increase, and at different ratios, according as they are situated on hill sides, in swamps, or on exposed moorlands. It is very difficult to approximate the rate of growth; but in Britain many peat-bogs show an accumulation of from 3 feet to 5 feet since the time of the Roman invasion, now nearly eighteen hundred years ago. Besides the ordinary terrestrial or surface peats, there occur along many parts of our own shores submarine peats or forest-growths, dipping away beneath the waters to an unknown extent, and varying from 2 feet to 5 feet in thickness. These submerged forests, as they are termed, appear in the Firths of Tay, Eden, and Forth, along the coasts of Northumberland, at the mouth of the Tees, along the Humber, at Bournemouth, the Solway, and also along the Devonshire, Lancashire, and other coasts. They are composed of a very compact and pure peat, enclosing enormous trunks of Oak and Fir, together with Alder, Hazel, Birch, and other indigenous trees; and, from their great age and compression under 20 feet or 30 feet of marine clays, may be looked upon as intermediate between peat and lignite. *Page's Geology in its Relations to the Arts and Manufactures.*

The Cecil Oak.—In what is called "the flat" of Petworth Park stands a fine and still flourishing tree, on which is a plate which tells of its planting in the beginning of the seventeenth century, to commemorate the marriage of Algernon, tenth Earl of Northumberland, and his first wife, Lady Anne Cecil. Can any reader kindly inform me of any existing Oak elsewhere, thus planted so long ago in commemoration of a marriage? *F. H. Arnold, L.L.B., in "Hardwicke's Science-Gossip."*

Garden Operations.

(For the Ensuing Fortnight.)

[The subjoined directions are intended to supply general information, and must, of course, be adapted to the peculiar circumstances of each locality. Other departments of the garden will be treated on from week to week in succession, according to the requirements of the season. Special directions for the management of "The Villa Garden" will be found in the preceding columns.]

PLANT HOUSES.

Plant Stove.—The species of *Franciscea*, *Ixora*, *Rondeletia*, *Aphelandra*, *Eranthemum*, *Hoya*, *Tabernæmontana*, *Hibiscus*, *Cyrtoceras*, *Aeschynanthus*, *Gardenia*, with *Mussænda frondosa*, *Plumbago rosea*, and the rest of the stove plants not yet potted, may now have a shift if they need it, but they must not be disturbed if their roots have not begun to work, as repotting when the roots are not in an active condition is very likely to cause a plant to get into a bad unhealthy state. Though the above plants are not tender rooted, still it is not advisable to shake them out or remove the soil, as in the case of deciduous subjects, but any soil, particularly towards the top of the ball, that is not occupied by roots may be got away. The size of pot given to each plant must be ruled by the state of the roots, where they exist in plenty a larger shift will be necessary than where they are poor and few. In the case of young plants that it is desirable to push on as quickly as may be, the shift should be larger comparatively than for those that are got nearly to the required size. The soil for potting stove plants should be quite as warm as the roots, consequently some days before commencing the work this must be provided for by putting the peat, sand, &c., where it will get into a proper condition as to warmth. All peat is preferable to a mixture of peat and loam for evergreen stove plants. Use a liberal quantity of sand in the soil, and give plenty of drainage, as these plants need a good deal of water, and so of necessity the soil must be such as will allow it to pass freely away. The quantity of sand added will be regulated by the amount contained in the peat. Use the potting stick so as to make the soil firm. Where good fibrous peat is not easily procurable, not a bad substitute in part is a sixth or a seventh of flaky rotten leaves, not too far decomposed. Leaves of hard texture, such as Oak or Beech, are the best.

Stove Climbers that are planted out are mostly of a free-growing habit, and the space devoted to their roots being generally very limited, they are apt to get so poor as neither to be able to grow or bloom in a satisfactory manner. To guard against this, each year 2 or 3 inches of the surface soil, or even more, if it can be done without disturbing the roots much, should be removed, and replaced with such as is new and good.

As soon as the flowering plants are potted, the fine-leaved subjects should receive the same attention. Even in the most select collections the following are worthy of a place:—*Maranta: Seemanni, Veitchii, Lindeni, Makoyana, ornata, fasciata, roseo-lineata* and *albo-lineata*. *Alocasia: Lowii, Veitchii, metallica* and *Jenningsii*. *Anthurium crystallinum*, *Ficus dealbata*, *Curculigo recurvata variegata*, *Pandanus Vandermarschii*, and *P. Veitchii*; *Sphærogyne latifolia*, with a few of the best *Crotons* and *Dracænas*, amongst which are *C. majesticum*, *C. angustifolium*, *C. undulatum*, and *C. Weismanni*; and *Dracænas Shepherdii*, *Fraseri*, *amabilis*, and *Cooperii*. All the above do well in ordinary peat and sand except the Alocasias, whose roots require a more open material. The following will be found to answer for them well:—Two parts chopped sphagnum, two parts fibrous peat, and one part rotten dung in a dry state, such as any that has been used for mulching a Vine border exposed to the open air, to which add some broken crocks and a sprinkling of sand. *Alocasia macrorhiza variegata* is still one of the very finest fine-leaved plants, grown large, either for exhibition or the decoration of a large house. Many variegated plants, if grown in a very rich soil, lose their colour, the reverse is the case with this—it can scarcely be grown too rich; two-thirds loam and one-third rotten dung, such as that from a Mushroom bed, with a fair sprinkling of sand, will induce it to produce its leaves beautifully variegated. Amongst plants suitable for standing on outside tables in the stove, and in positions for which many of the above would be too large, the following may be named:—*Aralia Veitchii*, *Vriesia splendens*, *Nidularium fulgens*, *Tillandsia tessellata*, *Bertolonia marmorea* and *margaritacea splendens*, *Sonerila margaritacea*, and *Gymnostachyum Verschaffeltii*; they are of easy growth, and succeed in sandy peat well drained. *Achimenes* started as advised some time back will now be in a fit state for putting into the pots and baskets in which they are to bloom, except where required for exhibition purposes; they are much more useful for general decoration grown in comparatively small pots, say 8-inch. They will do in either sandy loam or peat. For the baskets ordinary galvanised wire is the best, worked sufficiently close to hold the sphagnum lining required to prevent the soil coming through; here, again, unless for very large houses, small or moderate-sized baskets look the best. Baskets of this description do not admit of being drained in the way that pots are, still, as they are plants that require a good deal of water, a sprinkling of small crocks in the soil, in addition to the sand, will be an advantage.

Azaleas that have been forced for cut flowers should, when their blooming is over, be placed in a warm humid atmosphere, where they will at once commence to make growth, for the heat they have been subject to will have naturally excited them; and if placed in a cold chilly atmosphere for a time after flowering, as is sometimes done, the growth is checked, whereby the health of the plants is injured, their strength very much impaired, and the disposition to bloom early, which they acquire through early forcing and suitable after-treatment, is lost. One of the first things to observe is to see that they are free from their greatest enemy, thrips, for if even ever so few of their eggs have escaped the washings that have been advised they will now no doubt have come to life with the heat that has been used to bring the plants into flower. If any trace of the insects exist wash at once with tobacco water, as the young soft leaves are in no condition to bear tobacco smoke strong enough to destroy the pests, which, if killed before they have commenced to breed, the plants will stand a good chance of being free from them through the season. If any are suffering for want of root-room they should be removed to larger pots at once, or their season's growth will lack the requisite strength. The old single white varieties of this flower, which have done long and good service in supplying winter blooms, will now have to give way to kinds such as *A. Borsig*, *Reine de Portugal*, and *Narcissiflora*, which the leading flower forcers for the London trade have found better than the old sorts. One great advantage in the double varieties is that the flowers, especially when cut, stand so much longer. *T. Baines, Southgate, N.*

FRUIT HOUSES.

Vines.—The best soil for new borders and replenishing old ones, and which should now be got ready, is the top spit of a rich pasture, cut to a depth of 4 or 5 inches. If inclined to clay, mix with it a good percentage of crushed bones, charcoal, burnt ashes, and mortar rubbish; but if light, crushed bones and chalk only. Vegetable mould or farmyard manure should not be mixed with the soil, but applied as a mulching to the borders afterwards. In preparing borders keep in view the fact that Vines require an immense amount of water, but at the same time are impatient of stagnant moisture at the roots; hence drains and drainage should have first attention. Planting may be done at any time if the Vines are ready to put in, but the best season is from April to June. Vines intended for planting at that season ought now to be cut back to three eyes or joints, and placed in a cool Peach-house or pit to start, and when the new shoots are 2 or 3 inches long shaken entirely out and planted in permanent borders. Plants from eyes of this year are now by many preferred to "cut backs" for permanent planting, and now is the time to propagate for that purpose. If late houses of Grapes are not yet cleared of fruit they should be forthwith—if the future well-being of the Vines is studied. Prune and

dress as directed for the early crops, and let the Vines have a short season of rest by keeping the houses as cool as possible. Disbud in the succession houses, and so soon as the bunches can be seen raise the temperature 5°, as, if the wood has not been thoroughly ripened, the probabilities are that many of the bunches may turn out to be little else than tendrils, and a high dry temperature at this stage will greatly improve the prospects of a crop. Should any Vines break irregularly, or manifest a disposition to break at the top only, sling them in a horizontal position till all the shoots are a couple of inches long. Where the Grapes are thinned, approaching the stoning period, examine the inside borders, and if at all dry they should be well soaked with water, at a temperature of 80°. Air should be given regularly, less or more, according to the weather, but avoid cold draughts, or rust is certain to put in an appearance. Handling, rubbing with the hair, and sulphuring hot pipes are frequently accused of doing what nothing but a cold current of air coming in direct contact with the young Grapes has caused. Thus far we are having a heavy rainfall, and early vineries that have outside borders would be better if covered with shutters, slates, tiles, or tarpauling—anything to throw off the rain and prevent the border getting chilly. Look frequently over Grapes still hanging, as well as those in rooms, as one mouldy berry soon destroys a whole bunch. The more equable the temperature the better they will keep, and, provided frost is just excluded and the room kept dry, fire-heat should not be given. *W. Wildsmith.*

Figs.—The earliest forced Figs in pots, if in bottom heat, will now require regular attention as to syringing them and waterings at the root. With increased sun-heat the ventilation both top and bottom may be given when the day temperature reaches 70°. The night temperature may still range from 55° to 65°. If a second batch in pots is required the plants may be now started, and they will make a succession to the earliest forced. They should have the same course of treatment as regards temperature. The house where the Figs are permanently planted out, if their forcing commenced in the middle of January, will now be making growths in the shoots, which will require pinching at the fifth or sixth joints of the terminal ones. The trees must be syringed twice every day in favourable weather, and the air of the house kept as moist and congenial as possible. Attend to the tying in of the young shoots to the trellis as they advance, and thin out where too crowded. *W. Tillery, Welbeck.*

The Orchard-house.—The season has now arrived when it is necessary to prune all such trees as were not pruned in autumn or early winter. On account of the *Peach*, the *Nectarine*, the *Cherry*, and the *Plum* being so liable to the attacks of aphides and red spider, &c., it is always advisable to prune them soon after the leaves fall, and to dress them immediately with some approved insecticide; while it may be as well to defer the pruning of the *Apricot* and the *Pear* until about the present time. But as soon as this has been done, such trees, if in pots, should be at once placed in their proper position, or where they are intended to remain during the season, or until they have ripened their fruit. This position should, if possible, be in the lightest part of the structure, and where a thorough ventilation can be secured for them at all times, but more particularly during the period when the trees are in bloom, as without this necessary condition a crop of Apricots under glass is exceedingly uncertain. The *Apricot*, when in bloom, should be kept dry and free from drip; and if this condition can be secured, then little apprehension need be felt of the blossoms suffering from the effects of cold winds. The trees are also fortunate in being, to some extent, exempted from the attacks of aphis and red spider, so troublesome and injurious to most other kinds of fruit trees; so that winter dressing and continuous syringing are not in their case necessary. *Cherry trees*, in pots, should likewise be placed in as light and airy a position as possible, as, like the Apricot, there is sometimes a difficulty in getting them to set their fruit freely under glass; and, unlike the Apricot, they have the great disadvantage of being exceedingly liable to the attacks of insects, particularly to that of the black or cherry fly; so that winter dressing is always advisable in their case. The Cherry under glass should in most respects receive treatment similar to the Apricot, with the exception of its being benefited by a somewhat heavier soil, which can be secured by allowing a portion of well-pulverised clay, or what is known as the runnings of a clay pit, to form a considerable ingredient in the compost used to form the border in which they are planted, or of the soil in which they are potted. All kinds of Cherries appear to succeed well in orchard-houses, and for the sake of variety it is advisable to grow a good many sorts, as nearly all the varieties are well worthy of cultivation; the *May Duke* and the different varieties of the *Bigarreau* should, in any case, be well represented in every collection. In placing potted trees in their summer position, it is of importance that the pots should stand perfectly level; and if it be desired to confine the roots of the trees to the pots—which, unless the pots are very full of roots, it is advisable to do for some time at least—let each pot be raised on three bricks. This will prevent the roots entering the border, and allow the superfluous water to pass freely away from them. Let the mulching also be removed from borders where trees are planted out. The soil of such borders will generally be found to be somewhat firm and dry, and therefore in order to allow the water to penetrate freely into the soil, let the surface be slightly pricked, and loosened with a fork, to a depth not exceeding one or two inches; then let a thorough watering at once be given to the planted-out trees, as well as to those in pots. In cases where the latter may be found to be very dry, this watering should be repeated until the soil becomes thoroughly saturated. Regulate the ventilation in accordance with the state of the weather, and when frost is not apprehended the ventilator may be kept open by night as well as by day. *P. Grieve, Culford, Bury St. Edmunds.*

HARDY FRUIT GARDEN.

Where *Peaches* and *Nectarines* have been loosened from the walls, as before recommended, it will shortly be necessary to dress the trees with a composition to prevent blight; this, applied as late as possible without injury to the swelling buds, is a great preventive during the summer growth. The composition used here, and which is generally sufficient to prevent all attacks, is 1 lb. soft soap, 8 oz. sulphur, and 1 pint of strong tobacco-water, added to 1 gallon of water, and kept gently boiling for twenty minutes, so as thoroughly to dissolve and mix the ingredients. When boiled, add as much finely-sifted quicklime and soot as will bring the mixture to the consistency of thick paint, in which state, when cool, it should be applied over young and old wood. The trees should be nailed in or tied, where wires are used, as fast as possible after the washing is done, so that all may be in readiness for covering to protect the bloom as it begins to open. *Cherries*, also, are much benefited if treated in a similar manner. Morellos in particular are so subject to attacks of aphis during the season of growth that the extra time and attention now given are more than compensated for in preserving the trees in good health during the summer. The planting of wall trees to replace any it is intended to remove should now be brought to a close as soon as possible. The same also applies to dwarf trees or bushes. Where grafting is contemplated scions of the required kinds may now be taken off and the ends placed in the ground in a shaded situation, so as to retard the action of the sap in these until the stocks to be grafted have made a start. If for young stocks the grafts may be the base of the last season's shoots, but for older trees headed down scions of two or three years old wood are preferable. *W. Cox.*

KITCHEN GARDEN.

The soil in gardens which have been in existence for a number of years becomes, under proper cultivation and management, friable and workable within a very short period after the prevalence of even most adverse conditions; but even in these and all other cases it is by no means prudent, for the sake of advancing such matters as sowing seeds or planting crops, to proceed with them unless the soil is in a suitable state for the purpose. The uncertain and variable nature of our climate at this season often impedes or delays such operations considerably, and thereby renders prompt action essential under existing favourable circumstances; no delay should, therefore, be permitted in having the plots of ground in readiness where *Onion*, *Carrot*, and *Parsnip* seeds are to be put in, the sowing of which should not now necessarily be delayed beyond suitable occasions for the purpose, which happen generally in every establishment. These roots are required in quantity nearly the whole year, and therefore good breadths will be required to give a supply. In sowing, drills are much to be preferred for these and all other kitchen garden crops to which they can be applied, as being more economical in labour than otherwise, and in tending to give effect to uniformity and regularity in crops, which should in every well-managed garden be of the utmost consideration. In gardens such as those referred to above, seeds of most kinds require to be firmly embedded in the soil. In the case of Onions it cannot well be put in too solid. The ground should be well trodden down before the drills are made, and it should be repeated again after the seed is raked in. *Carrots* and *Parsnips* also will do better when the soil about them is moderately firm. Onion drills should be 12 inches asunder, and the Early Horn section of Carrots about the same distance, long varieties 3 inches more, and Parsnips 18 inches apart. There is no advantage in having plants too thickly placed. As usual, Brussels Sprouts and Cottagers' Kale have this season withstood the severity of the weather better than other kinds of winter Greens. This practical fact should serve as a guide as to what may be depended on in this way for another similar season, and as plants of these varieties cannot be got too large, the best attention to them is worthily bestowed. Make a sowing of these for general requirements at any time, if the soil is suitable, in a place with every advantage of sunshine, air, &c. Sow also with these other sorts of winter stuff, and *Broccoli* for autumn use, and for spring also, where the soil is poor and exposed, the main sowings for highly cultivated places being reserved until April and May. *Leeks* should also be sown for the general crop, and a good row or more of *Parsley*. To render these seeds secure from the attacks of birds, they should be covered with netting, as otherwise a few goldfinches would be the means of bringing reproach on the seedsman's character most unjustifiably. When the plants are up, dust them occasionally when damp with wood-ashes, with a slight admixture of soot, to prevent the attacks of fly. Plantings of *Jerusalem Artichokes*, *Shallots*, *Garlic*, *Onions*, for scallions and for seed should be made. Allow the former from 2 to 3 feet between the rows, and 18 inches between the sets, which should be planted the same depth as Potatos. The growth of these deserves better attention than is frequently accorded to them, considering their value as esculents. Autumn-sown *Onions* and *Lettuce*, which have been wintered in seed-beds or otherwise, should be transplanted into rich soil; and sow successional crops of *Peas* and *Broad Beans* on open quarters. Annual plantings of *Mint* should be made at about this time into well-enriched soil in a rather sheltered situation; by so doing a good supply can be obtained much earlier than otherwise.

Forcing Department.—Keep the lights entirely off *Cauliflower* plants in frames whenever the temperature is above the freezing point, and apply the same treatment to *Peas* and *Beans* which are sown in boxes for transplanting. When fine, freely ventilate early-sown *Radishes*, *Carrots*, and *Potatos*. Sow *Mustard* and *Cress* as often as necessary to maintain a supply. Pot off singly into 60 pots as soon as they are ready plants of recently-sown *Tomatos*, *Capsicums*, and *Celery*; or Celery can be pricked out in frames if preferred. Keep them near the glass in a house with a temperature of 60° or 65°. Continue to maintain the supply of *Rhubarb*, *Seakale*, and *Asparagus*. Reserve the roots of Rhubarb for transplanting. When the crop is gathered, they should be laid in for that purpose until they again show indications of growth. *G. T. Miles, Wycombe Abbey.*

Answers to Correspondents.

Substitute for Grass in Shady Lawns (Qy. 37, p. 184): If "Lux" will try Spergula pilifera he will find a substitute for grass. I have found it grow freely where the former would not live. I would not advise planting the same if there are gravel walks near, for it then becomes a pest on account of its free seeding properties. *W. S.*

Bee-hives: *Subscriber.* Write to Messrs. Neighbour, of Regent Street, or Mr. Petitt, of Dover.

Bougainvillea glabra: *G. B., Acton.* There is in existence a bad variety of Bougainvillea, unfortunately so much like in appearance to the free-flowering glabra that a comparison of the leaves and young shoots fails to show any difference. We have known it grown for years without showing a single flower. It is possible you may have got this variety; if such is not the case, we cannot assign any cause for your plant not blooming; for, of all stove plants grown, it is amongst the very freest. A plant started in heat, from a dry, dormant state, will, if managed as directed by Mr. Baines in the Garden Operations, be a complete sheet of bloom in ten or twelve weeks, according to the temperature kept up; and, if allowed to remain in the stove, it will be again sheeted over with bloom in a similar length of time. One principal thing to be observed is, it must never be allowed to want for water. If allowed to flag whilst in active growth, and when the blooming shoots are in course of formation, it will make them stop at the points, either preventing its blooming, or causing the blooms to come in very small numbers.

Insects: *W. A. C.* The Beech blight, Lachnus fagi, closely allied to the American blight, Lachnus lanigera, or Eriosoma aphis. Dress the affected parts with paraffin or train oil.

Names of Fruits: *J. F. C. Apple*, Wheeler's Russet.

Names of Plants: *J. S., Warwick.* 2, Ilex Aquifolium Lawsoniana; 4, I. A. argentea angustifolia; 6, I. A. argentea marginata.—*R. H. G.* 1, Lastrea dilatata tanacetifolia; 2, Lastrea spinulosa—very characteristic; 3, L. dilatata micromera. *Index Filicum* is published only as far as No. 20, but we believe it will be resumed shortly.—*W. H.* 1, Selaginella viticulosa; 2, S. Galeottei; 3, S. erythropus; 4, S. Martensii.

Orchard House Trees: *F. S.* 1, Want of a proper supply of water last autumn is probably the cause of the blossoms dropping off. The soil in which such trees grow must always be kept more or less moist, according to their requirements. 2, The English edition of Du Breuil's *Modern Peach Pruner.*

Peaches on Back Wall of Vinery: *A. T. D.*

Your Peach trees are too far from the glass and the sun's influence ever to succeed, and the Vines, being grown overhead, so shades them that the wood cannot ripen properly or fruit be produced. Peaches, to succeed well, must be grown fully exposed to the direct influence of the sun.

PINE-APPLE BLACK AT THE CORE: *West End*. Your statement that you are unable to keep the heat up as you would like in winter, accounts for the fruit going black at the core, and rotting.

POTATO: *John Fryer*. The Potato was covered with the Copper-web fungus (Rhizoctonium).

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CATALOGUES RECEIVED.—James Hunter, Hume & Co. (Bristol), Seed List for 1875.—George Yates (29, Little Underbank, Stockport), Descriptive Catalogue of Select Vegetable and Flower Seeds.—Thos. S. Ware (Hale Farm Nurseries, Tottenham, London), Illustrated Catalogue of New and Rare Hardy Perennials.—John Harrison (North of England Rose Nurseries, Darlington), Descriptive Seed Catalogue for 1875.—Austin & M'Aslan (16, Buchanan Street, Glasgow), Descriptive Catalogue of Vegetable and Flower Seeds, Garden Implements, &c.—R. B. Matthews (65 and 67, Victoria Street, Belfast), Catalogue of Seed and Nursery Stock, with Cultural Guide to the Kitchen and Flower Gardens, the Farm, and the Market Garden.—Charles Young (Balham Hill, and Upper Tooting Park, Surrey, S.W.), Catalogue of Seeds, General Nursery Stock, Garden Requisites, &c.—E. H. Krelage & Son (Haarlem, Holland), Hortus Krelageanus; a General Descriptive and Illustrated Catalogue.—Miller & Sievers (No. 27, Post Street, San Francisco), General Catalogue of New and Rare Ornamental and Flowering Plants, Bulbs, Seeds, &c.—Smith & Simon (36 and 38, Howard Street, St. Enoch Square, Glasgow), Cultural Guide and Descriptive Seed Catalogue.—Hovey & Co. (53, North Market Street, Boston, Mass.), Illustrated Guide and Seed Catalogue for 1875.

COMMUNICATIONS RECEIVED.—B. S. W.—T. W. B.—J. C.—Araucaria.—G. C.—A. D. T.—D. T. F.—W. T. D.—J. D. H.—W. B.—J. L.—J. T. B.—H. T.—W. T. (Delépine aîné).—C. D. S.—J. K.—J. F.—E. O. M.—A. Bruchmüller.—Col. Puckle.—J. D.

DIED, on Sunday, the 7th inst., at Enfield, Middlesex, BENJAMIN FIELDERS, aged 82 years.

Markets.

COVENT GARDEN, February 18.

The markets generally are very inactive, the supply of ordinary produce being ample both for home and provincial demands. A few inquiries have been made for first quality Oranges, owing to the non-arrival of any cargoes from St. Michael's during the last ten days. Some very fair samples of Easter Beurré from California are offered at prices varying from 4*s.* to 8*s.* per dozen. *Thos. Taylor, Wholesale Apple Market.*

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, per ½-sieve	1 0	1 6	Melons, each	..	..
Chestnuts, per bush.	10 0	20 0	Nuts, Cob, p. lb.	.. 1 6	2 0
Grapes, English, p.lb.	4 0	10 0	Oranges, p. 100	.. 8 0	12 0
— Muscats, do.	.. 6 0	10 0	Pears, p. doz.	.. 4 0	8 0
Lemons, per 100	.. 8 0	12 0	Pine-apples, p. lb.	.. 3 0	6 0
Medlars, per doz.	..	....	Walnuts, p. bush.	.. 16 0	..

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, Fr., each	0 8	..	Horse Radish, p. bun.	3 0	5 0
Asparagus, English, per bundle	.. 12 0	15 0	Leeks, per bunch	.. 0 2	0 4
— French, p. bund.	2 0	..	Lettuces, per doz.	.. 1 6	..
Beans, French, p. 100	6 0	..	Mushrooms, per pott.	1 0	2 0
Beet, per doz.	.. 1 0	2 0	Onions, young, bun.	0 4	0 6
Broccoli, p. bundle	.. 0 9	1 6	Parsley, per bunch	.. 0 4	0 6
Brus. Sprts., p. bush.	6 0	..	Parsnips, p. doz.	.. 0 9	1 0
Cabbages, per doz.	.. 1 0	2 0	Peas, per quart	.. 8 0	..
Carrots, p. bundle	.. 0 6	0 9	Radishes, per bunch	0 2	0 4
Cauliflowers, per doz.	2 0	6 0	— black, Turnip, do.	.. —	0 6
Celery, per bundle	.. 1 6	2 0	Seakale, per bundle	1 6	2 0
Cucumbers, each	.. 2 0	4 0	Shallots, per lb.	.. 0 3	..
Endive, per doz.	.. 1 0	2 0	Salsify, per bundle	.. 1 6	..
Herbs, per bunch	.. 0 2	0 4	Tomatos, per doz.	.. 1 0	3 0
Potatos:—Early Shaws, 110*s.*; Early Myatt's 140*s.* · Early Regents, 120*s.*; and Early Dons, 120*s* per ton.			Turnips, per bundle	0 6	0 0

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Azaleas, per dozen	.30 0	50 0	Heaths, in var., doz.	12 0	30 0
Begonias, do.	.. 6 0	12 0	Hyacinths, per doz.	4 0	12 0
Bouvardias, do.	.. 9 0	18 0	Lily of the Valley, 12 sprays	.. 3 0	9 0
Cineraria, do.	.. 9 0	18 0	Mignonette, do.	.. 4 0	6 0
Cyperus, do.	.. 6 0	12 0	Myrtles .. do.	3 0	9 0
Deutzias, do.	.. 8 0	18 0	Pelargoniums, dble., per doz.	.. 6 0	12 0
Dracæna terminalis	12 0	30 0	— Scarlet, do.	.. 6 0	9 0
— viridis, per doz.	12 0	24 0	Primula sinensis, do.	4 0	8 0
Epiphyllums, each	.. 1 6	3 6	Solanums, do.	.. 6 0	18 0
Ficus elastica	.. 1 6	7 6			
Fuchsia, per doz.	.. 6 0	12 0			

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Azaleas, p. 12 sprays	0 6	2 0	Lily-of-the-Valley, 12 sprays	..	2 0 — 6 0
Camellias, 12 blooms	2 0	6 0	Mignonette, 12 bun.	4 0	6 0
Carnations, 12 blooms	2 0	4 0	Narcissus, per doz.	1 0	3 0
Cineraria, p. bunch	0 9	1 6	Pelargoniums, 12 spr.	1 6	3 0
Cyclamen, 12 blooms	0 3	0 6	— Zonal, do.	.. 0 9	1 6
Deutzia, per bunch	0 6	1 0	Primula, dbl., p. bun.	0 9	1 6
Epiphyllums, 12 bl.	1 0	2 0	— single, do.	.. 0 4	0 9
Eucharis, per doz.	.. 6 0	12 0	Roses, indoor, p. doz.	2 0	6 0
Euphorbia, 12 sprays	1 6	6 0	— French, do.	.. 2 0	3 6
French Lilac, p. bun.	3 0	7 6	Snowdrops, 12 bun.	1 6	6 0
Heliotropes, 12 sprays	0 6	1 0	Spiræa, 12 sprays	.. 2 0	4 0
Hyacinths, per spike	0 3	0 6	Stephanotis, 12 sprays	9 0	15 0
— Roman, per 12 spikes	..	1 0 — 4 0	Violets, per 12 bun.	.. 1 0	3 0

SEEDS.

LONDON: *Feb.* 19.—We have a good reasonable demand for most kinds of farm seeds. Red Clovers, both home-grown and foreign, move off freely at full prices. Choice qualities, on account of scarcity, are hardening in value. Some considerable quantity of Trefoil seed is now changing hands at a further improvement of £1 per ton. White Clovers keep steady. But little attention is now given to Alsike. Advices from France describe the stocks of Italian Rye-grass to be getting low. Perennial grasses are in fair request at the moderate rates now current. For Mustard and Rape seed prices keep very firm. Spring Tares are in brisk request at extreme values, supplies continuing limited. In Canary seed there has been less doing. White Millet is readily placed at enhanced currencies. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C.*

CORN.

At Mark Lane on Monday the market was flat, and a fresh fall of 1*s.* per qr. took place in Wheat, both English and foreign. The quality was certainly bad. Barley was almost neglected, and decidedly cheaper, when reserved for sale. Malt was dull, with a downward tendency. Oats were plentiful, and not easily disposable, even at a reduction of 9*d.* on the week. Maize was nominally unchanged in value. Beans were fully 1*s.* per qr. lower, but Peas were only a little weaker in some instances. Flour was depressed.—On Wednesday dulness again characterised trade, and quotations remained weak. Sales were difficult to close in either Wheat or Barley, even at a further reduction in price. Malt was almost unsaleable, while the demand for Oats was small, and principally confined to sound corn. Maize was offered on rather easier terms, and Beans, Peas, and flour were cheaper to sell.—Average prices of Corn for the week ending February 13:—Wheat, 41*s.* 11*d.*; barley, 44*s.* 5*d.*; oats, 29*s.* 6*d.* For the corresponding week last year—Wheat, 63*s.* 2*d.*; barley, 48*s.* 9*d.*; oats, 28*s.* 1*d.*

CATTLE.

At the Metropolitan market on Monday the number of beasts was considerably smaller than last week; trade was, however, very dull, and prices were not higher. There was scarcely any difference in the sheep trade; our top quotations were with difficulty realised. Calves were more plentiful, and quotations were lower. Quotations:—Beasts, 4*s.* to 5*s.*, and 5*s.* 8*d.* to 6*s.* 4*d.*; sheep, 5*s.* 4*d.* to 5*s.* 8*d.*, and 6*s.* 2*d.* to 6*s.* 10*d.*; calves, 4*s.* 8*d.* to 6*s.* 4*d.*; pigs, 4*s.* to 5*s.* 4*d.*—On Thursday trade in beasts was dull, and Monday's prices were not exceeded. In sheep there was little doing, and it was difficult to realise Monday's rates. Though choice calves were scarce, yet, the demand being limited, there was no advance in the quotations. Business very dull in milch cows.

HAY.

The report from Whitechapel market states that trade there was dull, and prices somewhat easier. The arrivals of fodder were fair. Prime Clover sold at from 100*s.* to 120*s.*; inferior ditto, 85*s.* to 95*s.*; prime meadow hay, 90*s.* to 112*s.*; inferior ditto, 55*s.* to 75*s.*; and straw, 33*s.* to 40*s.* per load. Cumberland Market prices:—Superior meadow hay, 112*s.* to 118*s.*; inferior, 84*s.* to 105*s.*; superior Clover, 115*s.* to 126*s.*; inferior, 95*s.* to 105*s.*; and straw, 40*s.* to 44*s.* per load.

POTATOS.

From the Borough and Spitalfields markets reports we learn that the arrivals of Potatos to these markets are good, and the trade dull at the following prices:—Flukes, 110*s.* to 130*s.* per ton; Victorias, 110*s.* to 130*s.*; Regents, 70*s.* to 100*s.*; Rocks, 60*s.* to 70*s.*—Last week's imports into London amounted to 7995 bags and 123 tons from Antwerp; 431 sacks and 734 tons from Dunkirk; 141 bags from Harlingen; 71 tons from Dahouet; 26 bags from Ostend; 112 tons from Rouen; 6 bags from Rotterdam; 100 sacks from Boulogne; and 534 bags from Ghent.

COALS.

In the market on Monday house coals fell 1*s.* per ton. The following were the quotations:—Hartleys: West, 21*s.* 9*d.*; Bebside West, 22*s.* 3*d.*; Carr's, 21*s.* 9*d.*; Hastings, 22*s.* 3*d.*; and West, 21*s.* 3*d.*; Weardale Screened, 17*s.* 6*d.*; Walls End—Hetton, 23*s.* 6*d.*; Hetton Lyons, 21*s.* 3*d.*; Hawthorn, 21*s.* 3*d.*; Lambton, 23*s.*; South Hetton, 23*s.* 6*d.*; Tunstall, 21*s.* 3*d.*; East Hartlepool, 23*s.* 3*d.*; and Tees, 23*s.* 3*d.*—On Wednesday there was a further reduction of 1*s.* per ton.

BOULTON & PAUL (LATE W. S. BOULTON & CO.), NORWICH,

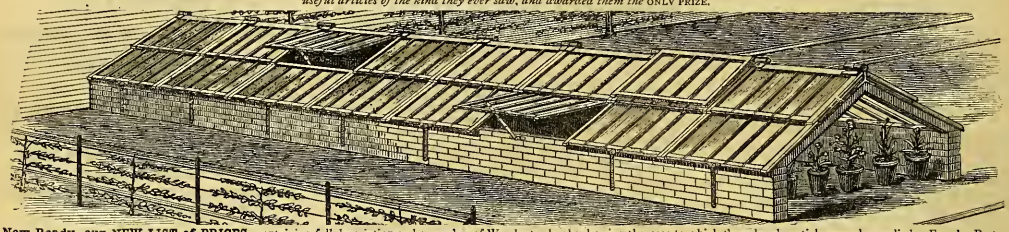
HORTICULTURAL BUILDERS AND HOT-WATER APPARATUS MAKERS.

Improved Steam-power Machinery for working wood enables us to supply first-class Horticultural Buildings of every description at very low prices. Only the best materials used. Houses designed to suit any situation. Estimates given Free. Gentlemen are respectfully invited to have price from us before ordering elsewhere. Ladies or Gentlemen requiring advice as to the Situation, Style, Dimensions, &c., of proposed Horticultural Buildings, waited upon in any part of England, Ireland, or Scotland.

Our NEW ILLUSTRATED CATALOGUE of HORTICULTURAL BUILDINGS, containing upwards of 60 Engravings of Conservatories, Greenhouses, Peach Houses, Forcing Houses, &c., Free by Post for 12 stamps.

BOULTON & PAUL'S PATENT UNIVERSAL PLANT PRESERVERS—GREAT IMPROVEMENTS for 1875.

The Judges at the Royal Horticultural Society's Great Meeting lately held at Birmingham, pronounced these to be by far the best and most useful articles of the kind they ever saw, and awarded them the ONLY PRIZE.



Now Ready, our NEW LIST of PRICES, containing full description and a number of Woodcuts clearly showing the uses to which these handy articles may be applied. Free by Post.

PATENT UNIVERSAL PORTABLE PLANT PRESERVERS and GROUND VINERIES.—Instead of having to remove or slide loose glass every time it is necessary to attend to the plants, we attach the glazed lights (21-oz.) with hinges to the frame of each light, thereby doing away with continual breakage of glass and loss of time. Two men can instantly remove a complete length, 12 feet by 3 feet wide; thus proving them to be really portable.

PATENT UNIVERSAL PLANT PRESERVERS, Large Sizes to Build on Brick Walls, for use as Span-roof Pits, suitable for Forcing, Propagating, Growing Cucumbers, Melons, and a variety of other things too numerous to mention. *Far superior to anything of the kind yet offered.*

OPINIONS OF THE PRESS.

GARDENERS' CHRONICLE, *February* 6, 1873.

The uses to which such frames can be put are fully recognised by practical gardeners, and if any notice can be taken of the great demand arising for such contrivances amongst amateurs, it would appear that they too are not ignorant of their great value.

FLORAL WORLD.

The Ground Vinery which has the greatest advantages is unquestionably that manufactured by W. S. Boulton & Co.

GARDENERS' MAGAZINE, *May* 25, 1872.

Considering their substantial character, portability, and the many ways in which they may be employed, we anticipate a very large demand when they become generally known.

THE GARDEN.

Every convenience is provided to save time in cases of removal, planting, watering, and giving air. The glass is firmly fixed and puttied—an essential point. They are complete and ready for use the moment they are received, &c.

MELON OR CUCUMBER FRAMES.

All sizes (glazed with 21-oz.) ready for immediate delivery.

Height at back, 24 inches; at front, 13 inches; sides, 1¼ inch thick; lights, 2 inches thick. All made of very best red deal. Painted three coats. Every pane of glass is nailed as well as puttied in. Each light is provided with an iron strengthening rod and handle.

Glazed with 21-ounce.

Cash Prices, carriage paid to any station in England when orders amount to 60s. and upwards.

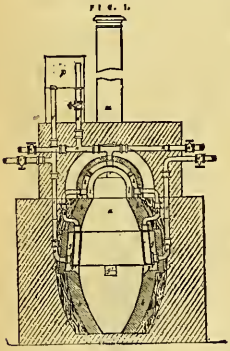
4 feet long by 6 feet wide, 1 light	..	£1	17	6
8 feet long by 6 feet wide, 2 lights	..	3	5	0
12 feet long by 6 feet wide, 3 lights	..	4	17	6
16 feet long by 6 feet wide, 4 lights	..	6	7	6
20 feet long by 6 feet wide, 5 lights	..	7	17	6
24 feet long by 6 feet wide, 6 lights	..	9	7	6

Two-thirds allowed for Packing Materials when returned free to our Works. Cash or reference respectfully requested with transmission of all first orders.

COWAN'S COMPENSATING SYSTEM OF HEATING.

WAUCHOPE & COWAN'S NEW AND ECONOMICAL SYSTEM OF MAKING GAS.

THE COWAN COMPENSATING HEATING COMPANY, LIMITED, having recently been offered a valuable Patent for the Manufacture of Gas, to be worked in combination with their Patents for Heating Horticultural and other Buildings, have found it necessary, so as to acquire and work such Patent, to form a new Company with larger powers; the old Company having been incorporated for the purpose of dealing with the Heating Patents only.



THE COWAN COMPENSATING HEATING COMPANY, LIMITED, will, therefore, be wound up and dissolved, and a new Company, called "THE COWAN PATENTS COMPANY, LIMITED," has been formed, and has taken over the entire business of the old Company. From this date the new Company will carry on the business of the old Company, with the addition of the New System of Making Gas—full particulars of which, with Illustrations, can be had on application.

Contracts entered into by the old Company will be carried out by the new one, and all its responsibilities fulfilled.

The Directors of the new Company have thought it advisable to change the Offices from Lothbury to 21, WHITEHALL PLACE, WESTMINSTER, S.W., where all communications should in future be addressed, and where full information concerning their Patent Systems of Heating and Gas Making can be obtained.

SPECIAL MEDALS WERE AWARDED AT MANCHESTER, 1873; BELFAST, 1874; BIRMINGHAM, 1874.

ILLUSTRATED PAMPHLETS SENT FREE ON APPLICATION.

All Communications in future to be addressed—

21, WHITEHALL PLACE, WESTMINSTER, S.W.

WANTED, a WORKING FOREMAN acquainted with the general routine of In and Outdoor Nursery Work. Must have good references as to character and ability.—Apply, with references, &c., to WM. ABRAHAM, Fort Prospect Nursery, Limerick.

WANTED, a MAN, who can Propagate and Grow Clematis for Exhibition—he would have the charge of a unique collection. The position would be permanent. He would have the honour of bringing out a valuable lot of new ones, and he would be required in about three weeks.—State, at once, wages, age, and references, to CHARLES NOBLE, Bagshot, Surrey.

Propagator.

DOWNIE AND LAIRD, West Coates Nurseries, Edinburgh, are open to ENGAGE a good PROPAGATOR of Soft and Hard-wooded Plants.—State age, salary, and references.

WANTED, an INVOICE CLERK: must write well, and be quick at Accounts.—Apply, stating terms, &c., to CRANSTON AND MAYOS, Nurseries, King's Acre, near Hereford.

WANTED, a good active married MAN, without family, for the Kitchen Garden. Good reference required.—Wages, with cottage, &c., on application to the HEAD GARDENER, Warnham Court, Horsham, Sussex.

WANTED, a YOUTH, for the Seed Trade, in London.—If not been out before, must give the first three months of his services.—Apply to H., *Gardeners' Chronicle* Office, W.C.

To Bouquetists, &c.

WANTED, SEVERAL young LADIES, in a West-End Florists' Establishment. Must be First-class Hands, and accustomed to the Cut Flower Trade.—Messrs. GREEN AND CO., 8, Victoria Buildings, Victoria Street, Belgravia, W.

WANTED, a BOY of fourteen or fifteen, to live in the House, Assist Indoors, and Work in the Garden under a Gardener.—Mrs. JEBB, Walton Lodge, Chesterfield, Derbyshire.

WANT PLACES.

To Gardeners in Want of Situations,

WHOSE CHARACTERS WILL BEAR STRICT INVESTIGATION.

THE PINE-APPLE NURSERY COMPANY devote special attention to this important matter—proper Men to suitable Situations. For a GARDENER, or for a SITUATION, please send full particulars to Mr. JOHN BESTER, the Pine-Apple Nursery Company, Maida Vale, London, W.

B. S. WILLIAMS, having at the present time several very excellent GARDENERS upon his Register, is desirous of placing them in Situations where great experience and trust are required. B. S. W. would at the same time beg to intimate that when a Gardener is applied for that the filling of the situation should be left with him, as that would prevent unnecessary correspondence and delay.—Victoria and Paradise Nurseries, Upper Holloway, London, N.

Head Gardeners.

JOHN LAING can at present recommend with every confidence several energetic and practical Men, of tested ability and first-rate character. Ladies and Gentlemen in WANT of GARDENERS and BAILIFFS, or GARDENERS for First-rate Establishments or Single-hand situations, can be suited, and have full particulars by applying at Stanstead Park and Rutland Park Nurseries, Forest Hill, London, S.E.

GARDENER (HEAD), where three or more are kept.—Age 40, married, one child (age 10); well up in all branches of the profession, can also undertake the Management of Land and Stock. Seventeen years in present place. Leaving through death.—J. W. LANGLANDS, King's Road, Clapham Park, Surrey, S.W.

GARDENER (HEAD), where two or more are kept.—Thoroughly understands Fruit, Flower, and Kitchen Gardening, and Stove and Greenhouse Plants. Seven years' first-class character.—F. F., G. Gray, Florist, 13, Shrubland Grove, Dalston, N.

GARDENER (HEAD).—Age 34, married; has a thorough practical knowledge of the Growing of all kinds of Fruits, Flowers, and Vegetables. Good testimonials.—A. B., Pine-apple Nursery, Maida Vale, London, W.

GARDENER (HEAD).—Age 28; good experience in Forcing, and Kitchen and Flower Gardening. Will be at liberty in a month, and can be well recommended.—L. J., Post Office, Bishopsbourne, Canterbury.

GARDENER (HEAD), age 32, married, one child.—G. BRUNT, Gardener to the late and present Charles Dickens, Esq., is open to an engagement.—Gadshill Place, Higham, Rochester, Kent.

GARDENER (HEAD), age 38, married.—J. SPAVEN, four years and a half at the Royal Kitchen Garden, Hampton Court, S.W., offers his services to any Nobleman or Gentleman requiring a trustworthy and efficient servant.—8, Queen's Road, Teddington, S.W.

GARDENER (HEAD).—Married; thoroughly understands the profession in all its branches. Eleven years' experience. Excellent testimonials from present and previous employers.—W. T., Holmbury Gardens, Wotton, Dorking.

GARDENER (HEAD).—Married, three children; has a thorough knowledge of the profession in all branches, Early and Late Forcing of Flowers, Fruit, and Vegetables. Four and a half years' good character from last employer.—4, Plough Cottages, Little Ealing, Middlesex.

GARDENER (HEAD), age 30, single.—The Advertiser will give £5 to any one instrumental in obtaining for him a situation, with wages from 30s. per week.—For further particulars apply to J. C., 1, Whittington Place, Upper Holloway, London, N.

GARDENER (HEAD).—J. BEATTIE, The Gardens, Moat Mount, Hendon, N.W., can highly recommend a young Man (age 24, married), in the above capacity, to any Lady or Gentleman requiring his services, and will be pleased to supply unexceptionable testimonials.—W. BIRCH, The Gardens, Moat Mount, Highwood Hill, Hendon, N.W.

GARDENER (HEAD), to any Nobleman or Gentleman.—Age 28, single; has had fourteen years' experience under first-rate Gardeners; well up in Forcing and Gardening generally. First-class references.—W. S., 18, Pomona Place, King's Road, Fulham, S.W.

GARDENER (HEAD).—No incumbrance; has a practical knowledge of Pines, Vines, Peaches, Melons, &c., Stove and Greenhouse Plants, Kitchen and Flower Gardening, also the Forcing of Fruits, Flowers, and Vegetables. Unexceptionable references.—T. MOLONY, Messrs. W. Rollisson & Sons' Nurseries, Tooting, Surrey.

GARDENER (HEAD), to any Nobleman or Gentleman.—The Dowager Lady SONDES will be very glad to highly recommend WILLIAM SMYTHE, who has had charge of the Gardens at Elmham Hall for nineteen years. He is leaving through the death of the late Lord Sondes, and will be disengaged early in April.—W. SMYTHE, The Gardens, Elmham Hall, East Dereham.

GARDENER (HEAD), age 29, married.—A GENTLEMAN can highly recommend his Gardener, who has a thorough knowledge of the profession in every branch. Has been assistant Orchid grower in a large establishment, also a successful exhibitor. Excellent testimonials and references from previous employers.—N. GERMAN, 70, Duke Street, Whitehaven.

GARDENER (HEAD).—Middle-aged, no incumbrance; can Superintend Land and Stock, has been Head Gardener for sixteen years, and can be highly recommended by late and previous employers. Wife can take Charge of House in absence of family.—S. P., 2, Pelican Terrace, Newbury, Berks.

GARDENER (HEAD), age 34, married.—JOHN STEPHERD, late Head Gardener to James Watson, Esq., Warby Hall, Birmingham, is at liberty to engage with any Nobleman or Gentleman requiring the services of a thoroughly practical Man in all branches of the profession. Good references from past employers.—11, Wellington Terrace, Parker Street, Edgbaston, Birmingham.

GARDENER (HEAD, WORKING).—Age 34, married, two children; has a thorough knowledge of the profession in all its branches. First-class testimonials.—J. A., Mr. Dedman, Sundridge Park Gardens, Bromley, Kent.

GARDENER (HEAD, WORKING).—Age 30; understands Forcing Vines, Stove and Greenhouse Plants, and the general routine of Flower and Kitchen Gardening. Good references.—R. T., 10, Swain's Lane, Highgate, N.

GARDENER (HEAD, WORKING), age 27, married, GEORGE MARRISON is now open to an engagement. Can be well recommended.—State wages given and particulars, G. M., North Carlton, Worksop.

GARDENER (HEAD, WORKING).—Age 36; thoroughly understands Early and Late Forcing, also Stove and Greenhouse Plants, and Laying-out New Grounds. Can be highly recommended by present employer.—G. P., Bishop Wood Road, Highgate, N.

GARDENER (HEAD, WORKING).—Age 27, married, one child; well versed in Early and Late Forcing, Flower and Kitchen Gardening. Six years' good character. Terms £65, with cottage and firing.—J. B., Great Doods, Reigate.

GARDENER (HEAD, WORKING).—Age 33, married; thoroughly understands the profession in all its branches. No objection to any part of Great Britain. Has been twelvemonths in Paris. First-class references.—HORTUS, Post Office, Quorndon, Loughborough.

GARDENER (HEAD, WORKING).—Age 29, married, no family; thoroughly understands Stove and Greenhouse, Vines, Forcing, and Flower and Kitchen Gardening. Fifteen years' good experience. Good character.—G. L., Rusthall Cottage, Rusthall, Tunbridge Wells.

GARDENER (HEAD, WORKING).—Age 25, single; understands the Management of Vines, Peaches, Melons, Cucumbers, Stove and Greenhouse Plants, &c., under Glass, also Flower, Fruit, and Kitchen Gardening. Eleven years' experience. Good character.—G. W., 1, High Street, Epsom.

GARDENER.—ALFRED SQUIRES, ten years Gardener to J. L. and R. L. H. Phipps, Esqs., Leighton Park, Westbury, Wilts, is open to engage with any Nobleman or Gentleman requiring the services of a thoroughly practical Man. Well experienced in the Growth and Management of Orchids, Stove and Greenhouse Plants, the Early and Late Forcing of Grapes, Peaches, Melons, Cucumbers, &c.; is also a practical Kitchen Gardener, and accustomed to extensive Pleasure Grounds and Flower Gardens. Undeniable character from the Gentleman he is now leaving.

GARDENER (under a Foreman), where six or more are kept.—State wages, &c., to FOREMAN, Mr. Shaw, Seed Establishment, Newbury.

GARDENER (SINGLE-HANDED), or where one or two are kept.—Age 36, married; understands the profession in all its branches. Five years' good reference from present employer.—JOSEPH ELDRED, The Vews, Benges, Hertford.

GARDENER (SECOND).—Age 24; has had good experience. Good character. Can be well recommended.—C. W., Post Office, Hayes, Kent.

GARDENER (SECOND).—Age 24, single. Can have good character and be well recommended.—B. B., Lanelay Gardens, Llantrissant, Glamorganshire.

GARDENER (UNDER).—Age 23. Two years in last situation. Good character.—T. W., 5, Park Road, Chislehurst.

GARDENER (UNDER), in a Nobleman's or Gentleman's Garden, to Work in the Houses.—Age 22. Good references.—State wages given, G. A., 2, Westbourne Place, Harrow Road, W.

GARDENER (UNDER), in a good Establishment.—Age 23, single; used to Vines, Fruit, and Flowers. Good character.—T. J., Besselsleigh, Abingdon, Berks

GARDENER (UNDER), in a Nobleman's or Gentleman's Establishment, where he may gain more experience in House-work. Three years' good reference.—H. C., Post Office, Hever, near Edenbridge, Kent.

FOREMAN, or good SECOND GARDENER, in a Gentleman's Garden.—Age 24; thoroughly understands the Houses and Kitchen Garden. Nine years' good practical experience.—A. HOARE, Sundridge Park, Bromley Kent.

FOREMAN, in a Nobleman's or Gentleman's Establishment.—Age 24. Seven years' experience. Good references from present and previous employers. For testimonials apply to Mr. YOUNG, Wrotham Park, Barnet, N.

FOREMAN (OUTDOOR).—Well up in the Propagation of Conifers, Rhododendrons, Ornamental Trees and Shrubs, Roses, Fruit Trees, Climbers, &c.—C., Upton Nurseries, Chester.

FOREMAN, or SALESMAN, to a Market Gardener.—W. C. D., Post Office, Ealing, Middlesex.

To the London Seed Trade.

TRAVELLER, MANAGER, or AGENT.—Thoroughly acquainted with the Wholesale Trade. Good references. Eighteen years' experience, and well-known on the English, Scotch, and Irish ground.—A. G., *Gardeners' Chronicle* Office, W.C.

GENERAL PLANT GROWER, in a Nursery.—Young Man.—J. M., Nurseries, Paignton.

FORESTER, WOOD RANGER, or PARK KEEPER.—Age 35, married. Five years in present situation. Satisfactory references.—JAMES BELL, St. Michael, Penkivel Probus, Cornwall.

SHOPMAN.—Well experienced in all branches, also in Plants; very quick, and well up at Retail Counter.—W. D., Hurst & Son's, 6, Leadenhall Street, London, E.C.

FARM BAILIFF.—A thorough practical Man; twenty years' experience in Breeding, Feeding, Buying and Selling of Stock, Cultivation of all sorts of Soils, Draining, &c., and Keeping of Accounts. First-class references.—A. B., Messrs. Francis & Arthur Dickson & Sons, 106, Eastgate Street, Chester.

COWMAN or GARDEN LABOURER.—Age 30, married, no incumbrance. Wife to do the Washing for the Family. Nearly two years' good character.—R. T., The Cottage, The Elms, Upton, Essex.

To Landed Proprietors and Nurserymen.

PAINTER, GLAZIER, and rough CARPENTER.—Married; willing to make himself generally useful. Good reference.—E. NASON, 5, Rupert Cottages, Rupert Street, Reading.

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Agent for Manchester—JOHN HEYWOOD. Agents for Scotland—Messrs. J. MENZIES & Co., Edinburgh and Glasgow.

THE

GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

No. 61.—Vol. III. { New Series. } SATURDAY, FEBRUARY 27, 1875. { Registered at the General Post Office as a Newspaper. } Price 5d. Post Free, 5½d.

CONTENTS.

Important Notice to Foreign Subscribers.

FOREIGN SUBSCRIBERS are PARTICULARLY REQUESTED, *when sending Post Office Orders through the Post Office, to Advise the Publisher that they have done so.* *(Signed)*

W. RICHARDS, Publisher.

Post Office Orders should be made payable at the King Street Office, Covent Garden, London, W.C.

SALES BY AUCTION.

Periodical Sale of Poultry and Pigeons.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, March 2, at half-past 12 o'Clock precisely, DORKING and ROUEN DUCKS from Mr. W. Taylor, DARK BRAHMAS from Mr. Hepburn, COCHINS from Mr. Gilbert, and a variety of other choice POULTRY and PIGEONS from the yards and lofts of well-known breeders and exhibitors.

On view the morning of Sale, and Catalogues had.

Hardy Plants and Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, March 3, at half-past 12 o'Clock precisely, Dwarf Trained, Standard and Pyramid FRUIT TREES, CONIFERS, ROSES, LAURELS, RHODODENDRONS, Hardy HERBACEOUS PLANTS, Choice GLADIOLI for Spring Planting, RUSTIC GARDEN WORK, &c.

On view the morning of Sale, and Catalogues had.

Lilies.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, March 4, at half-past 12 o'Clock precisely, 10,000 BULBS of LILIUM AURATUM, just arrived from Japan in the finest possible condition, being quite as fresh and plump as English-grown bulbs; a quantity of LILIUM CANADENSE and L. CANADENSE RUBRUM, now very rare, L. BROWNII, L. CALIFORNICUM, L. WALLICHIANUM, L. PARYUM, and various other LILIES and HARDY ROOTS, and a quantity of CONIFEROUS TREE SEEDS, GLADIOLI, &c.

On view the morning of Sale, and Catalogues had.

Specimen Stove and Greenhouse Plants.

Formed by the late J. Philpot, Esq., of Stamford Hill, N.

MR. J. C. STEVENS has received instructions from Mr. Wheeler (gardener) to offer for SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., early in APRIL, the well-known COLLECTION of STOVE and GREENHOUSE PLANTS formed by the late J. Philpot, Esq., at Stamford Hill, consisting of Specimen Azaleas, Camellias, Ericas, Stephanotis, Clerodendrons, Bougainvilleas, Francisceas, &c.

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Further particulars in future Advertisements.

For Absolute Sale.

An IMPORTANT CONSIGNMENT of TREE FERNS, with straight, symmetrical, and handsome trunks, consisting of Cyathea Smithii, Cyathea dealbata, Dicksonia squarrosa, Alsophila australis; also 3500 LILIUM AURATUM, remarkably fine bulbs, and in splendid condition; a few ORCHIDS; some Standard and Dwarf ROSES; a quantity of valuable JAPANESE MANUFACTURES, including choice Inlaid Lacquered Cabinets, Table Trays, a fine assortment of Chinese and Japanese Vases, Porcelain, Garden Seats, Flower Pots, Rare Bronzes.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions to SELL the above by AUCTION, at the Mart, Tokenhouse Yard, E.C., on TUESDAY, March 2, at 12 o'Clock for half-past punctually.

On view the day prior and morning of Sale. Catalogues had at the Mart, and of the Auctioneers, Estate Agents, and Valuers, 98, Gracechurch Street, City, E.C., and Leytonstone, E.

City Auction Rooms, 38 & 39, Gracechurch Street, E.C.

IMPORTANT SALE of 500 very handsome English-grown CAMELLIAS and AZALEA INDICA, beautifully set with bloom-buds; a superb assortment of 500 Standard and Dwarf ROSES; selected FRUIT TREES, hardy CONIFERÆ, SHRUBS, and AMERICAN PLANTS, EPACRIS, ERICAS, CYCLAMENS, DAHLIAS, choice LILIUMS of sorts, &c.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at the City Auction Rooms, 38 and 39, Gracechurch Street, E.C., on THURSDAY, March 4, at 12 o'Clock precisely.

On view the morning of Sale. Catalogues at the Rooms, and of the Auctioneers and Valuers, 98, Gracechurch Street, E.C., and Leytonstone, E.

Kirkdale Nursery, Sydenham, Kent.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from Mr. George Selby to include the above valuable FREEHOLD PROPERTY in their NEXT PERIODICAL SALE, to be held at the Auction Mart, Tokenhouse Yard, on THURSDAY, March 18.

More detailed particulars will shortly be given.

Garston, near Liverpool, within a few minutes' walk of three Railway Stations. A compact and valuable FREEHOLD ESTATE, distinguished as Meredith's Vineyard, universally renowned as the first Vine and Grape producing establishment in the United Kingdom, first-class prizes having been obtained by the present occupier, Mr. Joseph Meredith, at all the leading shows in Europe.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, in one lot, on the Premises, as above, on TUESDAY, March 23, at half-past 1 for 2 o'Clock precisely, the valuable FREEHOLD ESTATE, known as Meredith's Vineyard, situate in Garston, near Liverpool, and comprising 6 acres 1 rood 32 perches of particularly eligible Building Land, with the attractive and substantial brick-built Residence standing thereon; likewise 30 Greenhouses, set in brickwork, and of the best construction, fitted with every modern appliance, and containing about 50,000 feet super of Glass and Woodwork, heated by about three miles of Hot-water Piping on the most approved principles; also several Brick Pits, numerous convenient Outbuildings, together with all the Stock planted out in the Houses, including the entire celebrated Collection of established Vines, at present in the highest state of perfection.

Cards to view, and printed particulars with Plans, may be had of Messrs. MOSER AND SONS, Solicitors, Kendal; of Messrs. GIBSON AND ROLLAND, Accountants, 10, South John Street, Liverpool; of Messrs. WHITLEY AND MADDOCK, Solicitors, Liverpool; and of the Auctioneers and Estate Agents, 98, Gracechurch Street, London, E.C.

Clapham, S.W.

UNRESERVED SALE of NURSERY STOCK, &c.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, without reserve, on the Premises, Muskett's Nursery, Clapham Rise, Clapham, Surrey, S.W., on MONDAY, March 15, at 12 for 12 o'Clock precisely, the whole of the valuable NURSERY STOCK, admirably adapted for Planting in the Suburbs, consisting of Chinese Arbor-Vitæ, Aucubas, 1500 fine Green Hollies, 2 to 4 feet, Common Laurels, Rhododendrons, &c.; also a number of Ornamental Trees, some selected Fruit Trees, and a fine assortment of Standard and Dwarf Roses, together with 25 handsome Specimen Azalea indica in fine variety.

On view the Saturday prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, 98, Gracechurch Street, E.C.

Feltham Hill Farm, Feltham, Middlesex.

To FARMERS, MARKET GARDENERS, and OTHERS.

MR. W. GOUGH is directed by the Executors of the late William Whitehall Adams, to SELL by AUCTION, at the Railway Hotel, Feltham, on WEDNESDAY, March 3, at 3 o'Clock P.M., the BENEFICIAL INTEREST in the LEASE of the above capital FARM, containing 90 acres 1 rood 29 poles of very superior land, in a high state of cultivation, of which about 79 acres are Arable, and the remainder Pasture, with excellent Farm House, good Yard, and all usual Farm Buildings, held for a term of twenty-one years from September 29, 1861, at the very low rent of £212 per annum.

May be viewed, and Particulars with Conditions of Sale had, seven days prior to the Auction, on the Premises; at the place of Sale; of WALTER BARKER, Esq., Solicitor, 32, South Bank, Regent's Park, London, N.W.; and of Mr. W. GOUGH, Auctioneer, Surveyor, and Land Agent, Sunbury, Middlesex.

N.B.—The Live and Dead Farming Stock, Household Furniture, &c., will be Sold by Auction, upon the Premises, on Wednesday, March 17, particulars of which will be duly advertised.

Guilford Nursery, Whitfield, near Dover.

IN LIQUIDATION.

To LANDOWNERS, BUILDERS, NURSERYMEN, and OTHERS. CLEARANCE SALE of about EIGHT ACRES of VALUABLE NURSERY STOCK.

MR. HENRY HAYWARD has received instructions from the Trustee of the Estate of Mr. C. H. Burbidge (in liquidation by arrangement) to SELL by AUCTION, without reserve, on the Premises, which are situate about one mile from the Kearsney Station on the London, Chatham, and Dover Railway, on MONDAY and TUESDAY, March 8 and 9, at 11 o'Clock punctually each day, the whole of the thriving NURSERY STOCK, in excellent condition for removal, comprising about 10,000 healthy Standard, Pyramid, and Trained Fruit Trees; 30,000 Forest Trees, of sorts; 20,000 thriving Evergreen and Deciduous Shrubs and Coniferæ of choice varieties, 1500 Ornamental Trees of the rarest species, quantity of Gooseberry and Currant Bushes, 8000 first-class Dwarf and Standard Roses, Manetti stocks, &c.

May be viewed prior to the Sale, and Catalogues had on the Premises; or of Messrs. WORSFOLD AND HAYWARD, Auctioneers and Surveyors, New Bridge, Dover; and 12 Queen Victoria Street, London, E.C.

County of Limerick, Ireland.

ISLANMORE, within 9 miles of Limerick, and five minutes' walk of Croom Station, on the Great Southern and Western Railway.

MR. M. HARTIGAN is favoured with instructions from the Executors of the late Robert Wanless Kelley, Esq., to offer for SALE by AUCTION, at Islanmore, on THURSDAY, March 18 prox., at 1 o'Clock, this truly MAGNIFICENT ESTATE, containing 511 acres 3 roods 38 poles, statute measure. The Mansion House, which stands in the centre of a beautifully timbered Park, is approached by two avenues with gates and handsome entrance lodges. It is picturesquely situate, overlooking the rivers Maigue and Commogue, which partly run through the estate. The house contains two halls, four reception rooms, eight bedrooms, and two dressing-rooms, servants' hall, with ample accommodation for servants, all in first-class order, and ready for immediate occupation. The out-offices are well built and in perfect repair, containing coachman's house with three rooms, stabling for twelve horses (six box stalls), three coach-houses, and a large range of lofts. The Pleasure Grounds are tastefully laid out, the walled-in gardens are well-stocked, and in perfect order, and include Conservatory, Melon pits, and Vineries in full bearing. The demesne is stocked with pheasant and other game, woodcock, and wild fowl in the season. There is good salmon and trout fishing on the Maigue and Commogue, and the kennel of the County Foxhounds is within 2 miles. The Farm Lands are of superior arable and pasturage quality, well drained, thoroughly fenced and watered; they are all in the owner's possession, and in the highest state of cultivation. The Farm Buildings are extensively, newly, and substantially built, and there are also on the farm a limekiln, limestone quarry, sand and gravel pits. Immediate possession can be given to the purchaser.

For all further particulars and Conditions of Sale applications to be made to Messrs. REEVES AND SONS, Solicitors, 17, Merrion Square East, Dublin; or to MICHAEL HARTIGAN, Auctioneer, 46, George Street, Limerick, Ireland, who will give Cards to view the Estate.

Stapleford, Cambridgeshire.

MESSRS. MANN AND RAVEN have received instructions to OFFER for SALE by Public AUCTION, upon the Premises, by direction of Richard Headly, Esq., on FRIDAY, March 19 next, at 12 o'Clock, all his valuable STOVE and GREENHOUSE PLANTS, most excellently grown, and clean and healthy. Among the Hard-wooded plants will be found beautiful specimens of Azaleas, Acacias, Camellias, Epacris, Heaths, Rhododendrons, &c. The Soft-wooded plants comprise Cinerarias, Calceolarias, Fancy and English Spotted Pelargoniums, Zonal Geraniums, Fuchsias, Chrysanthemums, Carnations, Picotees, Pinks, and Auriculas, &c.

The Auctioneers particularly call attention to the above Sale, as Mr. Headly is well known as a most successful amateur floral exhibitor, and the plants have all been selected with the greatest care and judgment by that gentleman.

Catalogues may be had of the Auctioneers, Messrs. MANN AND RAVEN, Hobson Street, Cambridge.

RODERICK NICHOLSON, ADVERTISING AGENT AND GENERAL COMMISSION AGENT, 112, Fleet Street, E.C.

Window Glass, Sheet Lead, Paints, &c.

THOMAS MILLINGTON AND CO., IMPORTERS AND MANUFACTURERS. New LIST of PRICES, very much reduced, on application.
87, Bishopsgate Street Without, E.C.

WILLIAM ROE, LANDSCAPE GARDENER, 42, Paternoster Row, St. Paul's, London, E.C., and Osborne Terrace, Lozells Road, Birmingham.
Designs prepared, the Work superintended if required, or Estimates given.

FOR IMMEDIATE DISPOSAL, in consequence of the ill-health of the Proprietor, an old-established NURSERY, SEED, and FLORIST TRADE, in the Midland counties. For particulars apply to
Mr. R. COOPER, 152, Fleet Street, London, E.C.

Freehold, 28 Miles S.W.

FOR SALE, a beautiful ESTATE of 240 Acres, with elegant Swiss Villa, and capital Stabling, gravelly soil, fine views, and extensive frontages. Free from Tithe and Land-tax; two-thirds on Mortgage. The Furniture may be taken at a valuation. A Plot of about 50 Acres, planted with fine Evergreens, Fruit, and other Trees would be Sold separately; also a Plot of 20 Acres. Apply to
W. TARRY, Bailiff, "Golden Farmer," Bagshot.

Victoria Colony, Kansas, U.S.—To Farmers and OTHERS.

TO BE SOLD, fine STOCK FARMS of 640 Acres and upwards, Freehold, from 10s. to 25s. per acre. Grass in its natural condition unsurpassed for feeding Sheep and Cattle. For PAMPHLET containing full particulars respecting this Property, apply to
ROBERT W. EDIS, Esq., F.S.A., 14, Fitzroy Square, London, W., Architect to the Estate.

BETTERIDGE'S PRIZE ASTERS. Seed direct from the Raiser.

DUKE of EDINBURGH, Crimson.	CANTAB, Light Blue.
GRANDE DUCHESS MARIE, Pink.	OXONIAN, Dark Blue.

The Above Collection 8s., post free.
SUTTON AND SONS, the Queen's Seedsmen, Reading.

BETTERIDGE'S PRIZE ASTERS. Seed direct from the Raiser.
Eighteen beautiful varieties 3s. 6d., post free, including a new and beautiful Crimson Variety, with pale guard-petals.
SUTTON AND SONS, the Queen's Seedsmen, Reading.

BETTERIDGE'S PRIZE ASTERS. Seed direct from the Raiser.
Twelve beautiful varieties, 2s. 6d., post free.
SUTTON AND SONS, the Queen's Seedsmen, Reading.

BETTERIDGE'S PRIZE ASTERS. Seed direct from the Raiser.
Six beautiful varieties, 1s. 6d., post free; mixed varieties, 1s. per packet, post free.
SUTTON AND SONS, the Queen's Seedsmen, Reading.

To the Trade.

SCARLET RUNNERS and Red CLOVER, home harvested. Prices low, samples extra.
F. SANDER AND CO., Seed Growers, St. Albans.

To the Trade.

HUGH LOW AND CO. can still offer dwarf maiden PEACHES, principally Noblesse and Royal George; NECTARINES, principally Elruge; and MOOR-PARK APRICOTS.
Clapton Nursery, London, E.

Home Grown Mangel Wurzel and Turnip Seeds.

H. AND F. SHARPE are prepared to make special offers to the Trade of the above-named SEEDS, all saved from carefully selected stocks, and of the finest quality. Prices very low.
Seed Growing Establishment, Wisbech.

PELLÆA ORNITHOPUS (Hooker).—We have received a consignment of this exceedingly beautiful and rare, quite hardy FERN, from the Californian Sierra Nevada. The plants are in good condition, very large, and strong. Price 3s. 6d. each.
F. SANDER AND CO., Seed Growers, St. Albans.

Johnstone's St. Martin's Rhubarb.

EARLIEST and BEST in CULTIVATION for open ground; it has a splendid colour, and excellent for forcing. Strong roots, 1s. each. Trade price on application.
W. P. LAIRD AND SINCLAIR, Nurserymen, Dundee, N.B.

Early Seed Potatos.

BEN. REID AND CO., Aberdeen, have to offer a quantity of RIVERS' ROYAL ASHLEAF KIDNEY, ASHTOP FLUKE KIDNEY, and COVENT GARDEN KIDNEY POTATOS.
Special prices on application.

To Planters and the Trade.

J. SLATER AND SONS beg to offer a quantity of large IRISH YEWS, 7 to 8 feet high, and 2 to 3 feet through; fine specimens, well rooted, and will be sold cheap. An inspection is invited.
J. SLATER AND SONS, The Nurseries, Malton, Yorkshire.

ASPARAGUS PLANTS.—Giant, 5-yr., for for forcing, 5s. per 100; 3 yr. ditto, 3s per 100, 25s. per 1000. Packing and Packages free. Remittances to accompany all orders.
CHRISTMAS QUINCEY, Seedsman, &c., Peterborough.

New Grape.

VENN'S BLACK MUSCAT.—This splendid Grape has all the good qualities of the Black Hamburgh with the rich full flavour of the Muscat of Alexandria. Good well ripened Canes, 10s. 6d. each. Usual allowance to the Trade. Post Office Orders payable to
WILLIAM DODDS, Gladstone Villa, Bishopston, Bristol.

PEACHES and NECTARINES, magnificent Dwarf-trained, including all the best leading sorts. Splendid Trees, most beautifully trained.
WM. WOOD AND SON, The Nurseries, Maresfield, Uckfield, Sussex.

SEED POTATOS.—10 tons Myatt's Prolific, 10 tons Rivers' Royal Ashleaf, 5 tons Bresee's Climax, also Mona's Pride, Erin's Queen, Gloucestershire Kidney, Veitch's Improved Ashleaf, Sandringham Kidney, Yorkshire Hero, &c. Splendid samples. Prices low for cash, on application to
G. RUMLEY, Alma Terrace, Fulford Road, York.

THE MOST VALUABLE VEGETABLE PRIZE OF THE YEAR.

IMPORTANT ANNOUNCEMENT.

JAMES CARTER & CO.

Have the pleasure to announce, that
BY SPECIAL PERMISSION OF THE
Council of the Royal Horticultural Society,
THE COMPETITION FOR
THE CARTER CUP,
VALUE FIFTY GUINEAS,
TOGETHER WITH
THIRTY POUNDS IN MONEY PRIZES,
FOR VEGETABLES,
WILL TAKE PLACE AT
SOUTH KENSINGTON, on WEDNESDAY,
July 7, 1875.

Carters

THE ROYAL SEEDSMEN,
237 and 238, HIGH HOLBORN, LONDON, W.C.

Wonersh Nurseries, near Guildford, Surrey.

MESSRS. W. VIRGO AND SON can still supply large quantities of all kinds of FRUIT TREES, EVERGREEN SHRUBS, and LARGE TREES for Belting; extra strong QUICKS, SCOTCH, LARCH, ASH, HAZEL, OSIER, BIRCH, &c.
Standard ROSES, 75*s.* p. 100; Half-standard do., 50*s.* p. 100.

FRUIT TREES.—Standard and Pyramid CHERRIES, APPLES, PEARS, and PLUMS, from 75*s.* per 100. GOOSEBERRIES, 3-yr. and 4-yr., from 10*s.* to 15*s.* per 100. CURRANTS, 3-yr. and 4-yr., from 6*s.* to 10*s.* per 100. Catalogues on application to
T. EVES, Gravesend Nurseries. Established 1810.

Dr. Denny's Zonal Pelargoniume
(Third set of eighteen varieties).

JOHN COPELIN begs to give notice that he has arranged with Dr. Denny to send out the above in the ensuing spring.
CATALOGUES would be forwarded on application.
Tyssen Street Nurseries, Stoke Newington, N.

Planting Season, 1874-75.

MESSRS. JOHN STANDISH AND CO. invite the attention of intending Planters to their large and valuable Stock, consisting of all the newest and best varieties of the Japanese Importations, as well as a vast quantity of SPECIMEN CONIFERÆ, HOLLIES, LAURELS, DECIDUOUS and EVERGREEN PLANTS, ROSES, FRUIT TREES, &c., all of which are in excellent condition for removal.
Their NEW CATALOGUE is now ready, and will be sent, post free, on application.
Royal Nurseries, Ascot, Berks.

Strong Ivies, &c.

WM. NORTH offers the above, from open ground, 3 to 4 feet (fit for potting), at 25*s.* per 100; in 48's, 4 to 5 feet, at 50*s.* p. 100; in 32's, 5 to 6 feet, at 65*s.* p. 100.
IVIES, Variegated and Fancy Green, in twelve varieties, at 65*s.* per 100, 9*s.* per dozen.
LOBELIA SPECIOSA, true, in large 60's, at 3*s.* per dozen.
Terms cash. Post Office Orders payable at High Road, Lee, S.E. Manor Lane Nursery, Lee, Kent, S.E.

GENUINE FARM SEEDS.
CATALOGUES now ready.
THE LAWSON SEED AND NURSERY COMPANY (Limited), 106, Southwark Street, London, S.E., and at Edinburgh.

The Finest Broccoli in Cultivation.

COOLING'S MATCHLESS.—Every grower of this invaluable vegetable should have it. Per packet, 1*s.* 6*d.*, post free.
GEORGE COOLING, Seedsman, Bath.

MITCHELL'S CHAMPION of ENGLAND BROCCOLI.—The best late White ever grown, all new seed, will be sold in ¼, ½, and 1 lb. packages, at 10*s.* per lb.; sent to any part on receipt of Post Office Order, made payable
JOHN MITCHELL, Ponder's End, Middlesex.

Eucalyptus globulus (Australian Blue Gum).

JOHN WILSON, SEEDSMAN, Whitchaven, has just received, in fine condition, a Consignment of Seed (hitherto very scarce) of this well-known EUCALYPTUS from Messrs. Thos. Lang & Co., Nurserymen and Seedsmen, Melbourne. Prices on application.

CUCUMBER PLANTS.—Strong plants of Rollisson's Telegraph and Blue Gown, 1*s.* each, 9*s.* per dozen, packed in boxes made on purpose. Also Duke of Edinburgh (Daniels) at the same price. Box and packing, 1*s.* 6*d.* per dozen, 1*s.* per half-dozen and under.
F. W. COOPER, Florist, Huntingdon.

LILIUM HUMBOLDTI.—Having to hand a consignment of this magnificent, quite hardy, and rare LILY, we offer fine, sound, and very large bulbs, measuring from 8 to 18 inches in circumference, at 2*s.* each, 18*s.* per dozen, and 130*s.* per 100.
F. SANDER AND CO., New and Rare Seed Importers and Growers, St. Albans.

JERUSALEM POTATOS.—This delicious vegetable to be had in any quantity. Trade supplied.
LITTLE AND BALLANTYNE, The Queen's Seedsmen, Carlisle.

Pansies—Show, Fancy, and Bedding.

THOMAS S. WARE'S new Spring CATALOGUE of the above, and other Florist Flowers, is now ready, and will be sent on application. Twenty thousand Pansies, established in pots, will be sure to bloom well if planted at once. The Trade supplied.
Hale Farm Nursery, Tottenham, London, N.

New Roses for 1875.

HENRY BENNETT has 10,000 PLANTS of the above to offer, of his usual matchless quality, at the reduced price made by several large Establishments in 1874. Ready early in March.
DESCRIPTIVE LIST ready, and post free.
Manor Farm Nursery, Stapleford, Salisbury.

Carnations, Picotees, and Pinks.

ISAAC BRUNNING AND CO. beg to announce that they have this Season a very fine and extensive Collection of the above to offer, strong plants of which are now ready for sending out. LIST of Varieties and Prices, together with Illustrated SEED CATALOGUE, on application.
Our ONE GUINEA COLLECTION of CARNATIONS, &c., contains six pair of choice Show Carnations, six pair of choice Show Picotees, twelve pair of Show Pinks, and twelve choice mixed Carnations and Picotees for borders.
Carriage and package free on receipt of Post Office Order. Half of the above quantities, 11*s.*
ISAAC BRUNNING AND CO., Great Yarmouth Nurseries.

SPECIALITY of GOOSEBERRIES and CURRANTS

MESSRS. PAUL & SON,

THE "OLD NURSERIES," CHESHUNT, N.;
SOLICIT ORDERS FOR
GOOSEBERRIES AND CURRANTS,

The culture of which is made here a speciality, more than an acre and a half being devoted to the growth of young trees, and careful attention being given to their pruning, &c.

GOOSEBERRIES, per dozen, selected trees ... ... 6*s.*, smaller, 4*s.*; per 100, 30*s.*
CURRANTS " " ... ... 4*s.*, smaller, 3*s.*; per 100, 24*s.* to 30*s.*

Carefully address, without Christian Name or Initial,
PAUL & SON, THE "OLD NURSERIES," CHESHUNT, N.

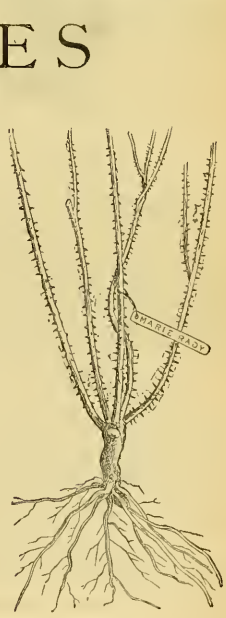
PRINCE'S ROSES

ON CULTIVATED

SEEDLING BRIAR.

GEORGE PRINCE offers the undermentioned Twenty-five finest Exhibition and Garden varieties of DWARF ROSES, in SPLENDID PLANTS, for 25*s.* package included:—

ANNIE WOOD,	ELIZA BOELLE,	MARIE BAUMANN,
BARON HAUSMANN,	ETIENNE LEVET,	MARIE RADY,
COUNTESS of OXFORD,	LA FRANCE,	MAR. CASTELLANE,
DEVIENNE LAMY,	EXPOSITION DE BRIE,	MONS. NOMAN,
DR. ANDRÉ,	MAURICE BERNARDIN,	MONS. WOOLFIELD,
CAMILLE BERNARDIN,	MAD. LAURENT,	MONS. PAUL NERON,
DUPUY JAMAIN,	MDLLE. E. VERDIER,	REINE BLANCHE,
EMILIE HAUSBERG,	MAD. C. CRAPELET,	VICTOR VERDIER,
		MARÉCHAL NIEL.



Also the following Twelve newer vars. for 25s., package included:—

AUGUSTE RIGOTARD,	MADAME LACHARME,
CLAUDE LEVET,	MADAME GEO. SCHWARTZ,
DUCHESS of EDINBURGH (Bennet),	ANTONIA DECARLI (Tea),
ETIENNE DUPUY (Levet),	THOMAS MILLS,
ETIENNE LEVET,	ANNA OLIVIER (Tea),
LE HAVRE,	MARÉCHAL NIEL.

14, MARKET STREET OXFORD.

SATURDAY, FEBRUARY 27, 1875.

ROSEMARY.

"For you there's Rosemary and Rue; these keep
Seeming and favour all the winter long,
Grace and remembrance to you both.
Winter's Tale, act iv., sc. 3.

IN these lines Shakspeare has immortalised the properties which tradition has assigned to two of the oldest inhabitants of our gardens. Rosemary has long been regarded as possessing important medicinal qualities, although it does not occupy a very prominent position in our Pharmacopœia. Of the antiquity of this belief, evidence is given in a fragment of a 14th-century poem on the virtues of herbs, published in *Reliquæ Antiquæ*, which is exclusively devoted to the praise of Rosemary, or, as it is there spelt, "Rosemarie." The author says that neither he nor any "erthely man" can tell "all the vertues;" but he certainly enumerates a good number of them, and some which are sufficiently remarkable. Such, for instance, is its property of restraining thieves: of which we are told that if the root be seethed in "vynacre of wyne," and a thief afterwards should wash his feet therein, he will have neither "myghte ne strenthe" to steal, and that no man need "drede with him to dele." Whether a thief could be prevailed upon to consent to deprive himself thus of his means of existence seems, however, somewhat doubtful. The smoke of Rosemary inhaled will heal "colde in thi hede"—a seasonable prescription for the present winter: and a bath in which it has been seethed will make the bather "lyght and joly." A story is given, on the authority of Galen, of a queen who was "goutus and croket," and sixty years of age, who took "of Rosemary six pounds" and ground it well, and bathed herself three times a day for nine months in water in which this Rosemary was placed. Such perseverance deserved its reward: and accordingly at the end of the time her old flesh fell away, and she appeared "tender and neishe." She then thought of entering the marriage state: but here the fragment abruptly ends, and her subsequent fate is left to conjecture. Some idea of the extent of the "vertues" attributed to Rosemary may be gathered from the fact that in Langham's *Garden of Health* (1633) it is prescribed in no less than 131 cases of the most various description! We learn from *Pharmacographia* that Rosemary was mentioned by Pliny, and "was also familiar to the Arab physicians of Spain, one of whom, Iba Baytar (13th century) states it to be an object of trade among the vendors of aromatics. In the middle ages Rosemary was doubtless much esteemed, as may be inferred from the fact that it was one of the plants which Charlemagne ordered to be grown on the imperial farms. John Philip de Ligramine, a writer of the 15th century, describes it as the usual condiment of salted meats. It was probably in cultivation in Britain prior to the Norman Conquest, as it is recommended for use in an Anglo-Saxon *Herbal* of the 11th century. The essential oil was distilled by Raymundus Lullius about A.D. 1330."

The modern applications of Rosemary are but limited. Oil of Rosemary is used as an external stimulant in liniments and hairwashes, being supposed to promote the growth of the hair, and to cure baldness; the green colour of certain pomatums is due to the presence of Rosemary. It was also an important ingredient in the famous "Hungary water" of former days, a preparation to which various invigorating properties were attributed, and which is said to have taken its name from its use by a queen of Hungary, to whom it was communicated by a hermit. In this the Continental Rosemary was used, the otto yielded by this variety having quite a different odour from that obtained in England. The quantity of oil procured from a hundredweight of the tops is variously stated as from eight to twenty-four ounces. Rosemary also enters into the composition of Eau de Cologne, and into the famous French Vinaigre à quatre voleurs. The peculiar and admired flavour of the white Narbonne honey is said to be caused by the bees which produce it feeding largely on the flowers of the Rosemary, which abounds in that district; and it is stated that, when from any cause the blossoming of the Rosemary is interfered with, the honey harvest of Narbonne is a failure. Its value as a bee-plant is noticed by many old writers, as by Lawson in the *Country Housewife's Garden* (1637), who says that its use is "much in meates, more in Physicke, most for Bees." A preparation of the dried leaves was formerly sometimes used as a substitute for Chinese tea, and was recommended in cases of headache.

We gather from Surflet's *Countrie Farme* (1600) that charcoal obtained from Rosemary wood was employed for artistic purposes. He says: "some do make of the wooddie parts thereof . . . coales to draw the first lineaments and ground-work of pictures and such other things to be painted."

The folklore of the Rosemary is extensive, and some of the superstitions attaching to it are very odd, and quite inexplicable—such, for instance, is the general belief in England, that it will only flourish in the gardens of houses where, to use an ancient proverb, "the grey mare is the better horse!" The use of this plant at funerals was referred to in our last volume (p. 353); but it appears to have been equally, if not more popular at weddings; and the older poets are full of allusions to it in this connection. This twofold employment of Rosemary is referred to in Herrick's distich:—

"Grow for two ends; it matters not at all,
Be 't for my bridal or my burial."

And Dekkar, speaking of a bride who died of the plague on her wedding-night, says:—"The Rosemary that was washed in sweet-water to set out the bridal is now yet in tears to furnish her burial."

It appears to have been the custom at weddings to dip the Rosemary in perfumed water before distributing it. It was often gilded upon such occasions. "So late as the year 1698," says Brand, "the old country use appears to have been kept up of decking the bridal bed with Rosemary," and the bridesmaids were accustomed to present the bridegroom with a bunch of it on the morning of the wedding. Roger Hacket, in a wedding sermon preached in 1607, says, "Rosmarius, the Rosemary, is for married men, the which by name, nature, and continued use, man challengeth as properly belonging to himself. It over-toppeth all the flowers in the garden boasting man's rule. It helpeth the braine, strengtheneth the memorie, and is very medicinable for the head. Another property of the Rosemary is, it affects the heart. Let this Rosmarius, this flower of men, ensigne of your wisdom, love, and loyaltie, be carried not only in your hands, but in your heads and harts."

"Rosemary and Bays," were combined on these nuptial occasions, as well as at other times; from which it would seem that there was some connection between the two which cannot now be traced. Herrick speaks of gilding "the Baies and Rosemary." That there was some meaning in the wearing of the two plants

appears from an account of the "memorable Parliament begun at Westminster, Nov. 3, 1640," in which we are told that Prynne and Burton, on their entry into London, "rode with Rosemary and Bayes in their hands and hats; which is generally esteemed the greatest effront that ever was given to the courts of justice in England." According to Deering, it was formerly the custom at Nottingham on the election of a new mayor, to place the mace on a table covered with black cloth, "covered with Rosemary and sprigs of Bay, which they term burying the mace."

Rosemary formerly played a prominent part in Christmas festivities. The old "Boar's Head Carol," which dates from 1521, and which is still sung on Christmas Day at Queen's College, Oxford, when a boar's head decked with Rosemary is carried into the hall, begins—

> "The hore's head in hande bring I,
> With garlande gay and Rosmary;"

and Herrick's often quoted poem on the ceremonies of Candlemas Eve commences with—

> "Down with the Rosemary, and so
> Down with the Baies and Mistletoe."

These frequent allusions to Rosemary point to the fact that it was far more commonly cultivated in former days than it is at the present time. The garden of Ironmongers' Hall, in London, was celebrated "for its Vines and Roses, and knots of Rosemary," and (again in conjunction with the Bay) it was sold in the streets for Christmas decoration. Gay says—

> "When Rosemary and Bays, the poet's crown,
> Are bawled in frequent cries through all the town,
> Then judge the festival of Christmas near."

And in the churchwardens' accounts for St. Margaret's, Westminster, in 1647, is the item—"Paid for Rosemarie and Baies that was stuck about the church at Christmas, 1*s.* 6*d.*"

Rosemary was employed in one of the many charms used on St. Agnes' Eve to obtain a sight of the future husband of the girl who exercised it. Two sprigs, one of Rosemary and one of Thyme, were to be sprinkled with water on St. Agnes' Day, and, on going to bed, one was to be placed in each shoe, the shoes being put on either side of the bed. A brief invocation to the saint was then repeated, and the future husband appeared during the night.

We do not find much reference to folklore connected with Rosemary in other countries. In Germany the *Todenkranz*, or death wreath of a girl who died shortly before her intended marriage, was formed of this plant—a custom which corresponds with Herrick's already quoted lines. In Thuringia it is worn at confirmation, and woven into bridal wreaths. Its name in Denmark, *Elle-grin*, or Elves'-green, would appear to point to some legend connected with it in that country. The plant is, however, known in most countries by an equivalent of its Latin name, Rosmarinus, which means literally sea-dew, and originated, according to Prim, "from its usually growing on the sea coast, and its odour." Its habitat, however, is by no means exclusively maritime. *B. M.*

New Garden Plants.

Odontoglossum Warscewiczii, *Rchb. f.**

Very much in the way of Odontoglossum vexillarium, whose growth and bulbs and leaves it imitates so much that the two would easily be confounded when out of flower. The rather small bulbs are nearly oblong-ligulate, ancipitous, with a usually single elongate linear-oblong acute leaf, that appears to be generally broader than those organs in O. Roezlii, and a little narrower than those of O. vexillarium. There appears to be six or seven under the bulb, the lowest being also the smallest. The species appears to flower very freely, for I have several dry specimens with two spikes developed at once. Perhaps it may even make the *tour de force* of Mr. Rucker's O. vexillarium, that brought an anomalous third inflorescence at the top of the bulb—no doubt a splendid sight, though not agreeable to the morphological botanist, who does not like plants to jump over their usual bounds, and decidedly not to the benefit of future shoots, though the too great benefit may be balanced by the early cutting of the inflorescence, in order that it may not too much exhaust the poor bulb. The native peduncles bear three to five flowers, and we are entitled to expect them to improve by being well grown. We would call those specimens well grown which show at once the largest pseudobulbs conjointly with the smallest leaves. The flowers of this plant may be called intermediate between those of Odontoglossum Phalænopsis and O. vexillarium. They have the same tendency as in the last species to show the anterior lobes of the lip a little asymmetrical, sometimes much so. The general colour is a mild creamy-white. Each petal has a great blotch at its base, no doubt always corresponding to the colour of the area of the lip; there are also single, but smaller, blotches at the base of the sepals. The base of the lip, whose callosities nearly resemble those of the most exquisite Mexican Odontoglossums (thus explaining the position of its relatives in this genus), shows a hippocrepic broad dark area, with a few projecting angles outside. This chief ornament would appear to show several varieties of colour, just as in the Odontoglossum vexillarium. In all instances the centre of that area is of a shining yellow, while the area itself appears to be now purplish-scarlet, now brownish-purple. It may

* *Odontoglossum Warscewiczii*, Rchb. f.—Pseudobulbo oblongo seu oblongo-ligulato ancipiti monophyllo; foliis fultientibus ad septem; foliis lineari-ligulatis acutis; pedunculo gracili ad quinquefloro; bracteis triangulis minutis; sepalis lineari-ligulatis obtuse acutis; sepalis latioribus magis obtusis; labello a basi latissime hastata pandurato dilatata quadrilobo; antice bene emarginato bilobo; nunc scalæ ad instar utrinque trilobo; lobis medianis mediocribus anticis latissimis; callo acutiformi in basi ante medium tumido nunc in lineam elevatam velutinam bicrurem exeunte; columna humillima.—*Odontoglossum Warscewiczii*, Rchb. f. in v. Mohl and v. Schlechtendal's *Botanische Zeitung*, 1859, t. 692; Rchb. f., *Xenia Orchidacea*, i. 208, tab. 81; Lindl. *Folia f. Odontoglossum*, No. 21 (additional species), floribus sphalmate illi Odontoglossi grandis æqualibus dictis.

Fig. 47.—Grotesque denuded oak on the side of the Sugar Loaf mountain, Abergavenny.

Fig. 48.—Grotesque swollen oak in the pound near Pershore, Worcestershire.

Fig. 49.—Old oak near Castle Marton, Malvern Chace (40 ft. round base).

depend a good deal upon the amount of light given to the plant, as I have good reason to believe is the case with Odontoglossum Phalænopsis. M. Linden gave a representation of that plant with such pallid colours that all praise of the flower had the impression of a joke—not a benevolent one, and yet we have several, even many instances, in which the flowers, when exposed to good light, are really charming in colour. The column is exceedingly short. There is scarcely a foot left under the stigmatic hollow, which usually has a single little tooth in its basilar middle part. No wings have been observed to the column, and yet we should not wonder if, finally, specimens were found with such ornaments.

We candidly profess that the species is not equal to Odontoglossum vexillarium, yet we are fully persuaded it will be liked much by amateurs, the more so if it shows a profusion of varieties. Another reason for loving it will be, that as far as human judgment goes it can never be expected to appear in quantity in the European market, as will be explained immediately. I placed in Mr. Harry Veitch's hands a wild inflorescence, giving evidence that the representation in *Xenia* is not exaggerated.

The discoverer of this plant is the gallant Orchidist hero, the late Joseph von Warscewicz, the Polish nobleman. He boasted of it as being one of his best discoveries; and what splendid things had he discovered at that lucky period, when there were so very many choice hunting-grounds unvisited by any one! We cannot expect nowadays to see reappear such lucky men as Joseph von Warscewicz and Thomas Lobb, though they may be far surpassed by more assiduous collectors for botanical purposes. Warscewicz declared, however, we had no hope ever to see this plant in Europe. It was, he said, exceedingly scarce, growing but at two places, and in very few specimens. The bulbs, he said, were so soft, that they always became rotten as soon as they descended to the level of the sea; and for a long, long time—twenty-two years are nowadays, in our time of excited, over-excited activity, an immense span of time—his prophecy proved to be well founded. Mr. Wallis himself, then M. Linden's keen champion, failed in its introduction. Now came Señor Endres, who observed the plant once more, though he was not too anxious to give the exact localities. His plants, though cultivated with his usual care (as if his babies), for a long while at a low altitude, arrived all dead in Europe except a single specimen, a little tiny fellow, which Messrs. Veitch used to grow in a 1-inch pot. All our hopes were concentrated in the little dwarf, who gave occasion to the expectation to see it in flowers in ten years, provided the development was a lucky one. This was our hope. Mr. Bateman, however, the father of the Odontoglossums, appears to have abnegated to the dwarfs all rights of individuality. Last April, in the preface to his splendid work on Odontoglossums, he said: "In this way whole importations have been lost, including, I am sorry to say, one or two cargoes of the exquisite

Fig. 50.—BUR OAK, RIPPLE, WORCESTERSHIRE.

Odontoglossum Warscewiczii (figured in Reichenbach's *Xenia*), which still remains a desideratum."

And now, at length, the desideratum is within our reach, in full-grown individuals. Señor Endres, who loves the Orchids one might say more than himself—and he, as soon will be proved, made the richest collection of Orchids ever made by any one in the world—succeeded finally in bringing over a small lot alive, having taken the greatest possible trouble to tend them carefully on board: a most difficult task, and most so on board an English boat, where, it is well known, passengers are under stricter regulations than on board German or French boats. Having the satisfaction of seeing Señor Endres awhile, I asked him whether he could bring over a larger lot. He simply answered he would regard an order for a fifty or hundred a ridiculous, impossible thing, not to be fulfilled at the greatest expense. Since this gentleman knows the land so well, we may fully trust what he said. A plant has brought two inflorescences in the nursery of Messrs. Veitch, where the totality of the European colony of the plant may be seen. The flowers, just as first flowers used to be, were nearly half as large as those of good wild specimens. There is no doubt they will improve; and Mr. Harry Veitch tells me that, when once alive in Europe, the plant appears not to be more difficult to manage than O. vexillarium.

I think it must be a great satisfaction for Messrs. Veitch that they have introduced to Europe both these celebrities—Odontoglossum vexillarium, that once so mysterious plant, whose habitat Mr. Wallis discovered when in the last state of exhaustion (may we never forget him in the history of that wonderful plant), and the old Odontoglossum Warscewiczii, so much desired since 1852. *H. G. Rchb. f.*

NOTES UPON OLD OAKS.

The Oak (Quercus Robur) has been ever remarkable for its duration above all other British forest trees, and one of our poets has designated it as

"Lord of the woods, the long-surviving Oak!"

—an appellation that it well deserves. To what extent its longevity extends can only be judged of by those trees of enormous bulk that now remain extant, with any traditions that may exist concerning them. Walter Scott, in one of his novels, has alluded to gigantic Oaks "beneath which Roman legions may have marched;" and Gilpin says, with somewhat more precision, in his *Forest Scenery*, that "a few venerable Oaks in the New Forest chronicle upon their aged trunks ages before the Conquest." But such observations are rather too vague, being only probable guesses, and do not refer to particular trees that might be examined and measured. Considering the havoc made by the axe in past times, and the disafforestation of most of the ancient forests of the country, very few, if any, truly undecimated woods can now remain having trees that could certainly be considered coeval with the Saxon rule in England. There may be some in long-established parks where the timber has been scrupulously preserved, and the following extract from Lysons' *Bedfordshire* is curious with regard to the number of trees mentioned, which must be truly "patrician trees," as worded by Evelyn in his quaint *Sylva*, as the history of Lysons was published in 1806:—"A survey of Ampthill Park, taken by order of Parliament in 1653, describes 287 trees as being hollow, and too much decayed for the use of the navy. These Oaks, thus saved from the axe, remain to the present day, and by their picturesque appearance contribute much to the ornament of the place." According to this statement there would appear to be a greater number of old Oaks at Ampthill than anywhere else in Britain, if the number mentioned by Lysons are all still existing. He does not give the dimensions of any of them, but Loudon in his *Arboretum et Fruti-*

Fig. 51.—NEWLAND OAK, FOREST OF DEAN.

cetum Britannicum, mentions "the Leaden Oak in Ampthill Park, so called from a large piece of lead having been fixed on it many years ago, is remarkable for having been one of the Oaks marked in a survey made of the park in the time of Cromwell, as being then too old for naval timber. It is 67 feet high, its trunk is 30 feet 6 inches in circumference, and the diameter of its head is 85 feet. The species (or rather variety) is Q. sessiliflora." It is rather difficult to ascertain with certainty the age of trees of similar or greater dimensions to that of the Ampthill Oaks, unless a tree has been associated with some historical event which gives it a standing place at that time; and if its dimensions were then known, a clue might be obtained as to its probable age. Various Oaks are mentioned by Loudon, presumed to have existed before the Norman Conquest; and Marshall, an author who has written on the planting and growth of forest trees, has gone so far as to "venture to infer that the existence of these truly venerable trees [Oaks] commenced some centuries prior to the era of Christianity." How long an Oak when reduced to a mere shell might possibly exist, in a spot secure from the rage of tempests, is dubious and open to conjecture, but probability would not carry its duration much beyond 1500 years. The oldest known Oak in England now existing would seem to be the Winfarthing Oak, in Norfolk, an inscription on which states it to be 70 feet in circumference at the extremities of the roots, and in the middle 40 feet, as taken in 1820. This Oak is now an arboreal ruin, with only a single branch of vitality, but "is said to have been an old Oak at the time of the Conquest." But though this may be probable, there is unfortunately no authority to support the supposition. The trunk of an Oak, in the branches of which Wallace and a number of his followers once sheltered themselves, as reported, yet exists near Stirling, and is, therefore, presumed to be "at least 700 years old." Dr. Lindley, in an article on the age of trees in the *Penny Cyclopædia*, says that "many other cases of Oaks of extreme old age are recorded, some of which have been estimated at 1500 or 1600 years." An estimate however, ought to be founded on correct data, and here observation is at fault as to the rate of growth in very old Oaks, it being only certainly known that every kind of exogenous tree diminishes its rate of growth after a certain age, the Oak in particular between its fortieth and its sixtieth year. In the first century of its growth an Oak may attain a diameter of 3 feet, gradually diminishing its rate of increase after its fiftieth year, as shown by Dr. Lindley from an actual section of a tree sent to him from Stirling in 1855; and Professor De Candolle found that in an Oak of Quercus sessiliflora its increase in diameter, which was at the rate of 33 lines from ten to twenty years old, and 38 lines between thirty and forty years old, had at 330 years old diminished to 8 lines, while at 500 years old its annual increase would be almost imperceptible, or noted with extreme difficulty. It has been, therefore, suggested, that in very old Oaks an average increase of a line and a half in diameter might approximate very nearly to their actual age, and if this measurement be applied to the Cowthorpe Oak in Yorkshire, celebrated as one of the largest and oldest British Oaks, it would make it above 1600 years old, and the Winfarthing Oak in Norfolk would be nearly as old. The Ampthill Oaks mentioned previously, therefore, may be put at 900 years old, which, as they were aged hollow trees in 1653, appears to be a fair computation. As stating what may be considered as generally true with respect to the growth of the Oak, the old and well-known rhyme may be quoted—

"Three centuries it grows, three centuries stays,
And slowly three long centuries decays."

The Rev. A. G. H. Hollingsworth, in his *History of Stowmarket*, mentions a "Gospel Oak," in the park of Polstead Hall, Essex, which may take a place with the largest recorded British trees, though it has escaped the notice of Loudon in his *Biography of the Oak*. The describer states that "this earth-born giant is 43 feet in circumference, 4 feet from the ground, and the base slopes gradually outwards as the sides bury themselves in the earth, giving one the idea of a skilful architect's hand having systematically planted an enormous foundation for that stupendous mass of wood, with which 1000 or 1500 years must have loaded its shoulders. It is hollow within, and could seat eight or ten persons. It is, perhaps, one of the last fast-departing memorials of Roman and Saxon times."

Almost every English county has two or three solitary historical or legendary Oaks known to village traditions, and forming masses of foliage or vast naked boles that cannot fail to attract the notice of the wanderer. Most of these have been recorded in local or general histories, and I shall, therefore, only notice a few that have fallen under my own notice, and hitherto escaped description.

The largest Oak that I have seen and measured stands at Newland in Gloucestershire, within the bounds of the Forest of Dean (see fig. 51, p. 271), and is still vigorous, notwithstanding its great bulk. It rises almost direct from the ground, without throwing out hose buttress roots that so many aged Oaks do, and the measurement of its bole is, therefore, more exact and faithful than when taken from the extension of the roots, as is done in many recorded cases in the works of Gilpin, Strutt, and Loudon. I found the girth of this tree at the base to be 52 feet, and this is scarcely lessened up to the height of 12 feet, where five grand primary branches spread out from the vast hollow bole, divaricating into more than fifteen secondary arms. Its horizontal spread is very considerable, so that it is not a lofty tree, not much exceeding 50 feet in height. Its great age, which can only be a matter for conjecture, is well indicated in its massive tesselated bark, which is more rugged than in any other antique Oak that has ever met my view.

One of the largest and oldest Oaks that Worcestershire, once covered with forests, can boast is a tree standing at Holt, in a meadow, not far from the river Severn, which bears the name of the Boarstag Oak, a corruption from Hoarstag, in allusion to the bleached, hoary, bare branches rising from its top, as seen in many old Oaks. It is a perfect specimen of the class that Shakspeare has described as existing in his time in the forest of Arden—

"Under an Oak, whose antique root peeps out
Upon the brook that brawls along this wood;
* * * * *
Whose gnarl'd and spreading boughs were moss'd with age,
And high top bald with dry antiquity."

This Oak spreads out at the base (see fig. 53, p. 275), but at 3 feet from the ground its girth is 34 feet. I have represented it in its winter aspect.

As the representative of a class commonly called "Bur Oaks," that have been hacked and pollarded time out of mind, but, hollow and swollen at the base, present a picturesque aspect, yet with very scant appearance of vitality, I have sketched a hollow veteran unusually protruding from the base, a relic of the trees of the disafforested Malvern Chace, within the parish of Castle Marton: see fig. 49, p. 270. It measures 40 feet in circumference round the extended base, and, though there is no memento to fix its age, it may be well believed that it has witnessed the forays of the Red Earl of Gloucester, to whom Malvern Chace was granted by Edward I., when with hound and horn and his train of yeoman prickers, he pursued the deer and other quarry that then peopled the Chace and delighted the gaze of the eager hunters.

Though forest ground in England is scarcely more than a name at present, and the most remarkable Oaks are generally to be found in parks, where they have been allowed to enjoy a green old age and decay at leisure; if the old family residing at the Court or Hall has kept up the old name, as at Moccas Park, Herefordshire, famous for its Oaks, and Okeaver, in Derbyshire, where are many trees lifting to heaven their aged, hoary heads; yet the wanderer in out-of-the-way places may often find in the hedges of miry, disused lanes or hollow ways, a few battered veteran Oaks that have been left here and there, and which, of course, unmercifully lopt, and unable to extend themselves above, have swollen into misshapen or grotesque forms below, abandoned relics of the forest that Celtish tribes once foraged in. Such a monstrous, seared, and ragged bole appears by the side of an old pathway at Ripple, Worcestershire, which is here depicted (see fig. 50, p. 271). It measures 36 feet round the base, but would measure more higher up, on account of the huge wens upon its bark. It is difficult to say how long it has stood in this ruinous state, but it must have been very long ago when it appeared in full leafage as a stately tree—and that may have been in Saxon times.

Gilpin has remarked, in his *Forest Scenery*, that "it is through age that the Oak acquires its greatest beauty, which often continues increasing even into decay, if any proportion exists between the stem and the branches. When the branches rot away, and the forlorn trunk is left alone, the tree is in his decrepitude, the last stage of life, and all beauty is gone." But it may be truly said that if beauty is not apparent there is interest attachable to an old gnarled and even deformed Oak, which carries back the imagination to long past days, historical events, and perhaps heart-felt joys or sorrows endured under its boughs, even should it be as Cowper has said of the Yardley Oak,

"A quarry of stout spurs and knotted fangs,
Which, crook'd into a thousand whimsies, clasp
The stubborn soil, and hold the trunk erect."

Such a knotted and distorted Oak is enclosed, curiously enough, within the parish pound near Pershore, Worcestershire (see fig. 48, p. 270), and no doubt stood long in forest solitude before thus imprisoned.

The most curious denuded Oak that I have met with, and sketched a short time since, forming a singular extended mass of swollen wood, hard as a rock, is located on the bank of a deep old lane leading up the Sugar-loaf Mountain, near Abergavenny, Monmouthshire (see fig. 47, p. 270). Swollen into the most grotesque shape, hollow, and yet massive enough to defy any ordinary storm, it is certainly a dendrological curiosity. Of such a mass of timber that it may yet take centuries to moulder away, it can well be said—

"Still stands the lone old forest tree,
Though past his leafy prime,
A type of England's past is he—
A tale of olden time.
He has seen her sons for a thousand years
Around him rise and fall;
But well his green old age he wears,
And still survives them all."

Many more curious aged Oaks might have been depicted, but the few given have not been engraved before, and are, therefore, some additional contribution to what Loudon has denominated the "Biography of the Oak." Mere description, without representation, is imperfect and insufficient, for, as Strutt has remarked, in his *Sylva Britannica*, with the true feeling of art, "Who can hear of Alfred's Oak or Chaucer's Oak, without regretting that not even an outline of them is in existence for fancy to fill up with the enthusiasm their names inspire. But, independently of all other consideration, trees afford such delightful individuality, joined with such exquisite variety of character, and bring with them so many charming and hallowed associations of liberty and peace, of rural enjoyment or contemplative solitude, of the sports of childhood or the meditations of old age—in short, of all that refresh or exalt the soul—that it is wonderful that they have not hitherto been more decided objects of interest to the painter and the amateur." Since Strutt wrote, however, his own spirited delineations of forest trees, as well as the laboured works of Loudon, Selby, and others, have given a spur to the study of old, as well as the planting of young, trees, and much information has been given on the subject at various times in the pages of the *Gardeners' Chronicle*.

In connection with the Oak and the ancient Druidic times, when it was particularly honoured, the parasitical Mistleto appeals to the imagination, from authors ever since the time of Pliny having associated it with the Oak, as venerated by the Druids when found growing upon that tree, and gathered with mystic ceremonies. Yet, in reality, the Mistleto prefers to grow upon any other forest tree rather than the Oak, being now the pest of Apple orchards; and the utmost industry and research of Dr. Bull, of Hereford, who was anxious to collect notices of all the Mistleto-Oaks in Britain, could only find or hear of eleven, to which have been subsequently added one mentioned by Mr. Dovaston, as seen by him in Anglesea, and two more recently detected in Worcestershire. Strange, however, to say, all these are young, flourishing trees, less than 200 years old, and I have never seen Mistleto growing on any aged Oak; either, therefore, the venerated Oaks having Mistleto upon them have been all felled, or the Mistleto once upon them has been cut away. This, however, does not militate against the ancient Oaks now remaining as not having existed in the Druidic period, because the parasite was then considered as a rare inhabitant of the Oak, and a careful search had to be made after it. Though the use of the Mistleto as an adornment for the hall or kitchen at Christmas is still kept up in the country to an extent scarcely credible—of course only as an excuse and license for frolic and fun—Mistleto from any tree being acceptable, and the Worcestershire and Herefordshire orchards furnishing loads to be sent northward, where the Mistleto is very rare or unknown in a growing state—yet a superstition, no doubt derivable from ancient times, still exists in rural districts among the old people, that Mistleto growing upon the Oak is efficacious for particular disorders both in man and cattle, and when met with is gathered accordingly. Indeed, an old friend of mine, familiar with rural pursuits, customs, and traditions, has assured me that he once knew an Oak having Mistleto upon it, which had been entirely stript of the parasitical plant for its supposed medicinal efficacy. If this has occurred in other places, it may, in some degree, account for Mistleto being so rarely met with upon the Oak. *Edwin Lees, F.L.S., Green Hill Summit, Worcester.*

ARDROSS CASTLE,

THE residence of Alexander Matheson, Esq., M.P., is situated in Ross-shire, about 30 miles north from Inverness by rail, and 7 miles north-west from the pretty village of Alness on the Highland Railway. It is approached from the high road leading from Dingwall to Bonar Bridge. In days long gone by it was the residence and fastness of the great clan Ross. This property was purchased by its present proprietor from the Duke of Sutherland in 1846, and since then most extensive and sweeping improvements have been carried on most successfully, as will be seen by what follows. Since the property came into the possession of Mr. Matheson, 5000 acres of plantations have been laid down, over 4000 acres of land reclaimed, and

upwards of 60 miles of private roads made. The new plantations consist principally of Scotch Fir, with a good portion of the hardier sorts of forest trees intermixed.

I may here mention that all the alterations and improvements effected on those vast estates were carried out by Mr. William Mackenzie, Mr. Matheson's factor, with a perseverance and originality of conception that is most creditable to him, everything seems to have been so thoroughly done. The half-and-half style of doing things seems to have had no favour with Mr. Mackenzie. His system was to have trenching, dyke building, road-making, draining, and the erecting of farm steadings all going on simultaneously. To execute such works cheaply and effectively they must be carried on together, for, as he puts it, to trench the land one season, drain it the next, clear it the following, laying down the stones somewhere or anywhere, from which they must be re-carted when dyke-building begins, is a most expensive and unprofitable way of doing things. In the course of nine years 2600 acres of land have been reclaimed by means of trenching, draining, liming, &c., 67 miles of dykes, and 11 miles of wire-fencing erected, 28 miles of roads made, and 3000 acres of ground enclosed and planted. It is with pleasure I observe that during all those alterations it was the express wish of Mr. Matheson that not one of the old tenants should leave the property. He was anxious that all should be provided with good farms and better houses than they possessed before. On the whole of Mr. Matheson's extensive estates there has been no clearing-out of old inhabitants to make room for improvements, &c. It has been found perfectly compatible to carry out those alterations without having to remove a single tenant, or to expatriate a peasantry which any country might be prond of. I may here remark that when Mr. Matheson purchased Ardross, in 1846, the population on the estate amounted only to 109, while the number now is nearly 500. In 1846 there were eleven bachelors out of nineteen tenants, now there are only three out of thirty-seven. These facts speak cheeringly of the happy connection between agricultural improvements and the increase of a comfortable and contented peasantry. It is gratifying to hear of hundreds of quarters of grain and scores of well-fattened bullocks and sheep (both of which compare favourably with any in the district) being exported from a glen that only a few years ago was not able to supply its inhabitants, and to see the busy scene of human activity that everywhere prevails. Improvements still go on, and are to be continued till all that can be reclaimed is completed. Mr. Matheson has about 1200 acres of arable land in his own hands, 200 of which form a depastured lawn, and 200 are annually let as grass parks. The remaining 800 acres form two farms of equal size, upon which he five-course shift system is carried out.

Ardross Castle is a noble pile of modern erection, in the old baronial style, with a slight mixture of modern architecture, and is most elaborately furnished. It is pleasantly situated on an eminence overhanging the Alness River. The Castle, as seen from the main road, has a very imposing appearance, standing out in strong contrast with the lofty dark mountains of Ross-shire, which form the background, and is much heightened by its position at the apex of the glen. The green undulating fields which stretch between the Castle and the road give at a glance some idea of the magnitude of the improvements effected here. The pleasure-grounds extend to upwards of 700 acres, with the Alness River winding its way through the middle of them. The walks through the pleasure-grounds are upwards of 14 miles in length, their width varying from 5 to 6 feet. They have been all properly bottomed with stones, and finely covered over with gravel. The walks are chiefly along the Alness River and Tolly Burn. In the latter there is a pretty waterfall of about 50 feet in height, and well worthy of a visit at any time. The grounds are open to the public, and it is very gratifying to notice that there has never been anything like wanton mischief perpetrated. In some of the young plantations, where the herbage is too luxuriant, the poor people on the estate who keep a cow, horse, or pig are allowed to cut the grass for their own use; and the young trees are as carefully preserved, and everything done as neatly as if under the eye of a forester. In this instance Mr. Matheson has found, by his kindness and generosity to these poor people, the old saying verified—"Use the public well, and there is no fear of the public." Ardross may be said to be enclosed with mountains. To the south is the finely-wooded hill of Fyrish, with its singular cairn of stones on the top, and to the east the view is intercepted by a detached knoll or hill of that enormous deposit of red sandstone which crops out in bold precipices towards the Dornoch Firth. To the south-west are seen the beautifully wooded hills of Novar, and to the west Ben Wyvis (3720 feet in height) rears its snow-capped brow far above the intervening mountains.

Mrs. Matheson takes special interest in the well-being and education of the children on this vast estate. The number attending the day school averages about 140; and many of those children who received the first rudiments of their education in these schools have carried first honours in our universities. The kitchen garden lies to the west of the Castle, and is about 2½ acres in extent, surrounded by a most substantial brick wall flue-heated. It is approached from the Castle by a walk 8 feet broad, which passes through the southern end of the flower garden, curving gently to the right till the kitchen garden is reached, which it enters by a rather high flight of steps and handsome gateway. Here I found the wall covered with well managed trees of all the most approved sorts of Apples, Pears, and Plums, but the crops on these are rather precarious, as frost very often in spring comes here just when it is not wanted; however, all sorts of small fruits are had in abundance.

The glass erections are of considerable extent. Entering from the west the first is an excellent pit, 75 feet long by 9 feet broad. In this I found a very nice healthy collection of Ferns, necessarily in a small state, as they are mostly used for table decoration; also a large number of spring flowering plants. Orchard-house, 30 feet by 15 feet, with Peaches on the back wall; Pears, Peaches, &c., in pots, very heavy crops. Greenhouse, ridge-and-furrow roofed, a handsome erection, principally filled with soft-wooded plants, amongst which there were some grand Cockscombs and a few well managed plants of Ericas and Azaleas. Vinery, 30 feet by 15 feet: very heavy crop in this house, principally Black Hamburghs and Alicantes. Vinery, 30 by 15 feet: the sorts in this house are Muscats, Mrs. Pince's, and Lady Downes; very heavy crop all over the house.

The flower garden proper lies between the Castle and the kitchen garden. On the outside of the latter, on nearly an angle of 45°, there is a bank about 300 feet long. This is ribboned its entire length, and faces the flower garden, consisting of the following:—First row, at bottom, Viola Princess Teck; second, Viola Perfection; third, Cerastium, in two rows, with small circles of scarlet and dots of Dell's Black Beet at intervals; fourth, Perilla; fifth, scarlet Pelargonium; sixth, Calceolaria Golden Gem; seventh, Hollyhocks and Dahlias alternately. The flower garden is of rather large extent, although, from its high altitude, bedding-out is on rather a limited scale. Several of the figures are filled with Rhododendrons of the finer sorts. In one or two beds I saw plants of the rarer sorts of succulents had been used with good effect. There was one plant used rather extensively for bedding purposes, and of which I would advise those in high and wet districts to make use, and that is the double dark variety of Senecio elegans. I saw two beds of this at Ardross in the beginning of October one sheet of flower. At a little distance I think they were the most telling beds I ever saw. Mr. Massey, Mr. Matheson's head gardener here, and who most creditably fills his present position, informs me that heavy rains have no effect in diminishing their beauty. To the east of the Castle the grounds assume more of the appearance of a shrubbery, with large spaces of kept ground intervening. In this quarter there is a very fine sheet of water, surrounded by a neat iron railing and stone base, with a handsome fountain in the centre. One little drawback to Ardross Castle when seen from a distance is, the want of a few grand old trees in its immediate neighbourhood. Such companions the Castle does not enjoy; however, the young woods in the surroundings are making rapid progress. It requires but little help from the imagination to understand what the scenic effect must be by-and-bye, as both clumps and individual trees of the finest hardy sorts of Coniferæ have been most judiciously planted in all directions, among which I noticed the following as very superior, and making extraordinary growth for their age:—Picea Pinsapo, Cedrus atlantica, Cupressus Lawsoniana, and Picea nobilis, 30 feet—beautiful specimen with cones. The average height of the arable land above the sea is 550 feet. *John Downie, West Coates, Edinburgh.*

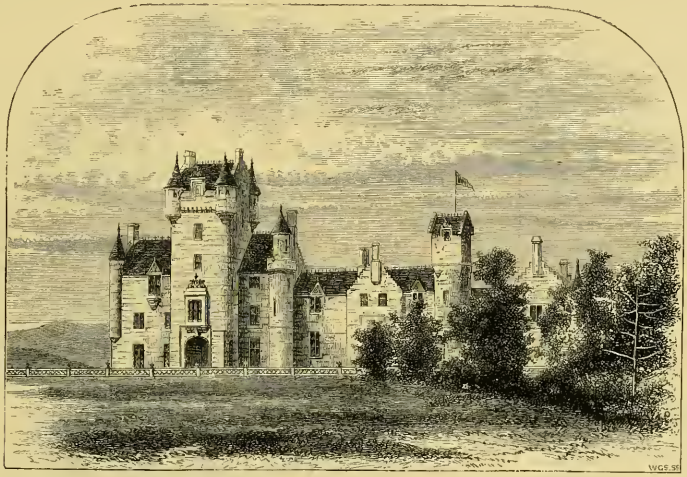


Fig. 52.—Ardross Castle, Ross-shire, the seat of Mr. Alexander Matheson, M.P.

THE WEEPING WILLOW.

WHEN was the Weeping Willow introduced into England? The well-known and popularly-believed story, which attributes its introduction to the poet Pope, seems to have originated in a paragraph in the *St. James's Chronicle* of 1801, which runs as follows:—"The famous and admired Weeping Willow, planted by Pope, which has lately been felled to the ground, came from Spain, as a present to the late Lady Suffolk. Mr. Pope was in company when the covering was taken off; he observed that the pieces of stick appeared as if they had some vegetation, and added, 'perhaps they may produce something we have not in England.' Under this idea he planted it in his garden, and it produced the Willow tree that has given birth to so many others." According to Plukenet, however, as quoted in the *Hortus Kewensis*, it was cultivated in 1692 in the Royal Garden at Hampton Court; but on this Mr. Dillwyn, in the *Hortus Collinsonianus*, has the following note: "In the first edition of the *Hortus Kewensis*, on the authority of L'Heritier's *Sertum Anglicanum*, this species is said to have been first introduced in 1730, but the date in the second edition has been altered to 1692, from a reliance on Plukenet's t. 173, f. 5, which, on examination of the original specimen at the British Museum, I found to be an entirely different plant. By the *Catalogus Plantarum*, published by a society of gardeners in 1730, it appears then to have been cultivated in our nurseries." If such were the case, not only would the tradition which connects Pope with its introduction disappear, but Collinson's account of its first appearance in England would also be incorrect. The last-named writer says: "Mr. Vernon, Turkey merchant at Aleppo, transplanted the Weeping Willow from the River Euphrates, and brought it with him to England, and planted it at his seat at Twickenham Park, where I saw it growing, anno 1748. This is the original of all the Willows in our gardens. In July, 1765, I measured a Weeping Willow at Mr. Snelling's, at Godalming, Surrey, of but fifteen years' standing; it measured 6 feet in girth, or 2 feet in diameter, and the height in proportion." *B. M.*

THE STORING OF POTATOS.

THE recent spell of severe frost found out the weak points of the Potato store, and many are the complaints of those who, not being forewarned, were not forearmed. Of all our winter store vegetables none are so liable to damage from frost as the Potato, as when once bitten it is not merely useless but absolutely obnoxious; moreover where the stocks of Potatos are small, the want of a little forethought may occasion considerable deprivation for the present and a heavy loss in the future. Probably the greatest sufferers by the frost have been those who, having a few bushels in store, have placed them somewhat carelessly, either in an exposed outhouse, or in some cold attic, little thinking that the frost would penetrate therein, but 20° of frost means mischief, as many have found to their cost. Thus wisdom has been gained at considerable expense.

Now in all houses where it is the practice to keep a few bushels of Potatos in store for consumption, there should be provided either a large, stout, close-jointed case or else nice dry flour-barrels, as in such depositories as these Potatos are kept dry, clean, and well together; the tubers also do not come into contact with the external wall, and if the room be dry, ceiled, and have only one window, it will require an extraordinary frost to penetrate to the Potatos through the tubs or boxes, especially if any old pieces of carpet or other covering be thrown over them when the weather is unusually severe. Where there are quantities of several varieties to be stored and the space at command be limited, I know of no better mode of storing than by placing the respective sorts in long shallow boxes, say 4 feet by 1½ foot and 9 inches in depth. These will each hold about 2 bushels, and there are these particular advantages attached to this mode of storing—that the tubers are easily looked over, and any precocious shoots rubbed off. They can be so exposed to the light and air during fair weather as to harden the growth, if wanted for seed; and when very severe weather ensues they can be built up in a block, one box on another, so that each box partially protects its fellow, and an old carpet or a mat or two will fully protect the whole. If, also, the name of each sort be written on a card, and fixed on the box containing it by means of a stout tack, no possible blunder or mishap as to names can occur. Potatos so stored are also less liable to damage by moving than when placed together in bulk. With many sorts we find, as the winter advances, that they have about them many black spots, that mar their table usefulness. This comes mainly from the bruising they get by frequent movings, an evil that it is well to avoid. Those who have good dry cellars are not in danger of having their Potatos frozen, but there is the possible evil surrounding them, that the milder and more even temperature usually existing in a cellar will induce an early growth of the tubers, which necessitates a constant looking over of the stock, and sometimes great waste. Of course, if the stock be a limited one, and the consumption regular and large, there will not be time sufficient for mischief to be produced. It is when the winter's stock is so stored that harm is done. Potatos when lifted should always be thoroughly dried before storing, and be as free from soil as possible. It is also wise to make two sizes of the stock, and housekeepers will do well to see that when a dish of mashed Potatos are required the smaller selection be used, the larger ones being saved for cooking whole. If some are needed for seed the next spring, a portion of these second size tubers should be saved for that purpose. Of course I assume that all tubers not larger than a Walnut have been previously set aside for the pigs or poultry. By putting these assorted tubers into the boxes I have described, it will be found that when the best of the middlings have been consumed the remainder will make a good seed sample, and being thin in bulk will get plenty of light and air to mature them. The storing of Potatos in pits—at all times a bad practice—is doubly so when we are visited by a month's continuous frost. To tap a pit under such conditions is difficult, if not impossible, and if there be not a good store in the house it would be exceedingly awkward. If the Potato cannot have a frost-tight house specially devoted to it, at least it is best to have plenty of tubs and boxes at hand in which they may be stored, and be securely protected until danger is past. It must not be forgotten that if the store has a dry floor and the atmosphere be dry also, much less mischief will result than if the air be damp. It is wise also when a thaw follows severe frost to allow a few days to elapse before the external air is admitted, as the sweating so common after a thaw will not be so evident. In any case, whether the Potato stocks be large or small, it is well to exercise discretion in time, and not allow Jack Frost to clutch them in his cold embrace. *A. D.*

INVERLOCHY CASTLE.

THE seat of the Right Hon. Lord Abinger, Inverlochy Castle, lies about 3 miles north-east of Fort William, and about the same distance off Ben Nevis, which is 4406 feet high, and is allowed to be the highest mountain in Scotland. As seen from a distance, Inverlochy Castle has a very imposing and commanding appearance. Its internal arrangements and decorations are in good keeping with its imposing exterior. Its site has been well chosen. Its towers and turrets meet the eye of the tourist long before it is reached. A fine view of it is also had from the Caledonian Canal, west from Benevie. The Castle stands on three grass terraces, and to the south-west a fine site has been selected for a flower-garden of rather large dimensions. About a mile to the south-east of the present Castle stands the old Castle of Inverlochy, a place of undoubted antiquity. This Castle stands alone in its solitary magnificence, having outlived all record of its own builder and age.

"'Who raised this wondrous pile?' we asked and sighed,
And paused for a reply, but none replied.
Time passed us by, and answered with a frown,
'Whoever raised it, I will put it down!'"

Its towers and ramparts are built of solid masonry, 9 feet thick, and the whole building covers about 1600 yards. From the name of one of the towers it probably was occupied by Edward I. of England and the Comyn, who were then in the zenith of their power, and with equal probability by the Thanes of Lochabar, particularly by Banquo, the predecessor of the Royal family of Stuart. Near this place, on February 2, 1685, a great battle was fought between a Jacobite army, under the celebrated Marquis of Montrose, and a mixed Highland and Lowland army, under the Marquis of Argyle, ending in the complete overthrow of the latter. The glass erections here are rather extensive, in all extending to 134 feet, but in a short time they are to be extended to 215 feet. There is a Peach house, 38 by 15 feet, with curved trelliswork in front; and in which the trees are young and very promising. In this house there was a splendid crop of Tomatos in pots, Trophy being the variety. Early vinery, 58 by 15 feet, fine crop; late vinery, 34 by 15 feet, splendid crop, both in bunch and berry, Foster's Seedling especially being very superior. In the stove, which measures 24 by 15 feet, I found well managed plants of the following:—Cissus discolor, Allamanda Schottii, Fittonias, Dracænas, Crotons of sorts, and a few remarkably fine plants of Caladiums, among which were very conspicuous Princess Alexandra, Impératrice Eugénie, Reine Victoria, Napoléon III., Madame Dombrain, Marquise de Caux, Triomphe de l'Exposition, a few of the finest Selaginellas and Ferns of the newer varieties, and a small but very select collection of miscellaneous plants, principally used for table decoration purposes. In this house also there are a number of plants of Melons grown in pots in two varieties, viz., Cox's Golden Gem, and a netted green-flesh of Mr. Dow's own raising, with a fine crop on it, each averaging 4 to 5 lb. in weight. The seedling Gloxinias here are very fine.

The kitchen garden proper is about 3 acres in extent, and is surrounded by an excellent stone wall. As there is no flower garden outside as yet, the principal walks in the kitchen garden are, as a compensation, ribboned on each side, which in summer gives the place a very gay appearance. The ordinary kitchen garden crops here are good (soil peaty loam), considering the climate. Early Peas and Potatos are generally had about the middle of June, although on the north side of Ben Nevis, 2 miles off, snow lies all the year round. Small fruits are generally very abundant. Mr. Dow, his lordship's head gardener here, is a thorough enthusiast in his profession, and everything that is under his management reflects great credit on him. The woods on the estate are very considerable, mostly in a young state, very healthy and thriving, and will add greatly to the beauty of the landscape in a few years. The farm buildings here are of large extent, in two squares, and built on the most approved principles. The crops are generally the finest in the neighbourhood. His lordship takes great interest in farming operations, rearing of cattle, improvement of stock, &c., and Lady Abinger is equally interested in the well-being of both old and young on the estate. *John Downie, West Coates, Edinburgh.*

Foreign Correspondence.

HORTICULTURAL AND BOTANIC GARDENS IN INDIA.—Reports frequently reach us from the several horticultural societies of India, abstracts from which indicate to our readers from time to time the progress of horticulture in our great Eastern Empire. The good effected by these societies, from experiments on the introduction and acclimatisation of new plants of commercial value, is well known, besides the more general cultivation by the natives of such well known vegetables as Potatos, Peas, Cauliflowers, &c. In a recent report on the general progress of India some account of the various agricultural and horticultural societies is given, from which we gather the following facts. The oldest society, the Agricultural and Horticultural Society of India, was established by Dr. Carey in 1820. It imported fruit trees, offered prizes for essays on the cultivation of Indigo and Sugar, and on the acclimatisation of foreign plants. At one time it had a farm of 160 acres near Calcutta, which was, however, given up. It now has an income of £3000 a year, including a Government donation of £500.

The Agri-Horticultural Society of Bombay was founded in 1830, and in the following year an annual grant of £300 was granted by the Government. In 1835 the Society bought a piece of land at Suri and laid it out as a garden, and in 1853 they established an experimental garden at Kirki, where, down to 1861, experiments were carried on at a loss of expenditure over receipts of £1126; but the only experiments of which a record exists are those conducted by Dr. Birdwood with Cotton and the Sorghum or Great Millet (Imphee). In his report, dated May, 1861, Dr. Birdwood makes the following remarks with reference to the Imphee experiments:—

"I deeply regret the poor results of these experiments with Imphee at Kirki, for I anticipated their success with pleasure. The rapid decay of the manufactures of India invests with the highest importance every attempt to increase the number of its exchangeable raw products. The most trifling articles of native workmanship are being replaced in the bazaars by similar wares from Europe; are being driven from the home markets by the sheer force of Saxon productiveness. Our best efforts, therefore, must be directed to counterbalance the decline in manufactures by a proportionate development of the agricultural wealth of the country; new raw exchangeable products must supply the place of each manufacture as it in succession fails, if the prosperity of India is to be sustained under the circumstances of her dependent and intimate intercourse with Western civilisation."

The Bombay Society was resuscitated through the exertions of Dr. Birdwood, in 1859. When he became its honorary secretary it had only twenty-nine members, and an income from all sources of £500 a-year. When he left, in 1868, the members numbered 153, with a fixed income of £1235, besides special subscriptions. Dr. Birdwood's great work was the establishment of the Victoria Gardens and Museum at Bombay, including a complete botanical garden. The botanical garden was composed of exotic plants first introduced by Dr. Birdwood; of naturalised exotics, such as the Cocoa-nut, Jowari, Tobacco, and many other plants, and of indigenous plants. A sum amounting to £36,000 was raised by public subscription entirely through Dr. Birdwood's exertions, for the laying out and decoration of the

Victoria Gardens. It is much to be regretted that, after Dr. Birdwood left India, the botanical garden should have been destroyed, and that the Society should not have published a single report.

The Agri-Horticultural Society of Lahore was founded in 1851, for the collection of information respecting agricultural operations, to institute experiments, and to supply members with seeds and plants. It has initiated experimental cultivation of the better kinds of Flax and of silk; has introduced the Olive, the Chinese Tallow-tree, and the Australian Gum-tree, has established a school of gardeners, and has distributed seeds and plants.

The Government gardens at Calcutta, Saharunpore, Madras, Bangalore, Lucknow, and Utakamund, have also done most valuable service in the introduction and distribution of new plants and seeds. During 1872-73 the Calcutta garden sent out 8620 packets of seeds, 2302 plants in cases, and 2891 in pots. In the same year there were 3706 packets of seeds, 4088 fruit and other trees, and 6142 flowering plants, distributed from the Utakamund garden in the Madras Presidency. At the Saharunpore gardens, in the North-west Provinces, 37,393 fruit, 156,766 timber trees and flowering shrubs, and 5530 parcels of seeds were distributed during 1872-73, showing a considerable increase over the previous year. As many as $4\frac{3}{4}$ tons of seeds were supplied to the Canal Department. Potatos have become one of the great food staples of the country. They are extensively grown in Kumaon, Garwhal, Kangra, Dehra, as well as on the plains in Saharunpore, Mirat, Cawnpore, Bulandshahr, and Fathigarh. It is recommended that a small quantity of fresh seed Potatos should be annually imported from Europe, to prevent degeneration by frequent renewal. *B.*

Fig. 53—Boarstag Oak, near Holt, Worcestershire (34 ft. girth).

Apiary.

We take the following interesting extract, relating to the swarming of bees, from a letter in *Nature*:—

"With regard to swarming bees by beating the warming-pans, Sir John Lubbock thought there was nothing in it, but that it was an idea which had got possession of some people in the same way as many savage tribes believed that, by making hideous noises during the eclipse of the moon, they could frighten away the evil spirit which held her. Sir John Lubbock would appear to have overlooked the fact that this is a practice arising from the peculiar ownership of which, under English law, bees are the subject.

"'Bees are *feræ naturæ*, but when hived and reclaimed, a man may have a qualified property in them, by the law of Nature as well as by the civil law.' (*Puff.* c. iv. c. b. s. 5; *Inst.* ii. l. 14.) 'Though a swarm,' says Blackstone, 'lights upon my tree, I have no more property in them till I have hived them than I have in the birds which make their nest thereon, and therefore, if another hives them, he shall be the proprietor; but a swarm which flies from and out of my hive are mine so long as I can keep them in sight and have power to pursue them, and in these circumstances no one else is entitled to take them.'

"Hence the origin among villagers of pursuing a swarm with the clamour of pans and fire-irons, not for the benefit of the bee, *quâ* bee, but in order to inform others that the followers are the possessors of the swarm.

"It is easy to imagine that now some villagers may (confounding cause and effect) assert that the sound assists the operations of the bees or those of their hiver. *Alfred George Renshaw, Doctor's Commons, London.*"

Notices of Books.

The February number of the *Geographical Magazine* contains several articles of considerable interest to horticulturists. Among them we may cite an important and very readable article on "Disco Bay, Greenland," from the pen of Dr. R. Brown, and which is of special interest in connection with the proposed Arctic Expedition. The climate of this delectable region may be inferred from the circumstance that the mean temperature of the winter is 3° F., that of spring 19°.9 F., of summer 43°.1, of autumn 24°.1. Nevertheless, the flora is, all things considered, rather a luxuriant one. At some future time we may possibly find room to insert Dr. Brown's notes on this subject; meanwhile we may add that Sequoias, like the Redwood and the Wellingtonias of California, once existed in Greenland, as also Thujas and Salisburias. Magnolias, Sassafras, Diospyros, and other American types once existed there, when the climate must have been wonderfully different from what it is now. The account of the Nicobar Islands, in the Bay of Bengal, by M. de Röepstorff, furnishes an interesting summary of our knowledge of our last new colony. The islands are of course tropical, and at present very unhealthy, but by clearing the jungle in the vicinity of the settlements, and draining the Mangrove swamps, it is confidently expected that the sanitary condition will be materially improved. The natives live in huts raised above the swamps on piles, as was the case with the lake dwellers of Switzerland. Fish and Pandanus bread constitute their chief food. The account of their manners and customs, as told by the writer, is very interesting. Arrack and other abominations derived from the white men are producing the usual results, so that the Nicobarians are destined to speedy obliteration. On the other hand, M. de Röepstorff speaks very hopefully of the prospects of the British colony just established. In an amusing article, entitled "Some Unscientific Notes on the History of Plants," Colonel Yule alludes to the curious mistakes made sometimes by people who ought to know better than make such hasty assumptions. One instance of this is given in the alleged representation of the Custard Apple, Anona, on the walls of caves of the 7th or 8th century in India, the truth being that the Anona is a native of the West Indies, which were not discovered at the time alluded to. In a similar way authors have stated that certain representations on the Assyrian marbles were those of the Pine-apple (Ananas), also of American origin. Colonel Yule throws out the suggestion that the European Poplar (populus, pappel) is etymologically connected with the pippala or pippul of India, the Ficus religiosa, the leaves of which have a strong superficial resemblance to those of the Black Italian or Lombardy Poplar. Colonel Yule also cites a curious passage relating to the Jack fruit, Artocarpus, "which looks like a sheep's stomach stuffed and made into a haggis. . . . The fruit is very adhesive; on account of this adhesive quality, many rub the mouth with oil before eating them. . . They grow not only from the branches and trunk of the tree, but even from its root. You would say that the tree was all hung round with haggises!"

—— We have before us the parts of the *Floral Magazine* for January and February respectively. Tydea Madame Heine is a very handsome Gesnerad. Two handsome Japanese Chrysanthemums—Gold Thread and Cossack—occupy another plate. The best of these Japanese Chrysanthemums make splendid subjects for conservatory decoration, and we have little doubt that the ragged, untidy look which some of them have may be improved by our patient florists. Bollea Patini is one of the most remarkable of recently introduced Orchids, and was described in our columns July 11, 1874. Hæmanthus Rooperi is very striking but devoid of elegance. Masdevallia Chimæra (true) is decidedly one of the most singular even among the eccentric race to which it belongs. M. nycterina is almost equally so. In reference to this plate we may ask the artist whether he considers the flower-pot adds to the beauty of his plate? Bertolonia superbissima is a splendid Melastomad, with ovate leaves, sprinkled above with crimson spots, and of a fine rich claret colour on the under surface. It appears that the ladies have christened the plant as the Jewel plant, and not inaptly. Anthericum variegatum is a handsome variegated plant, very similar in general appearance to Pandanus Veitchii, but destitute of marginal spines.

—— The twelfth and last part of Mr. Jennings' work, entitled *Orchids and How to Grow Them in India and other Tropical Climates* (Reeve), has been lately issued. The plates, which are from the pencil of Mr. Burbidge, are a great improvement upon the earlier ones. In the present number are figured Cattleya labiata, the true Vanda insignis, Pleione lagenaria and præcox, and × Calanthe Veitchii. The work as now completed is dedicated to Dr. Hooker, and if it does not quite fulfil the expectations that were raised concerning it, the fault is not to be attributed wholly to the work itself, which is well calculated as a whole to excite an interest in Orchid culture in India. It is always a matter of regret when books of this character, got up at considerable expenditure, pains and artistic talent, are allowed to lose half their value by the absence of scientific information. As it is, for scientific purposes this handsome volume is of little worth.

—— *Quelques mots sur la Théorie Algolichenique*, par H. A. Weddell. In this communication to the Institute of France, M. Weddell fully adopts the notion of Schwendener and of Bornet as to the gonidia of lichens being really algæ, which the lichen annexes in order to make them contribute to its nutrition, and he quotes in support of this opinion the observations of Professor Gibelli communicated to the Botanical Congress at Florence last spring. According to M. Gibelli, zoospores have been seen by himself and other witnesses on many occasions to be developed in the gonidia of Lecanora subfusca while still contained within the thallus. M. Gibelli has also himself cultivated the gonidia of Opegrapha varia, and, after some time, he had the satisfaction of seeing the gonidia develope into magnificent Chroolepus, which developed zoosporangia and zoospores. Thus, then, the evidence in support of the somewhat *bizarre* notion as to the nature of the green masses in the interior of the tissues of lichens is receiving important accessions, and it is quite evident that the matter cannot be dismissed without full examination.

—— We have received a copy of the second edition of M. Spruyt's *Le Jardin Potager Complet*, an excellent work on kitchen gardening as practised in Belgium, to which we shall probably refer at greater length on another occasion; also a list of seeds offered for exchange by the St. Petersburg Botanic Garden, and entitled *Delectus seminum quæ Hortus Botanicus Imperialis Petropolitanus pro mutua commutatione offert.*

HORTICULTURAL EXHIBITIONS, 1875.

March.

10 and 11.—Leeds Horticultural Gardens Company. Spring Flower Show. Sec. and Manager, James Birbeck, 103, Hyde Park Road, Leeds.
16.—Manchester Botanical and Horticultural Society's Floral Meeting in the Town Hall. Manager, Bruce Findlay.
17.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.
24.—Glasgow and West of Scotland Horticultural Society. Spring Exhibition. Sec., F. G. Dougall, 167, Canning Street, Glasgow.
31.—Royal Botanic Society, Regent's Park. Spring Show. Sec., W. Sowerby.

April.

4.—Special Exhibition of the Royal Horticultural Society of Antwerp.
7.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.
21.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.
22.—Royal Horticultural Society of Ireland. Spring Exhibition. Sec., A. Balfe, 28, Westland Row, Dublin.
27.—Manchester Botanical and Horticultural Society. Exhibition of Auriculas, &c., in the Town Hall. Manager, Bruce Findlay.
28.—Royal Botanic Society, Regent's Park. Spring Show. Sec., W. Sowerby.

May.

1 to 24.—Royal Botanic Society, Regent's Park. Special Exhibition of Clematis, by Mr. G. Jackman.
12.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees. Pot Rose Show.
14 to 21.—Manchester Botanical and Horticultural Society's Annual National Exhibition, at the Garden, Old Trafford. Manager, Bruce Findlay.
17 and 18.—Halifax Floral and Horticultural Society's Annual Exhibition. Sec., Mr. Leonard Kershaw, 20, Gladstone Road, West Hill Park.
20.—Royal Horticultural Society of Ireland. Early Summer Exhibition. Sec., A. Balfe, 28, Westland Row, Dublin.
22.—Crystal Palace Great Flower Show. Sec., F. W. Wilson.
26.—Royal Botanic Society, Regent's Park. Summer Exhibition. Sec., W. Sowerby.
26.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.

THE

Gardeners' Chronicle.

SATURDAY, FEBRUARY 27, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

Monday,	Mar. 1	Meeting of the Entomological Society of London.
Tuesday,	Mar. 2	Sale of a Consignment of Tree Ferns, Liliums, &c., by Protheroe & Morris. Periodical Sale of Poultry and Pigeons, at Stevens' Rooms.
Wednesday,	Mar. 3	Royal Horticultural Society: Meeting of Fruit and Floral Committees, at 11 A.M.; Scientific Committee, at 1 P.M.; General Meeting, at 3 P.M. Sale of Hardy Trees and Shrubs, Roses, Herbaceous Plants, Gladioli, &c., at Stevens' Rooms.
Thursday,	Mar. 4	Meeting of the Linnean Society, at 8 P.M. Sale of 10,000 Bulbs of Lilium auratum, at Stevens' Rooms.
Saturday,	Mar. 6	Sale of 500 Lots of Shrubs, Roses, Fruit Trees, Rhododendrons, Gladioli, &c., at Stevens' Rooms.

CONTINUING our remarks on landscape gardening, we now have to consider that most important element of the subject—the form of trees. It must have been remarked that there is a PECULIAR CHARACTER ABOUT EVERY TREE, that may be occasionally useful for a particular purpose. We all know the effect of the lithe and pendulous branches of the Weeping Willow. As a single tree the Birch is generally too light for an agreeable effect, but place it in composition with heavier foliage, let it hang from the edge of a group, and it will fringe it delightfully. Again, if two or three trees of rigid character are placed on the fore or mid ground, where a mass is not required, add a Birch, and what appeared stiff and formal is instantly rendered firm and beautiful by the contrast; nor is this produced by form alone—the effect of colour, of light and shade, is equally enhanced. How often must this have been remarked in the case of the Copper Beech tree; when in shade it appears almost black, yet the detached boughs, with a light behind them, have a scarlet tinge. As to the Ash, it is a mistake to make a group of these trees only; one or two in a mass of Sycamore, Plane, or Lime trees produce a very beautiful and brilliant effect, but, when viewed singly, their foliage is thin and poor; and this, again, proves that massing is generally a far more advantageous disposition than the line, avenue, or dotted manner of planting, for in the latter mode the light falls equally upon each tree, and then if it be one, like the Ash, of thin foliage, it becomes of no character, and if of a dense foliage, each tree, if of the same species, must look like its neighbour. Where, however, many are grouped together, the shade of the broad Sycamore admirably sets off the cut and divided leaves of the Ash, which, towering above and admitting the light through, cause the dark masses of the Sycamore below to become of a deeper tinge. Besides it is well known that the same kind of tree assumes generally the same figure as to its top; thus the Lombardy Poplar is always spiral, the Oak branching, the Cedar of Lebanon horizontal, &c. Now, where they are not allowed to group there must be a monotony of aspect, and where the trees are of a round-headed character, this produces an effect which is commonly and happily designated mop-headed.

Speaking of the Lombardy Poplar it must be said that no tree has been so sadly treated since its introduction. Naturally a stiff-growing tree, and affording in itself but little diversity of character, its native rigidity has been increased by planting it in single files or rows, where it can harmonise with nothing. The same remark applies to the evergreen Cypress in Italy. Of all things the straight line of a tree that is naturally thin in itself is the least likely to produce an harmonious effect out of its own material. Had a few of them been judiciously planted amongst other trees, as is done, for instance, in a belt facing the Hounslow Road at Spring Grove, their tapering heads would have been seen towering above their spreading neighbours, and each would have derived consequence; but, so convinced are the public that a straight line of any perpendicular-growing tree is not elegant, that they will rarely allow one to be planted where it would really be an ornament to the situation. In such cases no tree that we have in this country would compensate for the absence of the Lombardy Poplar. Thus abuse prevents use in this as in many other matters.

But there are other Poplars too seldom used in the formation of our landscapes. Our own White Poplar once formed a feature of Epping Forest, where its shining silvery bark and drooping character were allowed to assert their beauty; and the large Canadian Poplar, of which magnificent specimens are to be seen here and there, and whose leaves change to a bright orange in autumn—that, too, must be discarded, because, forsooth, it is a Poplar.

It is time we rose superior to these prejudices, and learned to view objects in Nature with reference to their own capabilities in combination, and then we should learn to despise nothing and to prize those objects most that have a distinct character of their own, for with such material in skilful hands a better result may be hoped for.

Firs, when well placed, give a magnificence and solitary grandeur that few other plants can produce. They will not succeed as single trees; they must be grown in quantity, and, to be seen in their greatest beauty, they must be situated on an ascending plane of considerable extent. Firs have been extensively planted in various places, but in almost every instance they are in too thin belts; the lower limbs die after a time, leaving the upper part of the tree only with foliage. Where the belt is thin the light, of course, is visible; this, if confined to a few places, is a beauty, but when it is regularly visible for the whole length of the plantation it convinces us the trees have not answered the purpose for which they were planted, and moreover their aspect is little better than that of a line of hop-poles. Had the belts originally been planned of three or four times the depth, this thinness would have been avoided. In such cases a young plantation in front would materially improve the aspect in a few years.

It is surprising to find that, in plantations of this kind near houses, so little attention has been paid to produce a variety in the undergrowths. Let us go into a natural wood, one that has never been planted, and we shall be as much struck with the humble undergrowth as with the timber trees themselves. After straggling through a half-mile of thick well-wooded land, where the sun's rays struggle in vain for entrance, we suddenly emerge upon an open glade abounding in Heath, Furze, and Broom; how variously does the light affect it—how different the strips lit up with the sun's rays to those embrowned with the deep shadow of the wood! And then, again, how we admire the bright and varnished Holly and Box that grow secluded from the sun and wind! The very Periwinkle that twines at our feet, and the Briars and Honeysuckles that fling their fragrance above and around us, have each a beauty to lend and to borrow from their situation.

This principle may be carried much further, and with equal truth. Who does not admire the beautiful Fern that grows at the foot of the Oak? or ask a painter if he would give up the intricacy of the twining Clematis or Bramble in the foreground? Why, the very Ivy stem which, destitute of leaves below, yet clings like a coarse lacing about the trunks of trees, cannot be omitted.

But vegetables much more humble than these claim the painter's attention. The trunk of a Beech, an Elm, or an Oak, is often the habitation of whole colonies of lichens and mosses; these diversify the surface, render the bark more intricate, and add a beautiful glow of orange, or a brilliant dash of green, agreeable to the species. If, therefore, the imitator of the beauties of Nature cannot dispense with all these appendages in the foreground of his landscape, why is a plantation to be contrived where trees of the larger growth are only permitted, where Ash, Oak, and Elm, with perhaps Beech and Fir, are to mingle, with no Privet nor Thorn, nor Heath, nor Bramble, to fill up and contribute their share of beauty?

Were we to reason on the case, we should say that where profit only is sought, such spots should not be permitted; but they ought to be freely introduced in all plantations where ornament is to be combined with profit.

When the Beech is kept low by being placed under larger trees, it then mixes with Holly, and forms, during winter, the most beautiful contrast in the underwood. This principle extends itself to the effect of colour in trees of large growth, as well as in shrubs. Whoever has remarked a quantity of Willows in one situation, or of the Silver Poplar, cannot fail to have observed how cold an aspect they communicate—the grey or whiteness of their leaves so predominates that the very air seems cooled by them; but let a few of these trees occasionally skirt a wood or plantation, and a bold relief is the instant consequence—they start forward and, receiving part of the shade of their more umbrageous neighbours, become objects of beauty instead of aversion. Some deciduous trees retain their leaves fully three months after others even of the same family. A remarkable instance of this occurs in the Elm, the Scotch variety of which sometimes sheds every leaf at the end of August, and in exposed situations at a much earlier period, while the Kidbrooke Elm does not shed its foliage till much later. By a careful use of this instead of the Scotch Elm, in particular situations, a summer-like effect may be kept up for a much longer period.

The principle under which most of the latter remarks would be ranged is that of composition in general, the right ordering of which is equally essential in music, painting, and landscape-gardening. The composition of the masses

ought to be regulated in great measure by the character of the surrounding scenery and the extent of the domain, always with reference to the regularity or irregularity of its surface.

It must be laid down as an obvious principle in massing, never to shut out anything that can contribute to the beauty of the distance; but, by judiciously arranging the middle ground, to contrive to heighten its effect by giving the appearance of greater distance through massing in the middle ground, leaving fields of view open between them. In this way, too, very frequently one property may apparently be joined to another, in such a manner as to make the whole appear like one estate. This appearance is given readily by observing the flow of lines in neighbouring plantations, and making them continuous with those on one's own. In open situations the introduction of the ha-ha has in a great degree tended to this effect. In the former instance, when the landscape artist is allowed to join effect with either natural woods or plantations, another great good results: he is enabled to give breadth of light and shadow—an effect equally pleasing in a landscape and in a picture, for it may safely be laid down as a rule, that whenever the objects are scattered, disconnected, or in patches, the light and shadows will be so too, and *vice versâ*. If, for instance, we suppose a continued chain of hills, either entirely wooded or entirely bare, under the influence of a low cloudless sun, whatever parts are exposed to that sun will have one broad light upon them, whatever are hidden from it one broad mass of shadow. If, again, we suppose this wood to have been thinned in such a manner as to have left masses, groups, and single trees, so disposed as to present a pleasing and connected whole, though with detached parts; or if we suppose the bare hills to have been planted in that style, the variety of light and shadow will be greatly increased, and still the general breadth will be preserved. But if the wood were so thinned as to have a poor, scattered, or unconnected appearance, or the hills were planted in clumps, patches, and detached trees, the lights and shadows would have the same broken and disjointed effect as the trees themselves. If to this were added any harsh contrast, such as Scotch Pines and white buildings, the irritation would be increased, and the eye, instead of reposing on one broad connected whole, would be arrested and harassed by little disunited discordant parts.

With one other remark on the manner of arranging plants with a view to effect, we bring these hints to a conclusion. It is, that in many plantations it has been the practice carefully to mix the same kind of tree in equal proportions and distances over the whole ground.

Fig. 54.—Angræcum ellisii, in Mr. Day's collection at Tottenham.

Now, upon the slightest consideration, it will be recognised that the effect of this must be to produce a uniformity that invariably becomes insipid, and as during the infancy of the plantation at a little distance an individual plant is lost, so such mode must occasion a similitude in light over the whole mass, whether it be viewed at morning, mid-day, or evening. But suppose that an irregular number (thirty or forty of the same species) be placed in a group, and then next to them half the quantity of another, and on the right and left masses of others still varying, how widely different will be the result. The external form of such plantation would afford, in early growth even, a diversity and character that would be striking, and the effect of light and shadow on masses of light foliage at twilight, and on dark ones in the mid-day sun, would be highly increased and appear almost magical. Besides, if all the varieties of plants in a shrubbery are to be carefully placed at equal and recurring distances, what inducement is there to proceed to view the whole when the first few yards contains all the variety that probably a walk of a mile will afford?

—— RESPECTING ANGRÆCUM ELISII, of which we give at fig. 54, p. 277, a representation, from the plant which flowered in the rich collection of Mr. DAY, of Tottenham, in April last, we may quote the following particulars, from Mr. WILLIAMS' *Orchid Growers' Manual*:—"This beautiful species was introduced to this country, from Madagascar, by the Rev. W. ELLIS, whose name it bears, and is undoubtedly one of the finest species of the genus in cultivation. The leaves are arranged in a distichous manner, and about 10 inches in length by upwards of 2 inches in breadth; dark green on the upper side, paler below, and unequally bilobed at the apex. Flower-spikes some 2 feet long, arching, bearing from eighteen to twenty-four flowers, pure white, and very fragrant; sepals and petals reflexed; spur of the lip 6 inches long, and light cinnamon in colour. The profile of the flower is an exact resemblance of a cockatoo. It requires the temperature of the East Indian House." Mr. DAY's specimen is one of ELLIS's original plants, and differs in some particulars from others in the hands of the trade. The flowers have a perfume of sherry, and the nectar has, on the authority of Mr. W. G. SMITH, a taste like that of the berries of Solanum Dulcamara. The flowers change to a brown colour if bruised. The name Angræcum is a Latinised form of a Malayan word signifying epiphyte.

—— The first show of the year at the Lal Bagh, Bangalore, was held in January, in the Darwinia, and the display of cut flowers and fruits was remarkably good, the Apples and Strawberries being especially noticeable for their size and fine appearance. The vegetables too, were not to be despised, and did credit to their exhibitors. Special prizes were given by Colonel PUCKLE for the best arranged round dinner-table for six persons, laid out with garden flowers, one vase or centrepiece and four specimen glasses being only allowable as aids in the decoration. For a similar arrangement in camp, where wild flowers, Ferns and grasses only are available. No vase or centrepiece or specimen glasses of any sort were allowed in the competition for this prize. Also for the best model of a small carpet-garden laid out suitably for the compound of an Indian bungalow.

—— We find from the schedule of the GRAND NATIONAL HORTICULTURAL EXHIBITION AT MANCHESTER, which is now before us, that there are sundry prizes offered which are well worth competing for. There is a prize of £30 for twenty plants, of which half are to be in flower; and a prize of £20 for ten plants, distinct, and in flower. Other prominent prizes are £16 for sixteen exotic Orchids, and £10 for eight stove and greenhouse plants, in the amateur's classes; and £16 for sixteen exotic Orchids, £10 for ten exotic Orchids, £10 for eight greenhouse Heaths, £10 for eight greenhouse Azaleas, £10 for twenty greenhouse Azaleas in 8-inch pots, £15 for twenty-five hardy Rhododendrons, £25 for twelve Roses in pots, £15 for forty Roses in 9-inch pots, £10 for ten hardy evergreens, £10 for ten hardy Conifers, £12 for a collection of Clematis, and £12 for twelve new and rare plants, among the classes set apart for nurserymen. The schedule extends to seventy-one classes. The show is to be open from May 14 to May 21 (inclusive), and entries close on May 6.

—— We mentioned some time since the death of Mr. W. BUCKLEY, of Tooting, after a prolonged affliction, and we are sorry to have to add that his widow and young children are left almost destitute of means. We are very glad, however, to find that Mr. BUCKLEY's employers, the Messrs. ROLLISSON, whom he served so long and so well, have taken up the cause of his bereaved family, and have organised a committee to obtain subscriptions on their behalf. We trust that the public sympathy manifested towards them may be as wide and as free as was his own love for plants, and his amenity towards and predilection for all those who took an interest in them for their own sakes. Any contributions in their behalf may, in the meantime, be sent to Messrs. ROLLISSON & SONS, nurserymen, Upper Tooting, Surrey.

—— We believe that the prospects of a more harmonious action between the "local Fellows" of the ROYAL HORTICULTURAL SOCIETY and the horticulturists on the one hand, and between the Council and their landlords, the Commissioners, on the other, are likely to be much improved by the resignation of Sir ALFRED SLADE and Mr. CHETWYND. Though excellent and energetic men of business, their procedures raised opposition where a more conciliatory tone might have been beneficial. We earnestly trust that the horticultural Fellows will not fail to attend the adjourned meeting on the 9th of March, and take advantage of the favourable turn of affairs. It ought to be quite practicable to secure the rights of local Fellows, and still carry out the main objects for which the Society was founded.

—— Dr. MASTERS' lecture at the Royal Horticultural Society on February 24, on CHARLES DARWIN as a horticulturist, was, owing to the inclement weather, but thinly attended. The lecturer alluded to several of the more important discoveries and deductions made by DARWIN in vegetable physiology, and showed their bearing on practical horticulture. The further report of the lecture is deferred in order that we may at the same time give a portrait of the great naturalist.

—— The summer show of the LEE AND BLACKHEATH HORTICULTURAL SOCIETY will be held on Thursday and Friday, June 17 and 18. The Society will also hold an exhibition expressly for cottagers, on Saturday, September 11.

—— We understand that the specimen plants preparing for Messrs. JACKMAN & SONS' CLEMATIS SHOW at the Royal Botanic Gardens, Regent's Park, are in a most promising condition, so that a good display may be confidently anticipated. The buds are now swelling out fast, foreshadowing an abundant crop of blossoms, to the development of which, if we may judge from the past, the air of Woking seems particularly favourable, aided no doubt by some practical "wrinkles," which have been learned by experience. A Clematis show will be something of a novelty, the plant having so rapidly taken up a prominent position amongst decorative subjects; but from what we have already seen of its capabilities we shall be disappointed if a really good exhibition of the best sorts, well grown, will not be a sight to be many times indulged in, and still retained with pleasure in the memory. The exhibition is to be open during May.

—— Mr. J. F. JOHNSON informs us that for the last six years a considerable number of plants of EUCALYPTUS GLOBULUS have been planted out in the Royal Botanic Garden, Belfast, all of which have died, with the exception of one example planted in 1872 in a very sheltered corner protected from wind and cold. This produced a growth of a few feet, but the exact measure was not noted. In the winter of 1872-3 it was killed to the ground, but the following summer made a growth of 8 feet 6 inches high. In the winter of 1873-4 it was killed to within 15 inches of the ground, but last summer it made a clear 15 feet of growth, and branches in proportion. The plant has not yet suffered any serious injury this winter. The Dracæna australis does well here in the open ground.

—— The ISLE OF THANET FLORAL AND HORTICULTURAL ASSOCIATION and Cottagers' Gardening Society, will hold its twentieth annual exhibition in Bromstone Park, St. Peter's, Ramsgate, on Wednesday, August 25.

—— The best mode of SECURING NEWLY PLANTED TREES having long slender stems and full heads from danger of being loosened by winds is one of some moment to planters. The common method of fixing three stout stakes in a triangle, the apex of which is secured to the stem of the tree by haybands, is decidedly objectionable, as presenting an unsightly appearance. In the course of some planting which has been extensively done at Gunnersbury, the residence of Baron L. DE ROTHSCHILD, during the winter, and especially in the case of planting exposed mounds, a simple plan was adopted, which appears likely to answer every purpose, and is carried out with rapidity—an important consideration when the weather is unsettled, and operations are liable to frequent suspension. Three stout stakes, the width of the hole in which the tree was planted, were so laid below the surface of the soil as to form a triangle, which gripped the stem of the tree just above the collar, and were then trodden firmly into the soil. The stem might sway about with the wind, but there is no loosening of the roots, and by the time the tree is firmly established in the soil the grip on the stem loosens through the effects of rot.

—— The showy double carmine variety of PRIMULA SINENSIS FIMBRIATA, shown at the last meeting of the Royal Horticultural Society by Messrs. H. B. SMITH & Co., of the Ealing Dean Nurseries, is especially worthy of notice, because so useful for decorative purposes by night, as the colour is unaffected by gaslight, except that it is considerably heightened, and so rendered more effective. It is also to be preferred to the single variety of the same colour in that the flowers do not drop till they fade, and this also makes it very useful to cut from. The habit of growth is all that can be desired, as the flowers are produced in evenly displayed clusters, not too crowded, on erect stiff foot-stalks well above the foliage. Messrs. SMITH are growing it largely, as they find it invaluable for cutting from, as well as for market purposes.

—— The African traveller, Dr. SCHWEINFURTH, has been appointed director of the KHEDIVE's natural history museum and botanical gardens at Cairo.

—— The next meeting of the INSTITUTION OF SURVEYORS will be held on Monday evening, March 1, when a paper will be read by Mr. E. RYDE, entitled "The Rating of Country Mansions." The chair to be taken at 8 o'clock. After the reading of the paper (the discussion on which will be postponed until the next meeting) Mr. J. R. BONNY will call attention to the provisions of the Home Secretary's Bill for facilitating the Improvement of the Dwellings of the Working Classes in Large Towns.

—— The inquiry of a correspondent reminds us of the following memorandum on an IRISH HABITAT for the MAIDENHAIR FERN, kindly furnished by Mr. A. F. BARRON, of Chiswick, on the occasion of a visit to Ireland in the course of last autumn. Mr. BARRON states that on the very ridge of one of the caves in the Giant's Causeway his eyes for the first time reposed on the Maidenhair Fern in its natural habitat. It is there growing freely, seemingly with but little soil. The fronds are very short. Although exposed to view, it is quite inaccessible, being some 30 feet above one's head when in a boat on the open sea. Let us hope that this inaccessible station may prove, also, indestructible.

—— A new candidate for public favour is announced to appear shortly, in Belgium, under the name of the *Revue de l'Horticulture Belge*. Its editorial staff includes many of the most competent Belgian, and indeed of European horticulturists, and one main object of the promoters is to interest amateurs in common plants of merit, or in plants whose merits have been overlooked or neglected. M. PYNAERT is the *redacteur en chef*. We await the newcomer with much interest.

—— At a meeting of the Meteorological Society of Edinburgh on the 10th inst. Mr. BUCHAN read a paper on the bearing of meteorological records on the supposed CHANGE OF CLIMATE IN SCOTLAND, a subject discussed by Mr. M'NAB at the Botanical Society of Edinburgh, whose remarks were criticised from a cultural point of view by our correspondent, "Frutex," in our last volume. Mr. BUCHAN concludes that there has been no general tendency towards a permanent change, either as regards summer heat or winter cold.

—— An influential committee has been formed for the purpose of organising a great INTERNATIONAL HORTICULTURAL EXHIBITION, to be opened at COLOGNE on August 25, and to remain open till September 26, 1875, in the grounds of the "Flora," which will be considerably enlarged by the annexation of the adjoining premises. Her Majesty the Empress and Queen of PRUSSIA, as Patroness of the Flora, together with His Imperial and Royal Highness the CROWN PRINCE, are the patrons of the exhibition. Negotiations for the nomination of commissioners from foreign Governments have been already begun by the Minister of Agricultural Affairs; and the committee invite all who take an interest in the progress of horticulture and gardening to contribute to the exhibition. The exhibition is to comprise all horticultural plants and productions (with the exception of Vines and Grapes, which are excluded, owing to the possibility of the appearance of the Phylloxera vastatrix), also working utensils, machinery, implements for building, as well as collections of any kind connected with rural life and the development of garden culture, under the following classifications:—

I. Horticulture—(*a*) Glasshouse plants; (*b*) plants grown in the open air; (*c*) fruit trees and shrubs; (*d*) cut and dried flowers.

II. Horticultural Productions—(*a*) Fruits: fresh, dried, an

preserved; (*b*) produce of vegetable juice and vegetable fibre, viz., wines, beers, liquors, oils, resin, gum, colouring matter, hemp, flax, cotton, sugar, starch, &c., as also the various manufactures therefrom; (*c*) rearing of bees, and produce thereof; (*d*) vegetables, fresh, dried, and preserved; (*e*) seeds of all kinds.

III. Garden Architecture, including—(*a*) Plans and models of gardens, pleasure-grounds, and parks of all kinds; (*b*) glass-houses of all kinds, their heating, ventilation, shade and cover contrivances; (*c*) summer-houses, pavilions, verandahs, arbours, tents, marquises, as also ground-floors in squares, tiles, mosaic, cement, asphalte, or other materials; (*d*) garden furniture; (*e*) bridges, wharfs, ferries, aviaries, swan and duck-houses, &c.; (*f*) construction of roads and walks; (*g*) rock, tunnel, and grotto work; (*h*) fences, garden gates, espaliers of various kinds; (*i*) models and plans of the constructions specified in list *b* to *h*, together with an estimate of prices.

IV. Garden Decoration, including—(*a*) Artificial fountains, *jet d'eau* spouts; (*b*) statues, vases, urns, pedestals of all kinds and of all variety of materials; (*c*) bordering and trimming of walks and flower beds; (*d*) flower baskets and stands, flower lustres, hanging lamps, and panorama globes, &c.; (*e*) collections of garden illuminations of all kinds.

V. Garden Tools and Machinery, viz.—(*a*) Pump works, steam, gas, petroleum, air, and other machinery; (*b*) Abyssinian and other fountains, water-pipes for gardens, grounds, &c., watering apparatuses, water conduits, &c., watering carts and cans, &c., water engines, garden syringes, &c.; (*c*) working implements, such as spades, hoes, rakes, &c.; (*d*) clipping utensils and mowing machines; (*e*) barrows, carts for transport and transplanting of plants, &c.; (*f*) flower-pots, plant labels, staves, bouquet boxes, bouquet holders, &c.; (*g*) surveying, levelling, and drawing utensils.

VI. Garden Collections, including—(*a*) Wood and seed collections; (*b*) collections of beetles, insects, and butterflies, with the various larva which may be injurious or beneficial to garden tillage.

VII. Artificial Fruits, Flowers, and Plants—(*a*) Artificial fruits, single and in collections; (*b*) bouquets and wreaths, (*c*) all kinds of plants and flowers.

VIII. Garden Literature—(*a*) Works concerning the auxiliary science of horticulture; (*b*) works on rural tillage; (*c*) works on the culture of plants, fruits, and vegetables.

The committee will endeavour to facilitate as much as possible the means of communication, and to remove all difficulties connected with the transport of goods. Negotiations have been already begun with the railway and steam companies to procure a reduction of the usual freight charges, and with the Custom-house authorities to procure every possible facility for all articles sent to the exhibition. Information as to the result of the negotiations will be given as soon as possible. Eminent and impartial men of the different nations represented in the exhibition will be chosen as judges. Care will be taken that the machinery sent in shall be put in action during the exhibition. Articles exposed will be purchased and disposed of by lottery, for which the sum of 135,000 marks Pruss. money (£6750) shall be laid out; exhibitors are therefore requested to state, on announcing objects, whether they can be bought, and at what price, as also to keep in view the following regulations:—(1). The exhibition opens on August 25, and closes on September 26, 1875. (2). On sending articles exhibitors engage to leave them until the close of the exhibition, and to withdraw them within a week after the same. (3). Covered space will be set apart for all objects requiring it. (4). Objects to be exposed must be announced at latest by July 20. (5). Flowers and fruit will be exhibited in two series; the first series from August 25 till September 10, and the second series from September 11 till 26. (6). Prizes, awarded by the decision of a jury, will consist of sums of money, prize medals of gold, silver, and bronze, as also honourable mentions. (7). After the close of the exhibition a public sale, free of expense, of objects allotted by the exhibitors themselves will take place. (8). Stall money will not be raised. It is requested that all communications be addressed, post paid, to the Horticultural Society, "Flora," Cologne, from whence all necessary information can be obtained.

—— Amongst a collection of CEYLON native products recently received at the Kew Museum, are a series of ropes used as CATTLE ROPES, made from the twisted or plaited stems of various Cingalese plants. Many of these ropes are rough in their manufacture, but are nevertheless very strong. The interest in this collection lies in the singularly careful selection of the plants themselves, showing that the natives are fully alive to the characteristics of toughness and strength which prevail in some orders, and are quite absent in others. Thus we find that in Menispermaceæ—an order so noted for its tough, pliant stems, that many of the Brazilian species are used for tying up Cotton bales, instead of ordinary ropes—three plants are so used, viz., Coscinium fenestratum, Anaminta Cocculus, and Limacia cuspidata. The first-named (C. fenestratum) really makes an excellent rope, compact, pliant, and strong. The other plants used, and of which specimens are at Kew, are Delima sarmentosa, a Dilleniaceous plant with rough leaves, which are used sometimes as sand-paper; Gyrinops Walla, an Aquilariaceous plant; Ichnocarpus frutescens, an Apocyneous climber; Derris uliginosa, a Leguminous plant; Rourea santaloides (Connaraceæ); Strychnos cinnamomifolia, and Ancistrocladus Vahlii. Besides these, however, the stems of the Calami make strong but stiff ropes. These can be obtained in almost any length, as they grow to such enormous heights, and twine themselves to such immense distances among the trees. The ingenuity with which the ropes are made is striking, the stems being split down nearly to the end into the number of strands required, and then plaited. Stems of C. gracilis, C. longisetus, C. tenuis, and C. rudentum, so treated, are in the above collection.

—— CYCLONEMA MYRICOIDES, a very pretty deciduous shrub, is now flowering in the Palm-house at Kew. The genus is very nearly allied to Clerodendron, if, indeed, it is not quite the same. The leaves are lanceolate, or oblong-lanceolate, deeply serrated, shortly petioled, and, at this season, of a pale green. When bruised they have a disagreeable smell. The flowers are produced in loose cymes, fascicled in the leaf-axils of the young growth. The corolla is irregular, its lower and longest lobe pale blue, the four upper pure white. It measures in breadth about 1 inch, by 1½ inch the other way. For the sake of variety, this Cyclonema is well worth cultivating, and a common or well-known plant it does not seem to be. Increase is easily effected from cuttings. A native from Abyssinia to Natal.

—— The WEST OF ENGLAND ROSE SHOW is fixed to take place in the Shire Hall, Hereford, on Tuesday, June 29.

Home Correspondence.

Fuchsia Riccartoni.—I am surprised at Mr. Tillery's account of the origin of this grand old Fuchsia (p. 206), as he is generally so well informed on such matters as this. In 1833, when living near Edinburgh I visited the best gardens in that neighbourhood, and perhaps more especially Riccarton, the seat of Sir James Gibson Craig, Bart., about 6 miles west from Edinburgh, where things were done well, particularly fruit, both indoors and out. The management of the wall trees and produce from the same I have not seen surpassed since, and all other plants grown there showed the same good cultivation under the able direction of the late Mr. John Young, afterwards gardener at Archerfield. On one of my visits there I was shown what I believe was the seedling plant of Fuchsia Riccartoni, raised by Mr. Young from seed of Fuchsia globosa; the others then in cultivation were coccinea, virgata, conica, gracilis, microphylla, and one or two others. I believe the stock was never strictly sent out, as we term it now, but it was principally sold by the firm of Messrs. James Dickson & Sons, of Edinburgh, who were then the most active in florists' flowers. It was about that time when the herbaceous Calceolarias began to attract attention, and I well remember the pretty C. Kellyana, named in honour of Mr. Kelly, their intelligent foreman. These seedlings so took my fancy that I determined to try my hand at seedling raising as soon as I had an opportunity, with what results is well known, and I have been among the seedlings of various sorts ever since. *Francis R. Kinghorn, Sheen Nursery, Richmond, Surrey, Feb.* 18.

—— When I lived in the Glasgow Botanic Garden, from 1832 to 1835, upwards of forty years ago, I remember very distinctly a variety of Fuchsia then grown there under the designation of Fuchsia sp., from Port Famine, which was, I think, named about the same time, or soon after, by Dr. (afterwards Sir) William Hooker, Fuchsia discolor. I remember about the same period, or a little later, the Fuchsia Riccartoni being then generally grown under glass, and considered a decided improvement on the Fuchsia discolor. Miss Gibson Craig, at p. 205, in describing the origin of Fuchsia Riccartoni, says, that "one of the parents was globosa;" Mr. Downie corroborates the statement. In all probability the other parent was Fuchsia discolor, as it resembles the latter much more than the former in appearance, hardiness, and vigour of growth, the globosa strain being, however, quite apparent. I have tried most of the hardier varieties of Fuchsias for outdoor culture, but find none of them succeed so well as the Fuchsia discolor. It is hardier than the Fuchsia Riccartoni, consequently is less liable to be cut down by severe frost. This is the Fuchsia generally grown within a moderate distance of the sea coast in the south and south-west of Scotland and many parts of Ireland, forming large spreading bushes from 8 to 12 or more feet in height, very frequently confounded with the Fuchsia Riccartoni, but quite distinct from it. *A. Fowler, Castle Kennedy.*

Primula altaica (so-called).—If the origin of this pretty single mauve-coloured Primrose could be traced, it would no doubt be found to have started from the common Primrose as a coloured seedling, perchance the result of impregnation with the pollen from a coloured Oxlip may have again given coloured seedlings until this pretty mauve form was finally evolved. The wild Primrose in this sportive form is very abundant at Dropmore, from whence a few years since I obtained a plant of a pure white variety. This, although flowered in a house remote from other kinds, has produced seedlings of which, whilst nearly all have pure white flowers, yet some are coloured, one being of a pale mauve, and almost a duplicate of the variety hitherto known as Primula altaica. Perchance in the same way must we look for the origin of Primula auriculæflora, although here the flowers are of much more perfect form and richly coloured, and probably in these two respects it will never be excelled by any other Primrose. Still there is room for size and variety in colour, and these are now rapidly forthcoming. *Alex. Dean.*

The Eccentricity of Growth. — Some of your readers may be interested in the enclosed drawing from an insignis trunk, taken soon after a large branch had been cut off—April 17, 1874. It will be noticed that the growth of wood and bark is 1¾ inch above the pith, and 11 inches below; it also has 8 inches of wood and bark on the north-east side, and only 2 inches on the south-west side of the pith. I have noticed the growth of trees as to eccentricity of sections of trunk since 1865, when the theory I had seen stated, that the growth is greatest on the sunny side of a tree, was quite contradicted by facts I observed in the site of a plantation that had been lately cut down. The eccentricity of trunk section at the base depends much more on the position of other trees relatively to the one observed. Thus, if a tree grows on the south side of the one whose section is observed near enough to interfere with its roots and kill the branches on that side, while the tree has room to throw out its roots and expand its branches on the north side, its roots on the south side fork on each side of the tree near it, and there will be no root of any size growing directly towards its neighbour. Therefore, the deposit of wood on that side will be much less than on the side where there is less interference with the growth of the tree. The only exceptions to this rule that I have noticed are when one tree overtops another, or where the soil is so much better on one side of a tree than the other, that is, has enough food on the crowded side. This I once noticed in a Pinaster which was robbed of all the good soil on the outside of a plantation by its having been taken to make a turf edge, causing most wood on the plantation side of the pith. As the tree had been quite sheltered by another plantation across the road, I was at first puzzled at its eccentricity being on the side where other trees grew, and not on that where it had room to expand its branches. Now to account for the eccentricity in growth of branches. In the section enclosed there are two causes. Gravitation in a horizontal branch causes most of the sap to flow on its lower side, and consequently there is most albumen deposited on the lower side of the branch, and the bark cracks, and shows more signs of growth than it does on the upper side. The greater growth on the north-east side I account for by there being more branches that intercept the current of sap passing down the trunk on the south-west side than on the north-east—as you will see from the diagram on a small scale in the corner of the tracing where the wound observed is marked with a cross. *H. R.* [The diagram already given at p. 147 sufficiently illustrates our correspondent's remarks. EDS.]

Botanical Collectors.—Mr. Gustav Wallis has published some statements, and alleges certain grievances, in your columns, and also in the *Hamburger Garten und Blumenzeitung* and in the *Gartenflora*, which I cannot allow to pass uncontradicted. The writer styles himself a botanical traveller, although I have never obtained from him a single dried specimen in the interest of science. He complains that I no longer mention his name in the *Illustration Horticole*, and takes the opportunity of advancing the most extravagant claims. As Wallis has himself thought fit to lift the veil which I had permitted to conceal his conduct, I think it my duty now to set forth his behaviour in its true light. What I have to say may be a lesson to others, who, like myself, may have the unfortunate weakness to put too high a value on the services of their *employés*, and to raise them on a pedestal and fill them, as in this case, with the most ridiculous self-conceit. Wallis went to Brazil as an assistant gardener. After dragging on a miserable existence there for several years, he besought my assistance. I listened to his entreaty, and shortly afterwards took him into my service as collector. This was probably the happiest moment of his life, for, far from having sacrificed eight years to my interests, as he now affirms, his admission into my service was, on the contrary, a piece of good fortune, which saved him from poverty and assured him a career. I found him poor, unknown, and forsaken; and he left me with a name, a small fortune, a museum of curiosities of all sorts (formed in his native town in Germany by numerous consignments during his voyages) and honours, obtained through my influence, such as a collector never before enjoyed. As he was a novice in his calling I guided him step by step, and from my own experience and from my exact instructions, he travelled from the mouths of the Amazon to the other side of the Isthmus of Panama. This journey cost me upwards of £5000. The expenses of crossing Peru and

Ecuador were enormous, and the returns were insignificant, in consequence of the bad state in which the plants arrived. Apart from several introductions which made more noise than profit, the journey remained unproductive until New Grenada—the classic ground of the genera Odontoglossum and Masdevallia, many of which were discovered by myself—was reached. Following my directions a collector might have refound them—in a manner of speaking—blindfolded. Moreover, this voyage had not the slightest scientific pretensions. It was simply a commercial enterprise, undertaken for the purpose of supplying the wants of my establishment. The idea, its accomplishment, and the results belonged to me alone. Regardless of the name or quality of the agent, I had the right, if I chose, to omit all mention of his name and of the habitats of the plants—a course which the most elementary knowledge of commercial prudence would have dictated, in order to avoid competition. English importers of plants act in a similar manner, and let those who would blame them remember what has happened in Wallis' case. In fact, if, instead of making him known by all the means in my power, associating his name with the plants received and obtaining medals for him at the exhibitions, I had left him in the obscurity from which unassisted he would never have emerged, he would not have had the chance of profiting by the experience which he gained through my teaching and at my cost. I deny most positively the right of Mr. Wallis to speak of the plants which he has been commissioned to collect for me, or of the localities in which they were found. In carrying out a commercial mission for me and at my expense, he would only have done his duty, as any one else would have done; but how stands the case? Inflated with self-importance, Wallis deserted me once; but after an absence of two years, I was so imprudent as to take him into my service again, imagining that a remorseful conscience brought him back again to me, and for this act I experienced the most sorry recompense. Continuing to mention his name after such proceedings would be simply to reward ingratitude and encourage defection. I disdainfully decline to criticise the false pretensions of Mr. Wallis concerning the introduction of Cattleya gigas and Curmeria picturata; but, desirous to render to Cæsar the things that are Cæsar's, I declare that it is not true that these plants were introduced by Wallis, but that their first introduction to my stoves is due to Mr. Roezl. Had Mr. Wallis succeeded in introducing these plants, would it have been necessary for me to go to the expense of a second expedition for the purpose? With regard to the part that Wallis claims to have played in my service, it is scarcely necessary for me to mention that, after more than ten years' scientific travels, carried out at the order of the Belgian Government, I have since employed myself during thirty years in the organisation of expeditions in different parts of the world, and during that long period I have had from eight to ten collectors as well, and some better known, thanks to me, than Wallis. My chief introductions were made long before I knew him. Odontoglossums and Masdevallias flourished in my houses ten years before they became fashionable with amateurs, yet none of my collectors made the ridiculous pretensions raised by Wallis. If such absurd claims were admitted, there is no reason why each and all of my gardeners should not urge similar claims. Collectors, both before and after Wallis, have never failed me. Other expeditions are at the present moment in course of execution, and there is no cause to suppose that the services of my actual travellers will be less than those rendered by a man who, in return for numerous kindnesses, has shown towards me the greatest ingratitude and bad feeling. *J. Linden.*

The Eucalyptus, &c.—As an instance of the comparative hardiness of this plant, I may mention one growing here, which has been out two or three years and which was quite uninjured by the late severe frost, when on one or two occasions a thermometer hanging within a dozen yards of it registered 16° of frost, a very unusual degree of cold in this locality. The plant referred to is certainly growing under the shelter of a wall, and hence may not quite fairly indicate what cold it would stand in a more exposed place, but it overtops the wall 2 or 3 feet and the top is quite as uninjured as the lower part, in fact the accompanying shoots, cut from the top and therefore freely exposed part, will show that to be the case. [Yes.] If it prove equally hardy when planted free from artificial shelter it will be a welcome addition to plants suitable for seaside planting, though in such localities it should be planted in such a position that it will not feel the effect of the sea winds, its large leaves being evidently ill-adapted to withstand their force. We intend to give it such a trial at this place, where Myrtles, Camellias, and Indian Azaleas, planted in the open ground, have passed through the late severe weather without the least injury. The same may be said of Clianthus puniceus and Coronilla glauca against walls, but otherwise unprotected; the former of which will in a short time be a sheet of bloom, while the latter has been in full flower for several weeks. The Clianthus as a pot plant is seldom satisfactory, but grown against a wall in the open air it is a most distinct and striking object, and speedily covers a large surface of wall. It would undoubtedly require protection in severe weather in a less favoured climate thanwe have here. *J. Ellam, Bodorgan, Anglesey.*

Romneya Coulteri.—This fine annual represents a type of Papaveraceæ, and is closely allied to the well-known species of Argemone. It is an annual of 4 to 5 feet in height, with a branching habit, and pinnatifidly-lobed leaves. The flowers are large and beautiful, of a compactly circular salver-shaped outline, 5 to 6 inches in width, pure white, and deliciously fragrant. Some idea may be gained of its effective character when it is stated that a single plant will produce from 60 to 80 flowers. *E. G. Henderson & Son.* [To this account we may add that the plant above-mentioned was first described by Harvey in the *London Journal of Botany* for 1845 (vol. iv., p. 73, t. 3). Messrs. Henderson have forwarded us a dried flower, but we have seen no living specimen. The plant is described as glaucous, and with a few scattered hairs. The stigmas are distinct, except at the base. There is some discrepancy in the description of the placenta in Harvey's original description and that given in Bentham and Hooker's *Genera.* The ornamental character of the plant, however, is quite beyond suspicion. EDS.]

FIG. 55.—ROMNEYA COULTERI.

The Prices of New Gladioli.—As one taking an interest in the cultivation of the Gladiolus, and having been a purchaser of the bulb to a great extent, I was much surprised at the statement made by "Argus" in your issue of January 30, with regard to the prices charged for this beautiful flower. It would be wrong of me to impugn the statement of "Argus," who, with his "hundred eyes" and sound senses, has, no doubt, the catalogue of some firm before him; but he must not overlook the fact that his assertions have a tendency to affect the reputation for liberality of the most eminent growers of the flower. Take Souchet's novelties, or take our great English growers', the Messrs. Kelway's, newest varieties—in either case the prices named by "Argus" are preposterously higher than those really charged by these eminently successful cultivators of the plant. I have the Messrs. Kelway's list of new varieties issued this year before me; and the total charge for all the bulbs—eighteen in number—is £10 2*s.* 6*d.*! In this list I need hardly say that we have some of the finest Gladioli ever raised, eight of the number having borne the scrutiny of the best judges, and gained First-class Certificates. On the important point of exhibition at the leading shows, we are not enlightened by "Argus." Surely, if I pay £3 for a bulb, or £33 for twenty-four bulbs, quality is an important consideration; and quality in this case means exhibition at an important show, and certificates and prizes as evidence of success. I have not the list of M. Souchet or his agent at hand, but I am quite sure that no such exorbitant prices are asked for the best of their bulbs. *Lynx-eyed.*

The Orchids at Fallowfield.—I had the pleasure a few days ago of making a visit to the gardens of Professor Williamson, of Fallowfield, Manchester, where, amongst a nice collection of Orchids, there were several fine plants that seem to me deserving a mention in your paper. The Orchids are grown in three houses devoted chiefly to the culture of the three divisions of the family—East Indian, Cattleya, and Odontoglossums—though in each there were flowering and foliage plants and Ferns interspersed among them, which, while breaking up the precise character of the houses, gave an enlivening appearance, especially when, as at the time of my visit, the Cattleya-house was very gay with a nice lot of Gesneras of the zebrina and cinnabarina section in flower. In the East India house, among some well-managed plants of Aerides, Vanda, and Saccolabium, was a nice plant of Angræcum eburneum in flower, and also a fine plant of Saccolabium violaceum. This plant was in robust health, and had thrown up two spikes of bloom over a foot long, bearing flowers of a much darker colour than usual, and the spotting of the sepals and petals was much finer than in any variety I ever remember to have seen. In this house were a nice lot of Calanthe Veitchii, and the lutea and rosea varieties of vestita, which were flowering very profusely. In pans suspended from the roof were some fine plants of Dendrobiums, among which Cambridgeanum was remarkably strong. This plant was just coming away with ten leading growths, whilst the old bulbs gave one an idea of

what it had been for a number of years past. In March, 1873, this plant was exhibited at the floral meeting of the Manchester Botanical Society held at the Town Hall, when it was awarded a Cultural Certificate. It certainly is one of the finest specimens of this Dendrobium that has ever come under my notice. Grown under similar conditions were several fine plants of D. cucullatum giganteum, several bulbs measuring 3 to 4 feet long, showing bloom for a good part of their length. A splendid plant also of D. Farmeri was also to be met with in this house, its short, stout bulbs giving one the idea that it was receiving treatment in which it delighted. Among several plants of D. nobile in pots was a nice plant of the pale variety, intermedium; here alsowas a plant of D. heterocarpum with growths 2 feet long, flowering superbly and scenting the whole house. A fine plant of the useful winter flowering Cœlogyne cristata, was just expanding a quantity of blooms. On the back stage of this house, grown in small pots and standing in little frames with movable glass tops—so placed that as they lie on the boxes there is always a space for the free circulation of air, though not sufficiently open to expose the plants to a draught, was a nice collection of Anæctochili. It was quite refreshing to see these gems thus grown well, for latterly they have seldom been seen in the free-growing condition in which they used to be met with some ten years ago. In robust health were such species as A. setaceus, xanthophyllus, intermedius, striatus, whilst Macodes Petola in a little frame by itself was in excellent condition. By-the-bye, are those two fine sorts Veitchii and Lobbii to be met with anywhere? It is some years since I saw either of them in any collection. In the Cattleya-house are some well managed plants of Lælia purpurata, Cattleya Mossiæ, lobata, &c., and also a very nice plant of Lindleyana coming into flower. Here also was, to my mind, one of the gems of the collection, namely, Lælia præstans, a foot across, that had just matured eleven growths, and had brought nine flowers. This plant the gardener, Mr. Goodyear, informs me has been in the collection for many years, and it certainly is one of which the learned Professor may well feel proud. Lælia autumnalis was here flowering very profusely. In the Odontoglossum-house were some nice plants of the usual types to be met with—Alexandræ, Uroskinneri, Phalænopsis, and also a quantity of Dionea muscipula, which does exceedingly well here: a quantity of seedlings have been raised, which were just making a fresh start. In the conservatory adjoining the house were some well flowered Camellias, and on the side stages were a quantity of well grown Chinese Primulas. *W. Swan, Feb.* 5.

Myosotis dissitiflora.—Mr. Fish might be afflicted with a worse evil than Forget-me-not on the brain—boilers, for instance. I am quite as great an enthusiast over the beauties of this lovely spring flower as is Mr. Fish himself, and wish I could induce others to look upon it in a similar way. Doubly is it the most beautiful of its tribe, because it is also the earliest, and in a favourable season presents a mass of cœrulean blue by the middle of March. If any of your readers are still sceptical as to its merits, I think I could satisfy them perfectly in a very few weeks, as I have many hundreds of strong plants of it that are fast throwing up their buds, and will soon, if favoured with sunshine (a stranger for the past two months) be in full bloom. The bulk of my stock is growing on cold wet clayey loam, but in spite of the severe winter and recent heavy rains, it never looked better or more healthy. *A. Dean, Bedfont.*

Rating Nurserymen's Greenhouses.—Seeing in your impressions of the 6th and 20th inst. (pp. 181 and 246) letters complaining, and I may add very justly, of the extraordinary manner in which nurserymen's and florists' greenhouses and pits are rated in some parishes, permit me to offer a few remarks. In the first place, I agree with your correspondents respecting the illegality of the rating of the slightly-constructed glass erections, they being to all intents and purposes part of a nurseryman and florist's stock and implements-in-trade. Allow me to quote the heading and the decisions of two cases, similar in point to ours, which have been tried in the Court of Queen's Bench. 1st, Is machinery rateable? 2d, Is a greenhouse a chattel or a fixture? In the first case, the Court held that nothing could be rateable unless it was annexed to the premises, so as to be part of the freehold; therefore it would be no more rateable than a carpet nailed down to a floor. In the second case the learned judge ruled that greenhouses were not buildings or fixtures within the meaning of the Act. Now what is machinery? Are not our hot-water boilers and pipes our machinery? Can it be said that these, with our glass erections, are annexed to the freehold, when we can take them down and remove them at our own will and pleasure? The assessment of your correspondent, Mr. Turtle, is certainly most extraordinary and oppressive, but my own case is still more so. Four years since I rented a cottage, sheds, and garden in Wickham Lane, including in all about half an acre, which was rated at £10 10s. Some time after I erected three span-roof rafter pits, the plates being a few inches from the ground, and by digging out 3 feet in the centre there is room enough to walk down, if you do not carry your head too high. They average in length about 100 feet by 11 feet wide. For these three pits I was rated separately at £22 10s. Against this rate I gave notice of appeal, but was informed by the Assessment Committee, through the medium of the collector, that there was some little mistake, which should be seen to, and they reduced it to £11 5s., upon which I paid without taking further trouble. However, they have made up since for the former reduction by increasing the assessment on the same three pits to the extent of £60, and rated them at £40. *Richard Lock, Florist, East Wickham, Kent.*

Royal Horticultural Society.—Catching the infection propagated by my old friend Mr. Murray, I pray your insertion of my letter. Our time for the discussion of any important subject at public official meetings is rarely or ever sufficient for the purpose. Half of it is not unfrequently wasted over irrelevant matters, and the really important work is usually compressed into a "circle of greatest confusion" during the last lingering moments of the sitting. Therefore let those who have aught to say on a subject so important to us all say on, and that quickly, and in print. A man may be hot and impracticable, or, on the other hand, nervous and inefficient in the debating room; but let him take pen and ink in the quiet of his own fireside, and straight flies forth into all lands that *litera scripta*—those ἔπεα πτερόεντα—words, winged now, to be seen and heard of all. About twelve months since a storm, long looked for by those behind the veil, at last burst over us. Our Society found itself rent in twain, and there arose two parties, with two incompatible interests, each strongly, and even somewhat bitterly, opposed to the other. That section of our body now conveniently called the local Fellows, whether holding annual or life tickets, have certainly a strong, if not altogether invulnerable claim to consideration. They became members on the expectation, but by no means on the condition, that nothing should be done to curtail or modify their use and enjoyment of the South Kensington Gardens. Certain measures proposed by the Council of the time raised their apprehensions, and led at once to open hostilities. Let me explain why I hinted that our local co-Fellows' case was short of perfection. Had measures unfavourable to them been actually carried into effect, they would not have suffered more than those who went before them. We of the older generation have suffered also. Years ago I and my contemporaries entered the Society, which then held forth to us the use of a very valuable botanical library, and the enjoyment of one of the loveliest pleasure grounds in Europe. One after the other these were alienated and are gone—both sacrificed to the common enemy, heavy, hopeless, irrepressible, monetary encumbrance. Was there no bitterness in bearing this? Yet we hoped on and bore it. Secondly, these members must bear in mind that in becoming such they bound themselves morally, if not legally, and independently of collateral benefit to carry out the objects of their charter. It remains to speak of the other party—I hate the word party—the other 4000, or whatever their numbers may be, a large portion of whom, the thinking portion, have been brought up in a different school of thought. These have had their bitter day, and its memories now perhaps sit lighter upon them. Kindly words have been spoken on both sides, and a disposition to concede, with honour, seems apparent on all sides. Upon this position I found my hopes of making a successful dash for the attainment of a better state of things. That a break-up of the old state, a *coup d'état*, so to speak, is inevitable I need not stop now to argue. There is now a strong and solid opinion on the subject. But before any weighty matter of this kind can be approached, indeed under any circumstances whatever, the *personnel* of the governing body must be modified to meet the requirements of the charter and satisfy the demands of the large majority of members for a truly horticultural Council. Without going into the question of method and means, I confess I see no "impediment why these two" opposing principles, alluded to above, should not each neutralise by double decomposition the acid of the other, and all work together as one great influence for good. One thing remains to be considered, and that not an unimportant factor in the business. I and not a few others, I believe, still have the firmest conviction of the illegality of the present Council. [Surely not now. Eds.] I have no desire now to press this in a spirit of offence or antagonism, but a difficulty it is, and it is one which will have to be got over. But if a large and influential body of Fellows should, when gathered together, as doubtless they will be at the adjourned meeting—if these men could see the prospect of the immediate improvement of their government by the appointment of an ample proportion of horticultural expert independent members, then I think that the Society might be justified in stamping with legality the uncertain position of their government. If the meaning shadowed forth in my letter still appear indistinct, it is to the effect that if, as I hope, the bone of contention is removed, then whatever the constitution of the Council may be there is no reason why all parties should not act together with one accord and for one object, *Pro bono reipublicæ. R. Trevor Clarke.*

Use of Turpentine by the Reduvius.—You ask where are the "wonderful statements recorded?" They are to be found, first, the facts in detail, in the *Proceedings of the Academy of Natural Sciences of Philadelphia*, vol. xxii., p. 110; second, the explanation of the use of the turpentine, in vol. xxiii., p. 51. Leaving out the misapprehension, that in any report of anything I have said there is aught to warrant the idea that I endorsed the Chess trick as genuine, I cordially unite in the merriment which my English friends make over my "zoological" or other statements, feeling quite safe that, when the bill comes in for final settlement, I shall not be called on to wholly pay for the entertainment. *Thomas Meehan.*

Barked Elm Trees.—In a field near here there are standing a number of fine Elm trees. During the past severe weather some hungry colts were turned into the field, and these, for stress of food, barked some of the trees completely to a height of 6 feet. The stems are from 5 feet to 6 feet in diameter, and the trees hitherto healthy and vigorous. Will any of your readers who have had experience of a similar case please to say whether trees so injured will recover if allowed to stand, or whether they will soon die. *A. Dean, Bedfont.* [It depends on the depth to which the trees are barked, and other circumstances not explained. Eds.]

Law Notes.

A Disputed Basket Case Again.—*Pankhurst* v. *Godwin.*—At the Westminster County Court on Wednesday last this case came on for hearing. The plaintiff, a salesman of Covent Garden, sued the defendant, a salesman at Manchester, to recover the sum of £4 6s. for baskets in which Currants and other goods had been sent from London to Manchester. Mr. Robert Willis, solicitor, appeared for the defendant, who attended with witnesses from Manchester to prove the return of the empties. The defendant had paid £2 into court, and denied further liability, and now applied for the costs of himself and his witnesses from Manchester. After some discussion between the plaintiff and defendant, the plaintiff agreed to receive the amount paid into court on condition that the costs on either side were abandoned. This arrangement was ultimately effected.

Obituary.

The death of Sir Charles Lyell at a ripe age may fairly be said to close an epoch in geological history. Students of geology know the state in which the science was prior to the days of Sedgewick, of Murchison, and Lyell. They know how vast has been the influence of the teachings of the last-named; how he may fairly be said to have revolutionised the science, and claimed the still, resistless forces of Nature, ever acting throughout inconceivably long periods of time, as the real factors in the changes which have taken place on the surface of the globe since creation's dawn. Nowadays it seems strange that any other doctrine should have been held, and the intervention of numerous series of violent cataclysms to explain almost every phenomenon would be scouted as ridiculous. It was not so when Lyell began. His *Principles of Geology* is a work fascinating in its style, full in its details, accurate in its statements, and convincing in its arguments. It was the text-book on whose dicta students pinned their faith; and even those who were not geologists studied the third book with avidity. In that third book were treated the questions relating to the changes in the organic world now in progress, the nature and limitations of species, the different races of man, and various other matters of interest not only to the naturalist, but to any intelligent reader. Of course this was in pre-Darwinian days. Then came Darwin, and many of us looked to Lyell as a mighty champion of the idea of permanence in species to demolish Darwinian speculations. But among the first converts was Lyell himself, and no one has exercised greater authority in diffusing Darwinian notions as to the probable gradual modification of living organisms than Lyell himself. In this matter Lyell showed a noble spirit of self abnegation which philosophers of his calibre have not always practised. To unsay and recast the teachings of an honoured career, and adopt from honest conviction the views of another, is not so common a thing under such circumstances that it may be passed over without notice. It redounded to the credit of Lyell, and was a vast source of strength to the rising doctrines of

Darwin. The "third book" wears naturally a very different aspect in the later editions to that which it did in the earlier ones. Another book of Lyell's must also be mentioned—his *Student's Manual of Geology*—one of the very best works of its class ever written. Not to every author is it given to write the best text-book for advanced students and the best manual for beginners. But most will agree that Lyell did this. In private life Lyell was beloved, and his loss will be severely felt among many to whom geology is but as the cuneiform inscriptions and Darwinism as heresy.

It is of interest to add, in conclusion, that Lyell's father was known as a botanist, and was an early patron of Lindley, who dedicated his monograph of Roses to his benefactor.

The Villa Garden.

SEED SOWING.—The time and mode of sowing seeds are matters of considerable importance to villa gardeners who are in the ranks of elementary learners in things relating to the garden. Various questions are put in relation to the sowing of seed from time to time through the medium of the gardening journals, and in other ways. One person is anxious to know whether seeds should be sown thickly, and then wishes to know the proper depth, and if some sorts should be sown thicker than others; and some plead ignorance as to the proper place where they should be sown, the distances apart, &c. These are apparently small matters, but they are of prime importance to those who are learners of the first principles of gardening; for, simple as these questions may appear to the practical horticulturist, they are the very first that arise in the minds of those who have no gardening experience.

PREPARATION OF THE SOIL.—A most important thing in relation to seed sowing is the preparation of the soil. There must be a soil fitted to assist in the germination of any seeds that may be placed in it. The New Testament parable of the Sower who went out to sow, contains much instruction for gardeners, as well as being fitted to serve moral ends. The soil intended for seeds must not be low and wet; it should, instead, be open, friable, and fairly rich, so as to supply nutriment to the growing plants, and it should also be freshly stirred or turned up when seeds are put into it. The soil is apt to become caked on the surface after being exposed to heavy rains, and is thus closed to some extent to atmospheric influences, which have much to do with the rearing of the plant. It is a very injudicious proceeding to draw drills and sow seed in soil that has recently been visited with heavy rains without previously breaking it up, and allowing it to become somewhat dry before doing so; the result is, that the seeds are deposited in a cold, clammy soil; and as the mechanical operation of sowing always entails more or less treading with the feet, this aggravates the evil considerably.

Soils vary so much in different localities—in one part heavy, stiff, and retentive of moisture, in another light, sandy, and dry, through being shallow, and in the gravel, with varying conditions between these two extremes—that no uniform rules of an elementary character can be devised to meet the necessities of every case. It may, however, be observed that a clay soil is always a cold one when the weather is moist; while when the weather is hot and dry it is frequently baked as hard as a mud floor that has become dry and firm with age, or nearly so. In such a soil it cannot be expected that seeds would germinate so freely as in a black or brown friable loam. Then it must be borne in mind that some of the finer flower seeds, if sown too early, will not germinate at all for lack of the natural warmth that is essential to their development. Every garden, then, having a soil of a cold and tenacious nature, is always a late and untoward one, and will remain so till the nature of the soil is to some extent changed. In localities where there is much rainfall, and not a great deal of genial warmth at any season, the growth of vegetables is very slow; and, as a matter of course, germination of the seeds will be both irregular and imperfect. How often the gardener and the seedsman come in for a share of blame that ought not to be laid to their charge. Occasionally seeds are to be met with the growth of which is by no means so good as might be expected, but more frequently the failure, when it occurs, is attributable to radical defects in the soil—to an unsuitable situation, and, it must be stated, to incompetent sowing. But on the other hand—and it is only just that the alternative be clearly put—before the gardener can be charged with incompetence it must be proved that the soil was proper, the situation good, and the seeds of an excellent growth, and that they were sown hap-hazard, without the sower knowing what he was about.

SOWING.—A few general rules may be appropriately laid down under this heading, and they must be applied as circumstances dictate their adaptability. One rule very necessary of observance is this—that small seeds should not be sown very early in retentive and heavy soils. As the conditions of such soils are against a perfect germination of the seed, they should be sown rather thicker than when the soil is fine, friable, and early. Now-a-days, gardeners of all grades desire to sow early—much earlier than our immediate ancestors did. If we get a few mild sunny days early in February, then there arises a passionate desire to sow, and it is done, notwithstanding the warnings of old and experienced gardeners, who say early sowing is not advisable under the most favourable circumstances, for, fitting as the opportunity seems, there will be many changes in the weather, and much cold and wet ere spring sets in in earnest. The inevitable consequence is, that unpropitious weather and the devastation wrought by slugs and other pests tell much against the success of the crop, the plants being cut off or devoured as soon as they make their appearance above-ground. The more the necessity, therefore, for thick sowing, as the plants greatly assist in nursing each other in their younger stages of growth.

Here is another point of importance—it is much easier, as well as much better for the growing crop, to thin seedlings than to have to transplant them, and thereby run the risk of losing the crop altogether. When the seedlings remain where they were sown, they are able to stand drought and drying winds; but if they are small and with delicate roots, they bear transplanting badly if the weather be against them. Such plants as winter stuff, Broccoli, Cabbage, Brussels Sprouts, &c., must of necessity be transplanted, to do which opportunities should be waited for, so that, to use a term of the old gardeners, it may be done during a dripping time, *i.e.*, when refreshing showers are prevalent.

A novice at gardening is pretty well certain to fall into the prevailing bad habit of sowing small seeds too deeply. This particularly relates to flower seeds. In the matter of vegetable seeds there is not so much danger of smothering them under an almost impenetrable coating of soil. An old gardener once said that the size of the seeds is a very good guide to take when in the act of sowing. All very small seeds only require the slightest covering, and were it possible to keep the ground in a certain state of moisture on the surface, it would be best to do without drilling, and press the seeds slightly, so that each seed might then form its own cavity in the soil.

Our advice to villa gardeners who are contemplating sowing, is to fork over all ground intended for the reception of seeds, so that it may become friable and pulverised under the action of frost and drying winds. The present wintry weather will no doubt be succeeded by genial, sunny days, and then seed sowing will have to be pushed on with alacrity, for the spring-time is at hand.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, FEBRUARY 24, 1875.

Month and Day.	Barometer. Mean Reading Reduced to Sea Level.	Barometer. Departure from Average of 18 Years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 60 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
	In.	In.	°	°	°	°	°	°			In.
Feb. 18	30.03	+ 0.21	40.2	30.5	9.7	35.4	— 3.4	32.5	89	N.N.E.	0.04
19	29.95	+ 0.13	34.7	30.3	4.2	32.0	— 6.8	29.3	89	N.N.E.	0.02
20	29.85	+ 0.04	33.4	29.3	4.1	30.6	— 8.3	28.6	91	N.N.E.	0.15
21	29.94	+ 0.13	38.0	30.2	7.8	33.6	— 5.4	30.5	88	NNE: E.	0.01
22	29.96	+ 0.14	40.4	29.3	11.1	34.2	— 4.9	28.7	80	E.N.E.	0.00
23	29.62	— 0.19	38.8	27.6	11.2	32.2	— 7.0	26.4	78	E.S.E.	0.00
24	29.14	— 0.67	36.0	26.6	9.4	30.8	— 8.5	30.0	90	E.N.E.	0.18

Feb. 18.—Overcast, dull, and strong wind throughout. Snow in afternoon and evening.
— 19.—Overcast, dull, and cold, with occasional snow throughout.
— 20.—Overcast, dull, and cold, snow all day. Lowest temperature of vegetation, 27°.9.
— 21.—Fine, bright, with light clouds, and brisk wind.
— 22.—A very fine bright and cloudless day.
— 23.—Fine and bright, but cold; light clouds prevailed throughout. Lowest temperature of vegetation, 25°.
— 24.—Overcast, dull, and snow fell all morning. Overcast, dull; snow ceased about 2 P.M. Depth, 3 inches. Lowest temperature of vegetation, 24°.2.

—— In the vicinity of London the reading of the barometer at the level of the sea decreased from 30.09 inches at the beginning of the week to 30.04 inches by about mid-day on the 14th, increased rapidly to 30.50 inches by the morning of the 16th, decreased again to 30.03 inches by the morning of the 20th, and was 30.07 inches at the end of the week. The readings were all above their averages, that for the 16th being 0.47 inch in excess. The mean reading for the week was 30.20 inches, being 0.09 inch above that of the preceding week.

The highest temperature of the air at 4 feet above the ground varied from 50¾° on the 14th to 33½° on the 20th, the mean value for the week being 42½°. The lowest temperature of the air ranged from 42° on the 14th to 29¼° on the 20th, with a mean for the week of 33¾°. The mean daily range of temperature in the week was 8½°, ranging from 14° on the 15th and 16th to 4¼° on the 19th and 20th. The mean daily temperatures of the air were as follows:—14th, 46°.6; 15th, 41°.3; 16th, 36°.6; 17th, 39°.9; 18th, 35°.4; 19th, 32°, and 20th, 30°.6; and the departures from the respective averages were, + 7°.8, + 2°.6, — 2°.1, + 1°.2, — 3°.4, — 6°.8, — 8°.3. The mean temperature for the week was 37°.5, being 1°.3 below the average of sixty years' observations. The highest readings of a thermometer with blackened bulb in vacuo placed on grass in the rays of the sun were 93¾° and 76° on the 15th and 18th, but the highest reading on the 20th was 44°. The lowest readings of a thermometer placed on grass with its bulb fully exposed to the sky were 28° both on the 19th and 20th, but on the 14th 40¼° was the lowest reading; the mean for the week of the seven low readings was 31°.9.

The direction of the wind was N. and N.E., and its strength gentle.

The weather during the week was dull and cold, and the sky generally overcast, dense fog prevailed on the morning of the 16th, and snow fell on the 19th and 20th.

Rain or snow fell on six days during the week to the amount of 0.28 inch.

In England, the extreme high day temperatures ranged from 58° at Sunderland to 50° at Newcastle-on-Tyne, the general average all over the country being about 52½°. The extreme low night temperatures varied from 33° at Leeds to 25¾° at Portsmouth, the general average being 29¾°. The mean of the extreme ranges of temperature in the week was 22¾°, the greatest range being at Hull and Sunderland, 27°, and the least at Leeds, 19°. The mean high day temperatures ranged between 49¾° at Sunderland and 41½° at Norwich, with an average value of 44¼°. The mean low night temperatures varied from 35¾° at Sheffield and Leeds to 30½° at Nottingham, with a general average of 33¾°. The mean daily range of temperature in the week was 10½°, being as large as 17½° at Nottingham, and as small as 7½° at Liverpool. The mean temperature of the air for the week from all stations was 38½°, being 2° lower than the value for the corresponding week in 1874. The highest occurred at Sunderland, 42½°, and the lowest at Norwich, 36½°. Rain or snow fell on every day in the week at Nottingham, the amount collected being three-tenths of an inch nearly, at Wolverhampton seven-tenths of an inch nearly was measured on four days only, but at Bradford three-hundreths of an inch only was recorded on two days; the average fall over the country was a quarter of an inch.

The weather during the week was cold, dull, and the sky generally cloudy. Snow fell all over the country on the 19th and 20th of February.

In Scotland, the highest temperatures by day ranged between 53° at Paisley and Perth and 50° at Greenock, the general average being 52°. The lowest temperatures by night varied from 34° at Leith to 26° at Perth, with a general average value of 30¼°. The mean range of temperature in the week was 21¾°, varying from 27° at Perth to 17° at Leith. The mean temperature for the week was 40°, being ½° lower than the value for the corresponding week in 1874. The highest was at Paisley, 41½°, and the lowest at Edinburgh, 38¾°. The amount of rain or melted snow measured at the several stations varied from nine-tenths of an inch at Paisley to five-hundredths of an inch at Greenock, the average fall over the country being three-tenths of an inch.

At Dublin, the highest temperature was 53°, and the lowest 25°, the mean 38½°, and the rainfall 1.44 inch.

JAMES GLAISHER.

Garden Operations.

(FOR THE ENSUING FORTNIGHT.)

PLANT HOUSES.

GREENHOUSE HARD-WOODED PLANTS.—It is now quite time to see about potting the young stock of these plants, those whose roots are most active, of course, being first attended to. The earliest in this matter will usually be such things as *Boronia pinnata* and *serrulata*, *Epacrises*, *Pimelea spectabilis*, *mirabilis*, and *Hendersoni*, and the continuous-blooming *P. hispida*; *Roella ciliata*, *Leschenaultia formosa* and *biloba*, *Hedaroma tulipiferum* and *fuchsioides*, *Gompholobium barbigerum* and *polymorphum*, and *Correas*. Good fibrous peat is the best material for potting them in, without any admixture except, say, about a seventh of silver sand—that is, supposing the peat naturally to

contain little or no sand. The best peat is almost free from sand; it is always of a much richer description, and plants last longer in it than in such as is of a sandy nature, which is more fit for Heaths. To obviate the necessity of giving water as long as possible after the potting, see that before the operation the ball of each plant is properly moistened (not saturated); this gives more time for the healing of such roots as may get injured. In potting, never disturb the roots of this class of plants more than is just necessary to remove the drainage; there must not be any attempt to disentangle them. Should any be pot-bound, give them only a small shift now, with another move later, when they have got their roots into the new soil of the present potting. Be very careful to ram the new soil with the potting-stick till it is quite as hard as the ball. Plants that are healthy at the roots should have a 3 or 4-inch shift, and, in their case also pot hard, never elevating the balls so much in the pots as not to leave room for efficient watering. In an 8 or 9-inch pot, when the operation is finished, the surface of the ball should be an inch and a half below the rim. Pinch out the flowers of any that are to be grown up as quickly as possible. This especially holds good with small plants, the bloom of which does not make a commensurate return for the loss of growth entailed in the time occupied with blooming. As frequently before advised for young plants of this section, bring the strongest shoots down in a horizontal position to the rim of the pot, and there secure them, as there is no other means of laying the foundation of a well-formed specimen that will keep its balance in growth by a well-furnished base in years to come. If any large plants are pot-bound it is safer to move them now than to wait till they have flowered, when the weather may be so hot as to make it impossible to keep the atmosphere close and moist for the requisite length of time for the roots to get to work; if the operation is carefully performed without disturbing the roots, and the plants are kindly treated after, it will not, as a rule, interfere with their blooming. As the plants are potted, place them on some material that can be kept moist, in a house by themselves if available; if not, let them have the end of one that can be kept rather close. During very sunny weather use thin shading, and have plenty of moisture in the atmosphere, and for some weeks admit no side air.

Camellias.—Where *Camellias* are required late, a few plants of the late white variety, *candidissima*, and the red *Bealii*, should be grown. These, if properly prepared by late growth, and now moved into a north (or retarding) house, will furnish flowers for weeks after the generality of sorts ordinarily treated have gone by. For the like purpose of retarding the flowers, plants of other varieties that have not yet bloomed should be kept shaded from the very bright sun we often get during the ensuing month. *T. Baines.*

FLOWER GARDEN, &c.

Parterre and Mixed Garden.—Anticipate the busy season in these departments as far as possible by keeping the work well up, and push on all alterations to completion as fast as circumstances will permit. A week saved now in such operations as relaying of turf and Box edgings, planting deciduous trees, &c., will lead to a large saving of labour later on in rolling and watering to get such things established. The few sunny days we have had, have started grass into growth, and as most of the ends are brown and shabby looking from the effects of winter, the appearance of lawns may be greatly improved by running the machine over them at once, as the succeeding growth will then be fresh and verdant. The ground amongst shrubs should now be lightly forked over, but only sufficiently deep to impart a fresh clean look and to bury any small weeds that may have found their way through during the winter. It is a great mistake to dig deeply among choice shrubs, as is too often the practice, mutilating and destroying the surface roots as must inevitably occur if deep digging is resorted to. Before pointing the ground over it may be necessary to prune and thin out any common varieties that are unduly encroaching on choice kinds. Many plants may, by a judicious use of the knife for a year or two, be made to assume almost any form desirable; and once the growth is equalised in this way, they will generally retain the same form with but little after attention. Perhaps the most pleasing and natural of all forms is the pyramidal for trees, and round, or bush-shape for evergreens, to which they readily conform with but little assistance. In pruning Coniferæ, shrubs, &c., the great thing to be avoided is unnatural shapes, stiffness, and formality.

The bare ground among shrubs may be much enlivened by introducing quantities of spring-flowering plants that are natural to such situations, as Violets, Snowdrops, Primroses, Daffodils, &c. These should be planted in masses, instead of dropping isolated plants here and there, to be passed unobserved. Plants of a half-hardy nature that have been covered to protect them from the severity of the weather should now be partially uncovered to give light and air, to prevent them rotting at the collar, or the young growth from becoming attenuated and drawn. Aralia Sieboldii, A. papyrifera, Phormium tenax, Chamærops Fortunei, and Cineraria cymba [What is this? Eds.], have stood with us by being slightly protected round the collar with a few brakes; but Bambusa gracilis appears to have suffered a good deal, having lost all its leaves. *Herbaceous Phloxes* will now require attention. To have the heads of bloom really fine the shoots should be freely thinned out, leaving only such as are strong. If the plants are old, and have pushed themselves above the ground, they should be taken up, and divided, and be replanted in fresh situations well enriched with rotten manure. Cuttings of choice sorts should now be put in, and if grown freely on, these will afford much finer heads of bloom than can be obtained from old plants.

The different *Violas* are in much esteem for bedding, and they are certainly a very useful class of plants for this purpose, provided the beds are suitably prepared for them, and the situation is not too hot and dry. Where this is the case they either become infested with red spider, or get stunted and cease flowering. Old plants of these should now be divided and planted singly in light rich vegetable soil for the purpose of lifting and transferring to their summer quarters when the bedding season arrives. The Violas associate well with the variegated Pelargoniums, especially the silver-leaved kinds, as Flower of Spring, Bijou, and others of that class, with which they harmonise, and form very chaste and pleasing combinations. Beds intended for these, Calceolarias, and such like plants that are fond of moisture, should be specially prepared by trenching them at least 2 feet deep, working in at the same time a dressing of rotten manure. Edgings of *Cerastium*, *Golden Thyme*, and other hardy plants should now be taken up and relaid to the size required.

Such things as *Wistarias*, *Clematis*, *Wall Roses*, and all climbing or trellis plants should now be pruned and regulated, leaving the strongest and best ripened wood to be tied or nailed in. *Maréchal Niel*, *Climbing Devoniensis*, *Cloth of Gold*, and such like Roses should have the best and ripest shoots laid in full length, except just the tips, as the flowers of these varieties are borne on the young wood. To spur these in would only produce a crop of gross shoots instead of flowers. *Pelargoniums* and other bedding plants should now be taken in hand, and potted in suitable soil, to be grown on in gentle heat for a month or so longer, so as to get good plants, as one well grown is worth half a dozen small weakly ones. To save pots and space, where large numbers are required the hardier kinds may have their roots tied up in moss, with a handful of rich light soil, and be then plunged in leaf-mould. Plants treated in this way require but little attention as to water, and they can be transferred to their summer quarters much quicker than if they were in pots. Many prefer this way of treating the green-leaved kinds, as the ball of moss forms just a sufficient check to stop that exuberance of growth which the plants are apt to assume when their roots can ramble in the beds unrestrained. Some beds last season at Ashgrove, treated in this way, were everything that could be desired. *Carnations*, *Picotees*, and *Pinks* should now be gone over for the purpose of cleaning and filling up any gaps that may have occurred during winter. Wireworm is their great enemy, and is often very destructive: soot and lime are the best remedies; give a good dressing of these, and lightly stir the surface to work it in. *J. Sheppard, Woolverstone Park.*

FRUIT HOUSES.

Pines.—Concerning the best mode of potting these plants no doubt practically exists. The results in a great measure depend on the state of the materials used and the manner of potting the plants. Whatever time may be occupied in these matters is certainly not misapplied, for it should be borne in mind that the nature of the treatment to which these plants are ordinarily subjected is such as to render them more susceptible to the pernicious effects of those inveterate enemies, worms, than any other class of plants in ordinary cultivation. This source of mischief may be to a great extent diminished by having the plants potted firmly, even apart from its being highly essential, not only in promoting root-action, but in subsequently sustaining the vital energies of the plants better than under reverse conditions; it is, moreover, rendered necessary by the constitution of the material at the time it is used. Suitable instructions were recorded in last fortnight's Pine Calendar, concerning starting rootless suckers and plants: the requisite number of these should now be commenced. Firmly implant them by ramming the soil into the pots—we use for this purpose part of an old broom handle, about 15 inches long; it should consist of the fibrous part of loam, broken into suitable-sized lumps, according to the size of the pots being used, which for suckers should be from 5 to 8 inches in diameter. These should be clean, and drained with about an inch of crocks. When the plants are potted, plunge them at once into the prepared bed; give them no water until the roots are to be seen at the sides of the pots, which generally occupies about a fortnight. A genial state of atmosphere is most desirable, which should be maintained by sprinkling all available surfaces without wetting the plants, excepting if bright weather abounds, when a very light syringing overhead may be indulged in not more than twice a week. If a sufficient number of strong suckers are at hand, it will be advisable to have smaller ones on the stools until about the end of May, which is a good time for another start; stools when the leaves are cut off should be inserted closely together in any of the pits having a moderate degree of both bottom and top heat where light and air can be obtained. *Geo. Thos. Miles, Wycombe Abbey.*

Melons.—The first batch is now growing apace, and will be ready for planting out about the second week in March; meantime attend well to the preparation of the dung and soils. For the cultivation of early Melons it is of the utmost importance to secure a good and a lasting bottom-heat, and hot-water pipes, without doubt, are the best; a very successful result, however, may be achieved by the aid of fermenting materials only. The best form of house for all times and purposes of Melon growing is a low span, 10 feet wide in the interior, and built at an angle of about 35°. Such a structure allows of a 3-feet path down the centre and a bed on each side, and should be provided with eight rows of hot-water pipes, two running through each bed for bottom-heat, the remaining four being distributed one on each side the path, on the curb, the other running round by the front walls. This arrangement will be found to work much better than cramping together a lot of pipes—a very common error amongst horticultural builders. The pipes in the bed should be covered with rough brickbats to within a few inches of the top, and over these should be placed a layer of turf, grass side downwards, and then the soil—nice mellow, and rather heavy loam and cow dung, or nicely dried horse-droppings—raised in hillocks and well rammed down. For pits and frames, see the directions in this week's Cucumber Calendar. Keep the young plants near to the glass to secure a sturdy growth, and those that are intended to travel up a trelliswork need not be stopped at present; others that are to be turned out in pits may be stopped above the first rough leaf, at discretion of the cultivator. Maintain a mean of 72°. *Thos. Simpson.*

Enquiries.

He that questioneth much shall learn much.—Bacon.

[Many enquiries which reach us would be more suitably answered by those of our correspondents whose experience or requirements are, or have been, similar to those of the questioner. These we propose, in future, to gather together for facility of reference; and as fellow feeling makes us wondrous kind, so we would fain hope that this enquiry column may serve as a bond of sympathy and good-will between our correspondents and readers, and be the means of eliciting much valuable information. Eds.]

39. Polyanthuses.—*J. M.* wishes to know if any of the old-fashioned named varieties of Polyanthus with laced margins are now obtainable?

Answers to Correspondents.

Alyssum: *E. R.* The variegated bedding variety is usually propagated by cuttings at this season. It strikes most freely in heat now. We cannot tell you where you can get seeds of it.

Books: *H. G.* Mrs. Loudon's *Amateur Gardener's Calendar* (Warne & Co.).—*C.* Hibberd's *Amateur's Greenhouse* (Groombridge).

Bug on Vines: *Ignoramus.* Your Vines should have been dressed, before they commenced to grow, with a mixture of Gishurst Compound and clay, or soft soap, sulphur, and clay, mixed to the consistency of thick paint. We can only recommend you now to brush all off that is easily accessible, and so keep it under until the foliage is off.

Cape Vines: *A. C. M.* You may either cut them back and start again, or propagate afresh from eyes. Unless the wood is tolerably well ripened, the former would be the safest plan; but you can try both.

Corylus: *A Perplexed Student.* Delete the words "in bud," which are evidently there by accident, and the meaning will be clear.

Drying Plants to Retain their Colours: *H. C. I.* We know of no certain and easily applied method of drying leaves and flowers that will keep them in their natural colours. Drying in silver sand perfectly free from moisture in an oven is sometimes practised, but it is not always successful.

Exchange: *Aberio.* Write to Dr. Aug. Kanitz, Jardin Botanique, Klausenburg, Hongrie.

Insects: *G. C.* The "insect enveloped in a white, stringy, Cotton-like substance" is, no doubt, the mealy-bug,—a pest too well known in gardens. A strong application of Gishurst Compound is the remedy, but you must apply it again and again, until the pest is got rid of.

Names of Plants: *Hopkins.* Your plants were damaged beyond recognition in coming through the post. Send better specimens in a small box.—*J. Marshall.* 1, Pilea serpyllifolia; 2, Adiantum cunea-

tum; 3, Selaginella Galeottii; 4, Goniophlebium neriifolium; 5, Salvia (next week); 6, Woodwardia (Doodia) caudata.—*W. C.* Pittosporum tenuifolium.—*Irene* should send a better specimen. It is the so-called Alexandrian Laurel (Ruscus racemosus.

OCHRA, OCKRA, OR OKRA: *Cucumis.* This is Abelmoschus esculentus, a Malvaceous plant, which produces the Ochro or Gobbo pods used in thickening soups. It is a native of the West Indies, and requires the treatment of a stove annual.

POTATO PRIZES: *A. D.* Send your suggestions to the Messrs. Hooper.

SEED SOWING: *Young Amateur.* Seeds that require heat to start them are much more convenient to manage if sown in pots, the latter being set in the heated frame, than they are if sown in the soil which covers the beds. The coal-ashes for the floor of the cold frame are intended as a dry foundation on which to set the pots, and also to prevent worms getting into the pots through the drainage hole. We do not understand how the "mill-dust" is to be used as a source of heat. If you want heat, you should either make up a hotbed of fermenting stable manure (mixed with dead leaves of trees, if you can get them); or, if the structure is a permanent pit, carry hot-water pipes, or a tank, through it, which would necessitate the fixing a boiler. The site proposed for the greenhouse will probably answer. The latter, and the pit, might be heated from one boiler, if conveniently placed.

WATER MELONS: *Cucumis.* Treat them like other Melons. For details consult the calendar of Garden Operations in another column.

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*** Correspondents are specially requested to address, post-paid, all communications intended for publication to the "Editors," and not to any member of the staff personally. The Editors would also be obliged by such communications being posted as early in the week as possible. *Letters relating to Advertisements, or to the supply of the Paper, should be addressed to the Publisher, and* not *to the Editors.*

CATALOGUES RECEIVED.—Charles Sharpe & Co. (Sleaford), Descriptive Catalogue of Farm Seeds, &c.—Robert Buist (622, Market Street, Philadelphia), Supplement to Catalogue of New and Rare Plants.—E. P. Francis & Co. (The Nurseries, Hertford), Catalogue of Hardy Ornamental Trees, Shrubs, &c.; Fruit Trees, Stove and Greenhouse Plants, Palms, &c.; and Descriptive Catalogue of Vegetable, Flower and Agricultural Seeds.—Louis Van Houtte (Royal Nurseries, Ghent, Belgium), Catalogue of Hardy Herbaceous and Alpine Plants, Ornamental Trees and Shrubs, Conifers, Roses, Fruit Trees, &c.—Stuart & Mein (Kelso), General Catalogue of Vegetable and Flower Seeds.—Messrs. Kent & Brydon (31, Priestgate Street, Darlington), Descriptive Catalogue of Vegetable, Flower, and Agricultural Seeds, &c.—Thomas Meehan (Germantown Nurseries, Philadelphia), Wholesale Price List for 1875.

COMMUNICATIONS RECEIVED.—H. B.—C. B. S.—W. C.—J. T.—T. G.—D. T. F.—T. C.—J. M.—A. M. G.—J. G.—A. F.

Markets.

COVENT GARDEN, *February* 25.

A moderate demand, and prices nearly stationary, except for quite first-class goods, which are a little higher. There has also been some improvement in the trade demand from the provincial markets. Good English Pines are fairly inquired for, the St. Michael's having moved pretty freely; another cargo, however, is daily expected. *Thos. Taylor, Wholesale Apple Market.*

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, per ½-sieve	2 0	– 3 0	Nuts, Cob, p. lb.	1 6	– 2 0
Chestnuts, per bush.	10 0	– 20 0	Oranges, p. 100	8 0	– 12 0
Grapes, English, p. lb.	6 0	– 12 0	Pears, p. doz.	4 0	– 12 0
Lemons, per 100	8 0	– 12 0	Pine-apples, p. lb.	3 0	– 6 0
Medlars, per doz.	....		Walnuts, p. bush.	16 0	– ..

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, Fr., each	0 8	– ..	Horse Radish, p. bun.	3 0	– 5 0
Asparagus, English, per bundle	..	12 0 – 15 0	Leeks, per bunch	0 2	– 0 4
— French, p. bund.	2 0	– ..	Lettuces, per doz.	1 6	– ..
Beans, French, p. 100	6 0	– ..	Mushrooms, per pott.	1 0	– 2 0
Beet, per doz.	..	1 0 – 2 0	Onions, young, bun.	0 4	– 0 6
Broccoli, p. bundle	0 9	– 1 6	Parsley, per bunch	0 4	– 0 6
Brus. Sprts., p. bush.	6 0	– ..	Parsnips, p. doz.	0 9	– 1 0
Cabbages, per doz.	..	1 0 – 2 0	Peas, per quart	8 0	– ..
Carrots, p. bundle	0 6	– 0 9	Radishes, per bunch	0 2	– 0 4
Cauliflowers, per doz.	2 0	– 6 0	— black, Turnip, do.	..	– 0 6
Celery, per bundle	1 6	– 2 0	Seakale, per bundle	2 0	– 3 0
Cucumbers, each	2 0	– 4 0	Shallots, per lb.	0 3	– ..
Endive, per doz.	1 0	– 2 0	Salsify, per bundle	1 6	– ..
Herbs, per bunch	0 2	– 0 4	Tomatos, per doz.	1 0	– 3 0
Potatos:—Early Shaws, 110s.; Early Myatt's 140s.; Early Regents, 120s.; and Early Dons, 120s. per ton.			Turnips, per bundle.	0 6	– 0 0

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Azaleas, per dozen	30 0	– 50 0	Heaths, in var., doz.	12 0	– 30 0
Begonias, do.	6 0	– 12 0	Hyacinths, per doz.	4 0	– 12 0
Bouvardias, do.	9 0	– 18 0	Lily of the Valley, 12 sprays	3 0	– 9 0
Cineraria, do.	9 0	– 18 0	Mignonette, do.	4 0	– 6 0
Cyperus, do.	6 0	– 12 0	Myrtles, do.	3 0	– 9 0
Dentzias, do.	8 0	– 18 0	Pelargoniums, dble., per doz.	6 0	– 12 0
Dracæna terminalis	12 0	– 30 0	— Scarlet, do.	6 0	– 9 0
— viridis, per doz.	12 0	– 24 0	Primula sinensis, do.	4 0	– 8 0
Epiphyllums, each	1 6	– 3 6	Solanums, do.	6 0	– 18 0
Ficus elastica	1 6	– 7 6			
Fuchsia, per doz.	6 0	– 12 0			

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Azaleas, p. 12 sprays	0 6	– 2 0	Lily-of-the-Valley, 12 sprays	2 0	– 6 0
Camellias, 12 blooms	2 0	– 6 0	Mignonette, 12 bun.	4 0	– 6 0
Carnations, 12 blooms	2 0	– 4 0	Narcissus, per doz.	1 0	– 3 0
Cineraria, p. bunch	0 9	– 1 6	Pelargoniums, 12 spr.	1 6	– 3 0
Cyclamen, 12 blooms	0 3	– 0 6	— Zonal, do.	0 9	– 1 6
Deutzia, per bunch	0 6	– 1 0	Primula, dbl., p. bun.	0 9	– 1 6
Epiphyllums, 12 bl.	1 0	– 2 0	— single, do.	0 4	– 0 9
Eucharis, per doz.	6 0	– 12 0	Roses, indoor, p. doz.	2 0	– 6 0
Euphorbia, 12 sprays	1 6	– 6 0	— French, do.	2 0	– 3 6
French Lilac, p. bun.	2 0	– 5 0	Snowdrops, 12 bun.	1 6	– 6 0
Heliotropes, 12 sprays	0 6	– 1 0	Spiræa, 12 sprays	2 0	– 4 0
Hyacinths, per spike	0 3	– 0 6	Stephanotis, 12 sprays	9 0	– 15 0
— Roman, per 12 spikes	..	1 0 – 4 0	Violets, per 12 bun.	1 0	– 3 0

SEEDS.

LONDON: *Feb.* 24.—In consequence of the wintry weather farm seeds are for the moment in diminished request. All kinds of Clover seeds are, nevertheless, held with great firmness. The arrivals of red seed from America continue on a limited scale; this fact, coupled with the acknowledged lightness of the stocks held here, imparts considerable steadiness to the trade. Trefoils are in good request at last week's advance. Imported Italian is noted 1*s.* per bale dearer. Alsikes and white Clovers are quiet. A good business has been doing in spring Tares, at a reduction on recent top currencies of from 1*s.* to 2*s.* per quarter. Mustard and Rape seed meet with an improved inquiry. For Hemp and Canary seed the demand is slow. White Millet is in good request at full rates. Sanfoin keeps scarce, and is 1*s.* per quarter higher. In Blue Peas the tendency of values is upwards. Linseed is unchanged. *John Shaw & Sons, Seed Merchants*, 37, *Mark Lane, E.C.*

CORN.

At Mark Lane on Monday the market was quiet, and rates for Wheat were a degree steadier. For Barley prices were lower in some cases. Malt remained without alteration. In Oats, sound corn supported the rates of Monday last. Maize was difficult to move, except at much lower prices. Beans and Peas were purchased at about like rates. For flour country marks were fully 6*d.* per sack cheaper on the week, and town made has been reduced 3*s.*, or to 40*s.* per 280 lb.—On Wednesday the market was dull. There was a moderate supply of Wheat, with but little disposition to purchase, and prices were not wholly supported. Barley was rather heavy, as also were Oats and Maize, but the value of these latter was pretty steady. Beans and Peas were neglected, and flour experienced a slow demand at Monday's reduction.—Average prices of corn for the week ending Feb. 20:—Wheat, 41*s.* 6*d.*; Barley, 43*s.* 3*d.*; Oats, 29*s.* 9*d.* For the corresponding week last year:—Wheat, 62*s.* 10*d.*; Barley, 49*s.* 1*d.*; Oats, 28*s.* 10*d.*

CATTLE.

At the Metropolitan Market on Monday there was a much larger supply of beasts than on that day se'nnight. Choicest descriptions were not any lower. Sheep were also more plentiful, and last week's prices were pretty generally realised. There was a short supply of calves; trade was, however, dull, and prices no better. Quotations:—Beasts, 3*s.* 8*d.* to 4*s.* 8*d.*, and 5*s.* 6*d.* to 6*s.* 4*d.*; calves, 4*s.* 8*d.* to 6*s.* 4*d.*; pigs, 4*s.* to 5*s.* 4*d.*; sheep, 5*s.* 4*d.* to 5*s.* 8*d.*, and 6*s.* 2*d.* to 6*s.* 10*d.*—On Thursday trade in beasts was very slow, and prices were lower for all descriptions. For sheep there was less demand, and a considerable proportion remained unsold. Choice calves were scarce and dear. Trade in milch cows was excessively dull.

HAY.

Whitechapel reports that the market being rather sparingly supplied, was rather firmer, and a steady demand prevailed for the better kinds of fodder. Prime Clover realised from 100*s.* to 118*s.*; inferior, 85*s.* to 95*s.*; prime meadow hay, 95*s.* to 110*s.*; inferior, 55*s.* to 75*s.*; and straw, 33*s.* to 40*s.* per load. Cumberland Market quotations:—Superior meadow hay, 112*s.* to 118*s.*; inferior, 90*s.* to 100*s.*; superior Clover, 118*s.* to 126*s.*; inferior, 90*s.* to 105*s.*; and straw, 40*s.* to 44*s.* per load.

POTATOS.

The Borough and Spitalfields markets report large supplies on sale. Sound qualities move off freely at full prices, and for medium parcels a steady demand prevails. Quotations: Regents, 75*s.* to 110*s.*; Victorias, 100*s.* to 135*s.*; Flukes, 110*s.* to 140*s.*; Rocks, 60*s.* to 70*s.* per ton.—The King's Cross report is to the effect that the best descriptions are in demand at full prices. The supplies offering are large. Quotations: York and Lincoln Victorias, 100*s.* to 130*s.*; ditto Flukes, 110*s.* to 140*s.*; York Regents, 100*s.* to 135*s.*; Lincoln Regents, 90*s.* to 110*s.*; East Lothian Regents, 80*s.* to 115*s.*; Perth and Fife Regents, 70*s.* to 80*s.*; ditto Rocks, 65*s.* to 70*s.*; Kent, Essex, and Cambridge, 60*s.* to 80*s.*; ditto Regents, 90*s.* to 120*s.*; French, 50*s.* to 55*s.*; ditto seedlings, 70*s.* to 75*s.*; Belgian Kidneys, 70*s.* to 75*s.* per ton.—Last week's imports into London amounted to 6912 bags, 1847 tons, 381 sacks, and 100 packages.

COALS.

There was an active demand for house coals on Monday, at an advance of 1*s.* per ton. The weather continuing severe there was a further rise of 1*s.* 6*d.* at market on Wednesday.

Snowflake.

THE FINEST POTATO ever introduced; will yield from 300 to 400 bushels per acre of handsome tubers of the most splendid quality and FREE FROM DISEASE. Messrs. DANIELS BROS. have just received a consignment of this magnificent variety direct from the original raiser in America, where it has obtained immense popularity, and which is now being distributed at the following rates, carriage free to any address:—3s. 6d. per lb.; 7 lb., 21s.; 14 lb., 42s.; cheaper by the cwt.

DANIELS BROS., Seed Growers and Importers, Royal Norfolk Seed Establishment, Norwich.

POTATO SEED FOR SALE (seed of the berry)—Two Ounces seeding One Acre, and giving Eight to Nine Tons of Tubers per Statute Acre in First Year. Price 1s. per ounce, with Instructions how to Grow it free of the Disease. JAMES TORBITT, Belfast.

Also, in the Press, and to be obtained of the Advertiser or of all Booksellers, price 2s.,

CAUSE of the POTATO DISEASE,

Being a Paper read at the late Meeting of the British Association.

CRANSTON'S NURSERIES, Established 1785.—The following CATALOGUES are just published, and will be forwarded on application:—

DESCRIPTIVE CATALOGUE of ROSES (1874 and 1875).
DESCRIPTIVE CATALOGUE of FRUIT TREES.
DESCRIPTIVE CATALOGUE of CONIFERS, SHRUBS, and FOREST TREES.
DESCRIPTIVE CATALOGUE of BULBS. Address,
CRANSTON AND MAYOS, King's Acre Nurseries, near Hereford.

Gardens, Gardens, Gardens.

FURNISH YOUR VILLA GARDENS with OUR COLLECTIONS of choice Ornamental Trees, Shrubs, Roses and Fruit Bushes.

No. 1 Collection includes—
20 EVERGREEN SHRUBS.
25 FLOWERING SHRUBS.
25 STANDARD and DWARF ROSES.
25 CURRANTS, of sorts.
25 GOOSEBERRIES, of sorts.
10 ORNAMENTAL TREES.
One hundred and thirty fine plants for £5 5s.

No. 2 Collection,
Double the above, with greater variety.
Two hundred and sixty fine plants for £10.
Carriage paid to London.

MASTERS AND KINMONT, Exotic Nursery, Canterbury.

NEW CATALOGUE for 1875, post free for two Stamps.—Our LIST of the newest and best varieties grown of the undermentioned classes of plants is now ready, and may be had on application. Prices very moderate. Plants true to name. Geraniums in all the various classes, Fuchsias, Chrysanthemums, Lobelias, Coleus, Dahlias, Show Carnations, Picotees, Pinks, Pansies, Phloxes, Pentstemons, Antirrhiniums, Double Potentillas, Pyrethrums, Delphiniums, and all leading Florists' Flowers and Bedding Plants, Greenhouse and Stove Plants, Spring-flowering and other choice Hardy Plants, Winter-flowering and the best Conservatory Decorative Plants, Show and Fancy Pelargoniums, Vegetable and Flower Seeds, &c.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

ROBERT NEAL begs to offer to the notice of Gentlemen and the Trade his extensive Stock of HARDY SHRUBS, FRUIT, FOREST, and ORNAMENTAL TREES, ROSES, RHODODENDRONS, CLIMBING PLANTS, &c., which are now in first-class condition for removal. CATALOGUES may be had on application.

The Nurseries are within a few minutes' walk of the Clapham Junction and Wandsworth Common Railway Stations.

ASPARAGUS.—Special offer of 2-yr., 3-yr., and 4-yr. old. Price per 100 or 1000 on application.

ROBERT NEAL, The Nurseries, Wandsworth Common, S.W.

New Roses.—Strong Plants now Ready.

JOHN FRASER, of the Lea Bridge Road Nurseries, Essex, has much pleasure in offering strong plants of the following carefully selected varieties of NEW ROSES for 1875, which may be relied on as being the best of this year:—

HYBRID PERPETUAL ROSES.

Adanson	Hippolyte Jamain
Arthur Oger	La Souveraine
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Colonel de Sansal	Mademoiselle Ilona de Adorjan
Casimir Perier	May Turner
Comtesse de Serenyi	Mons. E. Y. Teas
Duchess of Edinburgh	Princess Antoinette
Gonsoli Gaelono	Souvenir du Baron de Semur.
Henry Ward Beecher	

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Duchess of Edinburgh	Mademoiselle Thérèse Genevay
Jean Ducher	Perle des Jardins.

PERPETUAL MOSS ROSE.
Soupert et Notting.

LIST, with full descriptions of above, may be had on application.

JAMES TYNAN, Seed Warehouse, 68, Great George Street, Liverpool, offers:—

GLOXINIA CRASSIFOLIA GRANDIFLORA.—Magnificent and distinct strain; leaves broad and fleshy, recurving so as to almost cover the pot; flowers much larger than in the older sorts, very brilliant and varied in colour. Sown in January or February, they bloom the following autumn. Erecta and horizontalis, separate or mixed, 1s. and 2s. 6d. per packet.

STEPHANOTIS FLORIBUNDA.—Fine variety from the Mauritius, flowering profusely at every joint, and possessing in a high degree the delightful fragrance of this beautiful climber. 1s. 6d. per packet.

CYCLAMEN PERSICUM, Prize strain.—Seed saved from one of the best collections in the kingdom. 1s. 6d. per packet.

DOUBLE PETUNIA, large flowering.—Will produce a large percentage of splendid double flowers of great size, and charmingly varied shades of colour. 1s. 6d. per packet.

Post-free on receipt of Stamps or Post Office Order.

Send for CATALOGUE of CHOICE VEGETABLE and FLOWER SEEDS.

CHARLES NOBLE begs to remind all engaged in Planting that in clearing a large portion of his Nursery Grounds he is offering, at very reduced prices, an immense stock; amongst other things the following may be worth notice:—

Spiræa palmata	Poplar, Black Italian
Rhododendrons	Sycamore, Purple and variegated
Andromeda floribunda	Laburnum, Purple and common
Kalmia latifolia	Chestnut, Scarlet and common
Skimmia japonica	Sorbus domestica and hybrida
Ficea Nordmanniana	Almond, fruiting
Arbor-vitæ, American	Birch, Silver, 8 to 14 feet
Cupressus Lawsoniana	Thorn, Paul's new double scarlet
Fir, Spruce, 3 to 8 feet	Deutzia crenata flore-pleno
Berberis Darwinii	Broom, white, 3 to 4 feet
Mahonia Aquifolia	Briar, sweet, 2 to 3 feet
Roses, dwarf hybrid perpetual	Sedum spectabilis
,, climbing	Peaches, Pears, and Plums
Elm, English and American	Gooseberries, in best varieties
Oak, English and Turkey	Currants, in best varieties
Poplar, new Silver	
,, Lombardy	

Special quotations for small or large quantities on application.
CLEMATIS, all the best known kinds.
A few thousand QUINCE STOCKS at 50s. per 1000.
CHARLES NOBLE, Bagshot, Surrey.

Cheap Plants.

WILLIAM BADMAN offers the following plants for present potting:—

VERBENAS, Purple, White, Scarlet, Crimson, and Rose, from pots, 2s. per dozen, 12s. per 100; rooted cuttings, 1s. per dozen, 6s. per 100, 50s. per 1000.

PELARGONIUMS, Scarlet, White, Crimson, and Rose, best sorts, good plants, from single pots, 1s. 6d. per dozen, 10s. per 100.

LOBELIA, speciosa, true, from cuttings; also pumila grandiflora and Little Gem, 3s. per 100, 20s. per 1000.

HELIOTROPIUM, finest dark varieties, 1s. per dozen, 6s. per 100, 50s. per 1000.

CALCEOLARIA, Golden Gem, finest bedder, 1s. per dozen, 6s. per 100, 50s. per 1000.

AGERATUM, Imperial Dwarf, Blue, makes a fine bed, 1s. per dozen, 5s. per 100, 40s. per 1000.

IRESINE, Lindeni, crimson leaf, good, 1s. per dozen, 6s. per 100, 50s. per 1000.

COLEUS, Verschaffeltii, 1s. per dozen, 6s. per 100.

STELLARIA, aurea, new golden edging plant, 1s. per dozen, 4s. per 100, 30s. per 1000.

GERANIUMS, Show and Fancy shorts, strong plants, for spring bloom, 4s. per dozen.

CENTAUREA, candidissima, silver-leaf, strong plants, 3s. per dozen, 20s. per 100.

Package included. Terms cash.
Cemetery Nursery, Gravesend.

THE LONDON MANURE COMPANY
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Have now ready for delivery, in fine dry condition—
CORN MANURE, for spring sowing.
PURE DISSOLVED BONES.
PURSER'S BONE MANURE.
PURSER'S BONE TURNIP MANURE.
SUPERPHOSPHATE.
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NITRATE of SODA, SULPHATE of AMMONIA,
Genuine PERUVIAN GUANO, &c.
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ODAMS' MANURES,
FOR ALL CROPS.
Manufactured by the NITRO-PHOSPHATE and ODAMS' CHEMICAL MANURE COMPANY (LIMITED), consisting of Tenant-Farmers occupying upwards of 150,000 Acres of Land.
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Manufacture the highest quality of
ARTIFICIAL MANURES
For ROOT, CORN, and GRASS CROPS.
36, Mark Lane, London, E.C.

GISHURST COMPOUND.—Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.

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SIMPSON'S RED SPIDER, THRIP, and GREENFLY ANTIDOTE is now extensively used, and may be had through all Seedsmen and Chemists. Pronounced a "valuable discovery." Sufficient for the worst case of Red Spider diluted at the rate of one quart to 65 gallons of water. Price per quart, condensed, 6s.

Prepared by JOHN KILNER, Wortley, near Sheffield.
Important Testimonials on application.

GARDEN REQUISITES.—Tobacco-paper, Powder, Insecticides, Raffia, Labels, Tools, Bouquet-papers, and Fancy Goods of every description, at lowest prices.
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GRAVEL for SALE.—Wandsworth Common Gravel, suitable for Road and Path-making, in large or small quantities. Prices on application to
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To Farmers, Scavengers, and Others.

NOTICE is HEREBY GIVEN that the Cattle Markets Sub-Committee of the Corporation of London will meet at Guildhall on TUESDAY, March 9, to receive PROPOSALS from parties desirous of PURCHASING and TAKING AWAY the MANURE from the METROPOLITAN CATTLE MARKET, Islington, and the Lairs adjoining, for one year, ending on March 1, 1876.

Further particulars may be obtained by applying at the Office of the Clerk and Collector of the Market.
Guildhall, Feb. 20. MONCKTON.

MARENDAZ AND FISHER, the largest Importers of Russia Mats in London, are now prepared to quote prices for new ARCHANGEL MATS, to arrive in July or August next, to the Wholesale Houses only.
Agents in Archangel, St. Petersburg, and Odessa.

RUSSIA MATS.—A large stock of ARCHANGEL and PETERSBURG, for Covering and Packing—Second sized ARCHANGEL, 100s.; PETERSBURG, 60s. and 80s.; superior close Mat, 45s., 50s., and 55s.; PACKING MATS, 20s., 30s., and 35s. per 100; and every other description of MATS at equally low prices, at
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BLACKBURN AND SONS, the only Importers of Mats in London, have, in consequence of the SCARCITY of ARCHANGEL MATS, instructed their Russian friends to send **100,000** best selected PETERSBURG, which they are now offering, to the Trade only, at low prices.

Samples and prices on application, at 4 and 5, Wormwood Street, London, E.C.

RUSSIA MATS, for Covering Garden Frames.—ANDERSON'S TAGANROG MATS are the cheapest and most durable. Price List, which gives the size of every class of Mat, forwarded post free on application.
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Russia Mat Merchants.

MARENDAZ AND FISHER, 9, James Street, Covent Garden, W.C., Importers of ARCHANGEL and all kinds of ST. PETERSBURG MATS, RAFFIA FIBRE, &c. Tanned GARDEN NETTING, Tarred TWINES, TIFFANY, &c., always in stock.
N.B.—Special terms for large buyers.

E. T. ARCHER'S "FRIGI DOMO."—Patronised by Her Majesty the Queen for Windsor Castle and Frogmore Gardens, the late Sir J. Paxton, and the late Professor Lindley, &c., &c.

MADE of PREPARED HAIR and WOOL.

A perfect non-conductor of heat or cold, keeping a fixed temperature where it is applied. A good covering for Pits and Forcing Frames.

PROTECTION from COLD WINDS and MORNING FROSTS.

"FRIGI DOMO" NETTING, 2 yards wide, 1s. 4d. per yard.
"FRIGI DOMO" CANVAS—

2 yards wide	.. ..	1s. 10d. per yard run.
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ELISHA T. ARCHER, only Maker of "Frigi Domo," Stanstead and Brockley Roads, Forest Hill, London, S.E.; and of all Florists and Seedsmen. All goods carriage paid to London.
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MILDEW.—Ewing's Infallible Cure. ("The finest of all antidotes." WM. EARLEY.) Retail of most Seedsmen, at 1s. 6d. per bottle—1s. 10d. per bottle, if packed for travelling, of the Manufacturers,
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SHAW'S TIFFANY and ELASTIC NETTING for Shading and Protecting. Sold by all respectable Seedsmen. For Circulars and Prices apply to
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Indestructible Terra-Cotta Plant Markers.

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CHARLES J. BLACKITH AND CO.,
Cox's Quay, Lower Thames Street, London, E.C.
Retail of the principal Seedsmen. Prices on application.

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MESSENGER'S PATENT FLEXIBLE-JOINTED HOT-WATER PIPES are as cheap when fixed as the common pipes, and are much superior; may be rapidly put together, and, by a handy Labourer, can be easily unjointed and refixed at any time.

4-inch Pipe, per yard	.. .. ..	3s. 4½d.
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Connections at proportionate prices.

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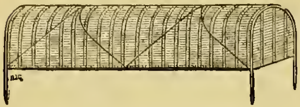
Superior Quality. Galvanised after Made.
NEW PATTERN with Diagonal Stays.



3 feet long; 6 inches wide; 6 inches high.

9s. 6d. per Dozen.

Two end-pieces included with each dozen.

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ON THE FRENCH SYSTEM.

Prices of Materials.

	Per dozen—*s.*	*d.*
Galvanised Raidisseurs for tightening the wires (one required for each line of wire)	4	0
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Galvanised Wire, 2*s.*, 2*s.* 6*d.*, and 3*s.* per 100 yards.

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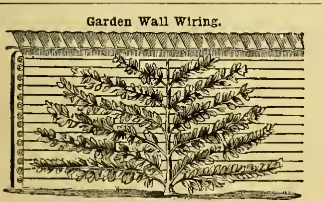

R. HOLLIDAY, Practical Wireworker, 2A, Portobello Terrace, Notting Hill Gate, London, W., begs to call the attention of all Gardeners who are about to have their Garden Walls Wired to his system of Wiring Walls, as being superior to all others for neatness, strength, and durability.

For Neatness,—Because all the Wires are kept perfectly tight, without the use of the Raidisseur.

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For Durability,—Because, being able to use the strong Wire, it is not so likely to be eaten through with the galvanism as the thin Wire, as used in the French system.

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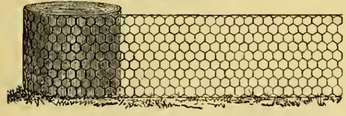
THE MEDAL FOR MERIT

At the Vienna Universal Exhibition, 1873,

Was awarded to Messrs. J. B. Brown & Co., for "excellence and perfection in material and workmanship, large extent of production, and cheapness of produce."



Prices per Lineal Yard, 24 inches high:—

Size of Mesh.	Mostly used for	Gauge.	Or Light Quality.	Gauge.	Or Medium Quality.	Gauge.	Or Strong Quality.
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1½ in.	Smallest Rabbits	19	5¼*d.*	18	6¼*d.*	17	8*d.*

⁂ Circulars with prices and further particulars of Wire Netting, also of Iron Fencing, Espalier and other materials for Wiring Garden Walls for Fruit Trees on the French System, on application.

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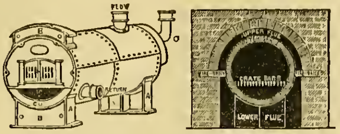

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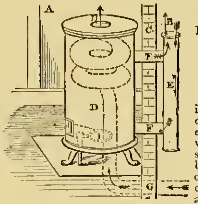
TRENTHAM GREENHOUSE BOILER,

After long experience, has proved the most Simple, Economical, Effectual, and Lasting Boiler extant; recently much improved. For Illustrations, with full particulars, apply to the Sole Makers, F. and J. SILVESTER, Castle Hill Foundry, Engineering and Boiler Works, Newcastle, Staffordshire.

GEORGE'S PATENT CALORIGEN,

FOR

Warming and Ventilating Small Conservatories.



COAL CALORIGEN, £6 6*s.*
Height, 36 inches; diameter, 21 inches.
GAS CALORIGEN, £3 3*s.*
Height, 28 inches; diameter, 14 inches.

The only Gas Stove in which the product of combustion is entirely excluded from the Conservatory, while a constant stream of warmed, not burnt, fresh air is introduced. The "Coal Stove" consumes the smallest amount of Fuel—2*d.* per diem being the average cost. It will be found very valuable in the Nursery or Sick Room, Damp Buildings, Conservatories, Offices, &c. Exhibited at the Exhibition of 1871 (Department of Scientific Inventions).

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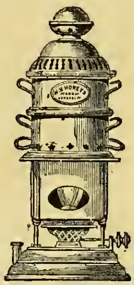
This Stove introduces a strong current of warmed (not burnt) fresh air.

Established 1856.

KEEP OUT THE FROST.



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To Burn Kerosene or any mineral oil.

They will burn for twenty-four hours at a cost of one penny for three hours.

They require no attention beyond replenishing the oil.

Suitable for greenhouses, conservatories, halls, bed-rooms, &c.

They will not injure the most tender exotics, nor are they in any way injurious to the health.

Prices, in block tin, 30*s.*; in copper, 50*s.* Copper, with glass, to give light and heat, 55*s.* Either will be sent on receipt of Post-office Order.

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Catalogue free. No agents appointed.

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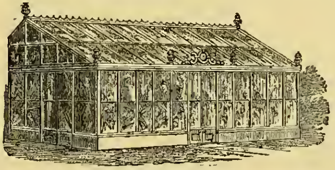

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PIT LIGHTS, all sizes, in stock, glazed and unglazed. Strong shifting top zinc HAND-GLASSES.

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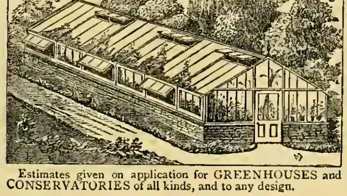

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HOT-WATER AND STEAM-HEATING ENGINEERS, &c.,

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ROAD LOCOMOTIVES, TRAMWAY LOCOMOTIVES, STEAM ROAD ROLLERS.

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NETTING for FRUIT TREES, SEED BEDS, RIPE STRAWBERRIES, &c.

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(By Appointment to the Royal Horticultural Society.)

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JOHN STEWART AND SONS, Dundee, REQUIRE the services of a Man as PROPAGATOR of Roses, Rhododendrons, Fruit Trees, Conifers, &c.

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WANTED IMMEDIATELY, for the Houses, THREE active young Men as JOURNEYMEN: must have been used to Forcing. Also a young MAN, to look after a horse and Work in the Garden. Wages 16s. per week and bothy.—Apply, with full particulars, to JOHN MONRO, Potter's Bar, N.

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GARDENER (HEAD).—Age 34, married. Seventeen years' experience in all branches of Gardening, particularly Early and Late Forcing of Fruits, Flowers, and Vegetables, and Flower and Kitchen Gardening. Highest references from present and previous employers.—M. T., Head Gardener, Whittinghame Lodge, New Barnet, N.

GARDENER (HEAD).—Married, one child; thoroughly understands Forcing of all kinds, Vines, Cucumbers, Melons, Peaches, Strawberries, Stove and Greenhouses Plants, and Flower and Kitchen Gardening; can Manage Farm, if required. Two years' character.—C. C., Oxhey Grove, Stanmore, N.

GARDENER (HEAD, or good SINGLE-HANDED).—Age 32, married; understands Growing Vines, Orchids, Stove and Greehouse Plants, and Flower and Kitchen Gardening. Two and a half years' good character.—D. R., 10, Scholefield Road, Upper Holloway, London, N.

GARDENER (HEAD, or SINGLE-HANDED).—Age 36, married, no family; understands the profession. Good character.—W. C. SHIPMAN, Mansfield House, Richmond Road, Twickenham, S.W.

GARDENER (HEAD, WORKING), where two or more are kept.—Age 26, single; twelve years' practice. Two and a-half years in last situation.—A. Z., Post Office, Sunning Hill, Berks.

GARDENER (HEAD, WORKING).—Age 27, single; understands Forcing Vines, Pines, Stove and Greenhouse Plants, Flower and Kitchen Gardening, &c. Three years in last situation.—S. E., 16, Linda Street, York Road, Wandsworth, S.W.

GARDENER (HEAD, WORKING).—Age 33, married; thoroughly understands the profession in all its branches. No objection to any part of Great Britain. Has been twelvemonths in Paris. First-class references.—HORTUS, Post Office, Quorndon, Loughborough.

GARDENER (HEAD, WORKING).—Age 29; understands Vinery, Stove and Greenhouse Plants, and the general routine of Flower and Kitchen Gardening. Good references.—J. H., Post Office, Farnham, Surrey.

GARDENER (HEAD, WORKING), to any Lady or Gentleman requiring the services of a practical, energetic, and trustworthy Man, thoroughly experienced in all branches of the profession. Highly recommended.—FLORA and POMONA, Post Office, Roehampton, Surrey.

GARDENER.—ALFRED SQUIRES, ten years Gardener to J. L. and R. L. H. Phipps, Esqs., Leighton Park, Westbury, Wilts, is open to engage with any Nobleman or Gentleman requiring the services of a thoroughly practical Man. Well experienced in the Growth and Management of Orchids, Stove and Greenhouse Plants, the Early and Late Forcing of Grapes, Peaches, Melons, Cucumbers, &c.; is also a practical Kitchen Gardener, and accustomed to extensive Pleasure Grounds and Flower Gardens. Undeniable character from the Gentleman he is now leaving.

GARDENER (SECOND), or to assist in the general routine of Gardening. Can be well recommended by Mr. Downing, Gardener to A. Allison, Esq., Tilgate Forest Lodge, Crawley, Sussex, where all particulars can be had.

GARDENER (UNDER), in a good Establishment, where a good Foreman is kept.—Age 20. Four years' experience.—T. W., 4, Chesterfield Gardens, Curzon Street, Mayfair, London, W.

GARDENER (UNDER), in a good Establishment.—Age 20. Good references.—C. P., Harewood Park, near Ross, Herefordshire.

GARDENER (UNDER), in the House, in a Gentleman's Establishment.—Age 19, height 5 feet 9 inches.—State wages, &c., to Mr. KING, Horsham Park, Horsham.

GARDENER (UNDER), or IMPROVER, in a Gentleman's Establishment.—Age 21. Has been accustomed to the Garden. Near London preferred. Four years' good character.—D. W. S., Post Office, Salisbury.

FOREMAN.—Age 24, steady, industrious; accustomed to Houses and general Gardening. Nine years' good character from present situation.—W. M., The Gardens, Balmore, Caversham, Oxon.

FOREMAN, in a good Establishment.—Age 27; has held a situation as above. Character will bear the strictest inquiry.—J. H., 32, Lifford Street, Putney, S.W.

FOREMAN, in a Gentleman's Establishment.—Age 24; thoroughly competent to take Charge of the Houses or Kitchen Garden. Has had nine years' experience.—T. ROGERS, Frimley Park, Surrey.

MANAGER, or NURSERY FOREMAN.—Mr. GEO. CALLANDER, who has been for the last seventeen years at the Knap Hill Nursery with Mr. A. Waterer as Foreman, Salesman, &c., is now open to an engagement in either of the above capacities. He is well acquainted with the Wholesale and Retail Trade.—1, Elcom Street, Kensal Road, Westbourne Park, London, W.

MANAGER, or TRAVELLER.—Twenty years' experience. Thoroughly competent and practical. Has travelled England, Scotland, and Ireland in the Trade.—B. S., 16, Tenant Street, Derby.

NURSERYMAN, &c.—A good Propagator and Grower, can work at anything, and is a useful working Man. Permanent employment near London preferred.—C., 8, City Terrace, Hornsey Road, Islington, N.

PROPAGATOR (GENERAL).—Age 34, married. Twenty-one years' experience in the leading Nurseries; four years in present situation. Satisfactory references.—W. E., North Road House, Hertford, Herts.

PROPAGATOR and GROWER.—Age 26; well up in the Propagation and Growth of Stove, Greenhouse, and Soft-wooded Plants. Twelve years' experience in Foreign and British Establishments. Speaks French and German. Good references.—E. F., 41, Cochrane Street, St. John's Wood, N.W.

To Noblemen's and Gentlemen's Gardeners.

JOURNEYMAN.—Age 19. Good character.—X. Y. Z., 48, Talbot Street, Newtown, Chester.

JOURNEYMAN, in a good Establishment.—Age 21; active Man. Can be recommended with confidence.—R. M., The Gardens, Mawley Hall, Bewdley.

TRAVELLER, in the Nursery or Seed Trade (to act as Clerk or Correspondent between journeys).—Age 30; sixteen years' experience, and well acquainted with England and Scotland.—B. Y., 7, New Bond St., London, W.

SHOPMAN.—Well experienced in all branches, also in Plants; well up at Retail Counter.—W. D., Hurst & Son's, 6, Leadenhall Street, London, E.C.

IMPROVER, in a Nobleman's or Gentleman's Garden.—Age 19. Good reference.—Address, stating terms, F. H., 2, Westbourne Place, Harrow Road, W.

FARM BAILIFF.—A thorough practical Man; twenty years' experience in Breeding, Feeding, Buying and Selling of Stock, Cultivation of all sorts of Soils, Draining, &c., and Keeping of Accounts. First-class references.—A. B., Messrs. Francis & Arthur Dickson & Sons, 106, Eastgate Street, Chester.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C. Printed by WILLIAM RICHARDS, at the Office of Messrs. BRADBURY, AGNEW, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the County of Middlesex, and Published by the said WILLIAM RICHARDS, at the Office, 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, February 27, 1875.
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W. RICHARDS, Publisher.

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ROYAL HORTICULTURAL SOCIETY South Kensington, S.W.
The next EVENING MEETING will take place in the Council Room, South Kensington, on WEDNESDAY, March 10, at 8 o'Clock P.M., when W. A. LINDSAY, Esq., will LECTURE on the HISTORY of the ROYAL HORTICULTURAL SOCIETY.

MANCHESTER BOTANICAL and HORTICULTURAL SOCIETY.
FLORAL and HORTICULTURAL MEETING at the Town Hall, King Street, Manchester, on TUESDAY, March 16 next. For particulars apply to the undersigned.
BRUCE FINDLAY, Secretary.
Botanic Gardens, Manchester.

MANCHESTER BOTANICAL and HORTICULTURAL SOCIETY.
GRAND NATIONAL HORTICULTURAL EXHIBITION, 1875.—ONE THOUSAND POUNDS in PRIZES.—Will open on MAY 14 next. Schedules are now ready, and may be had from the undersigned. BRUCE FINDLAY.
Botanic Gardens, Manchester.

THE OUNDLE FLOWER and POULTRY SHOW will be held on WEDNESDAY, July 7, 1875.
SCHEDULES (preparing) will be forwarded on application to ALFRED KING, Secretary.

SOUTHAMPTON HORTICULTURAL SOCIETY, 1875.—SPRING SHOW, APRIL 13.—GRAND HORTICULTURAL EXHIBITION and GALA, on SATURDAY and MONDAY, July 31 and August 2, at which Prizes amounting in value to £200 will be offered for competition. Schedules are now ready, and may be had on application to the Secretary. Mr. C. S. FUIDGE.
32, York Street, Lower Avenue.

Fruits Cultivated in the United Kingdom.

A DESCRIPTIVE LIST, by LITTLE AND BALLANTYNE, Knowefield Nurseries, Carlisle, free, by post, for twelve stamps.

J. LINDEN'S Establishment for the Introduction of New and Rare Plants, Ghent, Belgium. English CATALOGUES of Palms, Orchids, New, Rare, and Decorative Plants of all kinds, Camellias, Azaleas, &c., post free. Agents—Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London, E.C.

BETTERIDGE'S PRIZE ASTER, originally introduced by CARTERS. Intending purchasers are requested to read Mr. Betteridge's letter, published by us at p. 269 of last week's *Gardeners' Chronicle.*
CARTERS, The Queen's Seedsmen, High Holborn, W.C.

BETTERIDGE'S PRIZE ASTER, direct from the raiser. See letter, p. 269 of last week's *Gardeners' Chronicle.*
DUKE of CONNAUGHT. | OXONIAN IMPROVED.
DUKE of EDINBURGH. | DUCHESS of EDINBURGH.
The above collection post free for 6s. 6d.
CARTERS, The Queen's Seedsmen, High Holborn, W.C.

BETTERIDGE'S PRIZE ASTER, originally introduced by CARTERS. Eighteen splendid varieties, post free, for 3s. 6d.; twelve splendid varieties, post free, for 2s. 6d.
CARTERS, The Queen's Seedsmen, High Holborn, W.C.

Herbaceous and Alpine Plants.

THOMAS S. WARE'S Illustrated CATALOGUE of NEW, RARE, and CHOICE PERENNIALS for 1875 is ready, and will be sent on application.
Hale Farm Nursery, Tottenham, London, N.

VINES, VINES, VINES.—Fine stock of extra strong short-jointed well-ripened Fruiting and Planting Canes; also HUMEA ELEGANS. Prices, low, on application.
W. G. CALDWELL AND SONS, Huntsford Nurseries.

RHODODENDRON MULTIFLORUM, with from 100 to 200 bloom-buds, 2s. 6d. each. RHODODENDRON PRÆCOX, 50 to 100 bloom-buds, 1s. 6d. to 2s. 6d. each. Will be in full bloom in about a fortnight.
ISAAC DAVIES, Nurseryman, Ormskirk.

YEWS.—Many thousands, 3, 4, 5, 6, 7, 8, 9, 10 to 15 feet. All recently transplanted.
ANTHONY WATEREK, Knap Hill Nursery, Woking, Surrey.

PINES, very fine Fruiting and Succession, promising fruits of 4 lb. to 5 lb each. Prices on application.
T. JACKSON AND SON, The Nurseries, Kingston, Surrey.

TO BE SOLD, 15,000 LARCH, 18 inches to 2 feet; and 5000, 5 to 10 feet. Apply to Mr. G. CHORLEY, Midhurst.

QUICK THORNS, all heights up to 3 and 4 feet, the latter well adapted for gapping purposes. Prices on application to
THOS. CRIPPS AND SON, The Nurseries, Tunbridge Wells, Kent.

ORCHARD-HOUSE TREES, Fruiting in Pots.—Peaches, Nectarines, Pears, Apples, Mulberries, and Oranges.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Fruit Trees of Bearing Size.

STANDARD and PYRAMID APPLES, PEARS, PLUMS, and CHERRIES, all of extra size and full of flower-buds.
T. JACKSON AND SON, The Nurseries, Kingston, Surrey.

SPLENDID NEW APPLE, "LADY HENNIKER," Sent out by EWING AND CO., Norwich. Circulars on application.

To the Trade.

ASPARAGUS, Giant, 2-yr. and 3-yr.—For price apply to
JAMES BIRD, American Nurseries, Downham.

The Finest Broccoli in Cultivation.

COOLING'S MATCHLESS.—Every grower of this invaluable vegetable should have it. Per packet, 1s. 6d., post free.
GEORGE COOLING, Seedsman, Bath.

Strawberry Plants.

DOWNIE AND LAIRD have at present to offer 20,000 of the finest varieties in cultivation, at 3s. 6d. and 5s. per 100.

RED-SKIN FLOURBALL POTATOS, grown on warp.—The Subscriber can supply the above in 4-ton lots and upwards, put in at Haxey Station, at £5 per ton cash. Apply to
JNO. E. DIXON, Seed Grower and Merchant, Gainsborough.

WANTED, PLUM STOCKS. State price per 1000 to
J. HOUSE, Eastgate Nursery, Peterborough.

WANTED, ALDER, BIRCH and LARCH, about 2 feet. Price, &c., to
JOHN CARTER, Nursery, Keighley, Yorkshire.

WANTED, young AZALEA PONTICA and RHODODENDRON PONTICUM STOCKS, of various sizes. Also fresh ARAUCARIA IMBRICATA SEED. Send samples, post paid, and price to
A. M. C. JONGKINDT CONINCK, Tottenham Nurseries, Dedemsvaart, near Zwolle, Netherlands.

SUTTONS' COMPLETE COLLECTIONS of SEEDS for the NOBLEMAN'S GARDEN, 105s. and 63s. each. Carriage free.

FOR THE GENTLEMAN'S GARDEN, 42s. and 31s. 6d. each. Carriage free.

FOR THE AMATEUR'S GARDEN, 21s. (Carriage free) and 15s. each.

FOR the COTTAGER'S and ARTISAN'S GARDEN. Price, for a Single Collection, 2s. 6d.; one dozen and under five dozen, 28s. per dozen; twenty dozen and over, 25s. per dozen. Particulars on application.

SUTTON AND SONS, THE QUEEN'S SEEDSMEN, Royal Berks Seed Establishment, Reading.

CAMELLIA BLOOMS, white and all colours, extra quality—several hundreds at 6s. per dozen, cash.
JAMES ANDERSON, Nurseryman and Horticultural Valuator, Meadowbank, Uddingston, Glasgow.

To the Trade.

ROSES, surplus stock of Dwarf, at reduced prices. The plants offered are remarkably strong.
WM. WOOD AND SON, Nurseries, Maresfield, Uckfield, Sussex.

NEW ROSES for 1875.—Splendid plants of the best kinds now ready. Descriptive LISTS gratis and post free to applicants.
EWING AND CO., Norwich.

NEW ROSES for 1875.—The Best and Strongest Plants in the Trade, at same prices as offered by the leading Rose firms. CATALOGUES now ready.
WM. WOOD AND SON, Nurseries, Maresfield, Uckfield, Sussex.

Lawns.

JAMES DICKSON AND SONS' Finest LAWN MIXTURE for Forming New or Renovating Old Lawns is finer and in every way superior to all others.
108, Eastgate Street, Chester.

J. LEIGH can still supply PLANTS as advertised in *Gardeners' Chronicle*, February 20.
CATALOGUE post free.
Sandy Lane Nursery, Lowton, near Newton-le-Willows.

Best Seeds Only.

WM. CUTBUSH AND SON'S CATALOGUE of SEEDS, GLADIOLI, &c., should be had by all Gardeners and Amateurs purchasing really first-class goods at a moderate price. Post-free on application.
Highgate Nurseries, London, N.

VESUVIUS.—Special Offer.—100,000 strong autumn-struck plants, from single pots, 10s. per 100, 85s. per 1000, package included. Terms cash.
WILLIAM BADMAN, Cemetery Nursery, Gravesend.

CALCEOLARIA AUREA FLORIBUNDA.—Strong, healthy, clean, short-jointed, autumn-struck plants of the above, 5s. per 100, 40s. per 1000. Terms cash, package free.
FIELD BROTHERS, Tarvin Road Nursery, Chester.

ROYAL WINTER GARDENS, Edinburgh.—Grand display of SPRING FLOWERING PLANTS at present. Fresh VIOLETS, every morning.
DOWNIE AND LAIRD.

Carnations—Named Show Varieties.

WOOD AND INGRAM offer fine Plants of the ABOVE in twelve varieties, one pair of each, thoroughly established in 3-inch pots, at 12s. the dozen pairs. Package 1s. the first and 6d. ever additional dozen pairs.
The Nurseries, Huntingdon.

CLEMATIS ROOTS, fit for immediate Working. Price, 3s. 6d. per 100, or 30s. per 1000.
THOMAS CRIPPS AND SON, The Nurseries, Tunbridge Wells, Kent.

DAHLIAS.—100 vars. (pot roots), 5s. pe dozen. Usual terms to the Trade.
KELWAY AND SON, The Royal Nurseries, Langport, Somerset.

ALTERNANTHERA, from store pots.—WM. MILES has the following varieties to offer:—amœna, 12s. 6d. per 100; magnifica, 10s. per 100; paronychioides, 10s. per 100. Package included, for cash.
West Brighton Nurseries, Clifton-ville, Brighton, Sussex.

EUCALYPTUS GLOBULUS.—Fresh newly gathered Seed, just arrived. Price, per ounce or pound, on application.
Mr. WILLIAM BULL, Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

Centaurea candidissima (Wholesale Price)

WOOD AND INGRAM offer fine summer-sown Plants of the ABOVE, thoroughly established in Thumb Pots, at 20s. per 100. Package, 3s. 6d. per 100, or 2s. for 50, not less than which will be sold at the price.
The Nurseries, Huntingdon.

SALES BY AUCTION.

City Auction Rooms, 38 and 39, Gracechurch St., E.C.

IMPORTANT SALE of a choice collection of CARNATIONS and PICOTEES of the finest growth; 500 handsome STANDARD and DWARF ROSES of the best varieties; selected FRUIT TREES; choice Hardy AMERICAN PLANTS; CONIFERÆ SHRUBS, with some Fine Double CAMELLIAS, AZALEAS, CYCLAMENS, CINERARIAS, and other PLANTS in flower; FUCHSIAS, DAHLIAS, choice LILIUMS, GLADIOLI, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION the above on THURSDAY, March 11, at the City Rooms, at half-past 12 o'Clock, precisely.

On view the morning of Sale. Catalogues at the Rooms and of the Auctioneers, 98, Gracechurch Street, E.C., and Leytonstone, E.

Clapham, S.W.

UNRESERVED SALE of NURSERY STOCK, &c.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, without reserve, on the Premises, Muskett's Nursery, Clapham Rise, Clapham, Surrey, S.W., on MONDAY, March 15, at 11 for 12 o'Clock precisely, the whole of the valuable NURSERY STOCK, admirably adapted for Planting in Suburban Suburbs, consisting of Chinese Arbor-Vitæ, Aucubas, 1500 fine Green Hollies, 2 to 4 feet, Common Laurels, Rhododendrons, &c.; also a number of Ornamental Trees, some selected Fruit Trees, and a fine assortment of Standard and Dwarf Roses, together with 25 handsome Specimen Aralea indica in fine variety.

On view the Saturday prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, 98, Gracechurch Street, E.C.

Sydenham, Kent.

To FLORISTS, BUILDERS, and OTHERS.

MESSRS. PROTHEROE AND MORRIS will INCLUDE in their SALE of PROPERTIES, to take place at the Mart, Tokenhouse Yard, on THURSDAY, March 18, at 1 for 2 o'Clock precisely, a valuable LEASEHOLD ESTATE, known as Kirkdale Nursery, Sydenham, Kent, occupying a capital position in the high road, close to the railway station, comprising a substantial Brick-built Detached Residence and Seed Shop, Collection of Show-house and six Greenhouses, standing on a choice plot of eligible Building Land, having a frontage of 61 feet to high road, by a depth of 207 feet. Lease eighty years, from March 25, 1847, at a low ground rent of £6 5s. per annum.

Particulars may be had of the Auctioneers, 98, Gracechurch Street, City, and Leytonstone, E.

Garston, near Liverpool, within a few minutes' walk of three Railway Stations. A compact and valuable FREEHOLD ESTATE, distinguished as Meredith's Vineyard, universally renowned as the first Vine and Grape producing establishment in the United Kingdom, first-class prizes having been obtained by the present occupier, Mr. Joseph Meredith, at all the leading shows in Europe.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, in one lot, on the Premises, as above, on TUESDAY, March 23, at half-past 1 for 2 o'Clock precisely, the valuable FREEHOLD ESTATE, known as Meredith's Vineyard, situate in Garston, near Liverpool, and comprising 6 acres 1 rood 32 perches of particularly eligible Building Land, with the attractive and substantial brick-built Residence standing thereon; likewise 30 Greenhouses, set in brickwork, and of the best construction, fitted with every modern appliance, and containing about 50,000 feet super of Glass and Woodwork, heated by about three miles of Hot-water Piping on the most approved principles; also several Brick Pits, numerous convenient Outbuildings, together with all the Stock planted out in the Houses, including the entire celebrated Collection of established Vines, at present in the highest state of perfection.

Cards to view, and printed particulars with Plans, may be had of Messrs. MOSER AND SONS, Solicitors, Kendal; of Messrs. GIBSON AND WOLLAND, Accountants, 19, South John Street, Liverpool; of Messrs. WHITLEY AND MADDOCK, Solicitors, Liverpool; and of the Auctioneers and Estate Agents, 98, Gracechurch Street, London, E.C.

Kingston, Surrey.

By ORDER of the EXECUTORS of the late Mr. BRUCE.

MESSRS. PROTHEROE AND MORRIS are instructed to prepare for their PERIODICAL SALE, to take place at the Mart, Tokenhouse Yard, on APRIL 15 NEXT, the valuable FREEHOLD ESTATE, known as Bruce's Nursery, and situate in the Richmond Road, Kingston, Surrey, comprising 4 acres 2 roods of very eligible Building Land, with substantial Brick-built Residence erected thereon. Further particulars will shortly appear.

Periodical Sale of Poultry and Pigeons.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, March 9, at half-past 12 o'Clock precisely, SILVER SPANGLED HAMBURGHS and SPANISH, from Miss Browne; BUFF COCHINS, from Mr. Gilbert; LIGHT BRAHMAS and MUSCOVY and AYLESBURY DUCKS, from Mr. Peter Broad; DARK BRAHMAS, from Mr. Hepburn; WHITE COCHINS, from Mr. Sanders; ALMOND TUMBLERS, from Mr. Woodhouse; WIRE NETTING, &c.

On view the morning of Sale, and Catalogues had.

Hardy Plants and Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, March 10, at half-past 12 o'Clock precisely, RHODODENDRONS with buds, LAURELS, YEWS, CLIMBING PLANTS, FRUIT TREES, ROSES, HERBACEOUS PLANTS, GLADIOLI, &c.

On view the morning of Sale, and Catalogues had.

Lilies and Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, March 11, at half-past 12 o'Clock precisely, specimen CAMELLIAS, from 2 to 8 feet high, well set with bloom-buds, suited for Conservatories; several small Collections of established and imported ORCHIDS, an importation of fine GLADIOLI from France, 10,000 Bulbs of LILIUM AURATUM, just arrived from Japan in good condition, and a quantity of CONIFEROUS TREE SEEDS.

On view the morning of Sale, and Catalogues had.

Odontoglossum Alexandræ (crispum), O. Pescatorei, O. TRIUMPHANS, O. BLANDUM, O. PHALÆNOPSIS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on FRIDAY, March 12, at half-past 12 o'Clock precisely, an importation of several hundreds of the above, together with various other ORCHIDS, just received, in good condition, from the United States of Colombia, including good plants of the beautiful Sobralia virginalis, Compartettia falcata, Odontoglossum hastilabium, Schlimia jasminodora, Ada aurantiaca, &c.

On view the morning of Sale, and Catalogues had.

Established Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on FRIDAY, March 12, at half-past 12 o'Clock precisely, a small COLLECTION of ESTABLISHED ORCHIDS, including some fine specimens of Epidendrum vitellinum majus and the following rare kinds:—

Cattleya aurea	Oncidium sarcodes
,, labiata Roezlii	,, triniense
Odontoglossum sceptrum	Cypripedium Schlimii
,, angustatum	Cattleya gigas
Oncidium phymatochilum	Dendrobium Falconeri

&c., &c.

On view the morning of Sale, and Catalogues had.

Guilford Nursery, Whitfield, near Dover.

IN LIQUIDATION.

To LANDOWNERS, BUILDERS, NURSERYMEN, and OTHERS. CLEARANCE SALE of about EIGHT ACRES of VALUABLE NURSERY STOCK.

MR. HENRY HAYWARD has received instructions from the Trustee of the Estate of Mr. C. H. Burbidge (in liquidation by arrangement) to SELL by AUCTION, without reserve, on the Premises, which are situate about one mile from the Kearsney Station on the London, Chatham, and Dover Railway, on MONDAY and TUESDAY, March 8 and 9, at 1 o'Clock punctually each day, the whole of the thriving NURSERY STOCK, in excellent condition for removal, comprising about 10,000 healthy Standard, Pyramid, and Trained Fruit Trees; 30,000 Forest Trees, of sorts; 20,000 thriving Evergreen and Deciduous Shrubs and Conifers of choice varieties, 1500 Ornamental Trees of the rarest species, quantity of Gooseberry and Currant Bushes, 8000 first-class Dwarf and Standard Roses, Manetti stocks, &c.

May be viewed prior to the Sale, and Catalogues had on the Premises; or of Messrs. WORSFOLD AND HAYWARD, Auctioneers and Surveyors, New Bridge, Dover; and 12, Queen Victoria Street, London, E.C.

Wallington Nurseries.

TWO DAYS' SALE of NURSERY STOCK, comprising Laurels, Hollies, Box, Scotch and Spruce Firs, Pinus austriaca, Privet, Berberis, Euonymus, Aucubas, Rhododendrons and other shrubs; Poplars, Scarlet Chestnut, Silver Birch, Apple, Pear, Cherry, Plum, and Peach trees.

MR. JOHN MORGAN has received instructions from Mr. Clark to SELL as ABOVE, on the Premises, on WEDNESDAY and THURSDAY, March 10 and 11, at 1 o'Clock. A clearance must be effected, as a portion of the ground is required immediately for building purposes.

Catalogues of the Auctioneer, close to the Railway Station, Sutton; or on the Premises, The Nurseries, Wallington.

Knypersley Hall Gardens, Biddulph, near CONGLETON.

To NOBLEMEN, GENTLEMEN, NURSERYMEN, and OTHERS. IMPORTANT SALE of Choice and Rare STOVE and GREENHOUSE PLANTS.

MR. DERRY has received instructions from Mr. John Sherratt, who is removing to his new Nursery Grounds, to SELL, by AUCTION, in the large Vinery, Knypersley Hall Gardens, Biddulph, near Congleton, on THURSDAY, March 11, at 12 o'Clock, an extensive and choice Collection of Duplicate Specimens of ORCHIDS, STOVE and GREENHOUSE PLANTS, &c., including a magnificent plant of the Kumquat Orange, bearing upwards of 400 fruit; fine plants of Cocos Weddelliana, Phormium tenax variegatum, Camellia alba plena, and many specimen Indian Azaleas, in bloom; amongst Orchids in bloom will be found Dendrobium Wardianum, Phalænopsis amabile, Odontoglossum Pescatorei, O. triumphans, Cologyne cristata, &c.

On view the morning of Sale. Catalogues may be had from Mr. SHERRATT, Knypersley Hall; or from the Auctioneer.

Knypersley is distant 1 mile from Black Bull Station, 1 mile from Gillow Heath Station, 4 miles from Congleton Station, 2½ miles from Pitts Hill Station, 3¾ miles from Tunstall Station, and 8 miles from Stoke-on-Trent.

Auctioneer's Office, Moorland Road, Burslem.

County of Limerick, Ireland.

ISLANMORE, within 9 miles of Limerick, and five minutes' walk of Croom Station, on the Great Southern and Western Railway.

MR. M. HARTIGAN is favoured with instructions from the Executors of the late Robert Wanless Kelley, Esq., to offer for SALE by AUCTION, at Islanmore, on THURSDAY, March 18 prox., at 1 o'Clock, this MAGNIFICENT ESTATE, containing 511 acres 3 roods 38 poles, statute measure. The Mansion House, which stands in the centre of a beautifully timbered Park, is approached by two avennes with gates and handsome entrance lodges. It is picturesquely situate, overlooking the rivers Maigue and Commogue, which partly run through the estate. The house contains two halls, four reception rooms, study, eight bedrooms, and two dressing-rooms, servants' hall, with ample accommodation for servants, all in first-class order, and ready for immediate occupation. The out-offices are well built and in perfect repair, containing coachman's house with three rooms, stabling for twelve horses (six box stalls), three coach-houses, and a large range of lofts. The Pleasure Grounds are tastefully laid out, the walled-in gardens are well-stocked, and in perfect order, and include Conservatory, Melon pits, and Vineries in full bearing. The demesne is stocked with pheasant and other game, woodcock, and wild fowl in the season. There is good salmon and trout fishing on the Maigue and Commogue, and the kennel of the County Foxhounds is within 2 miles. The Farm Lands are of superior arable and pasturage quality, well drained, thoroughly fenced and watered; they are all in the owner's possession, and in the highest state of cultivation. The Farm Buildings are extensively, newly, and substantially built, and there are also on the farm a limekiln, limestone quarry, sand and gravel pits. Immediate possession can be given to the purchaser.

For all further particulars and Conditions of Sale applications to be made to Messrs. REEVES AND SONS, Solicitors, 17, Merrion Square East, Dublin; or to MICHAEL HARTIGAN, Auctioneer, 46, George Street, Limerick, Ireland, who will give Cards to view the Estate.

Stapleford, Cambridgeshire.

MESSRS. MANN AND RAVEN have received instructions to OFFER for SALE by Public AUCTION, upon the Premises, by direction of Richard Headly, Esq., on FRIDAY, March 19 next, at 12 o'Clock, all his valuable STOVE and GREENHOUSE PLANTS, most excellently grown, and clean and healthy. Among the Hardwooded plants will be found beautiful specimens of Azaleas, Acacias, Camellias, Epacris, Heaths, Rhododendrons, &c. The Soft-wooded plants comprise Cinerarias, Calceolarias, Fancy and English Spotted Pelargoniums, Zonal Geraniums, Fuchsias, Chrysanthemums, Carnations, Picotees, Pinks, and Auriculas, &c.

The Auctioneers particularly call attention to the above Sale, as Mr. Headly is well known as a most successful amateur floral exhibitor, and the plants have all been selected with the greatest care and judgment by that gentleman.

Catalogues may be had of the Auctioneers, Messrs. MANN AND RAVEN, Hobson Street, Cambridge.

Croydon.—Within 11 miles of London.

TO FLORISTS and NURSERYMEN.

MESSRS. BLAKE, SON, AND HADDOCK will SELL by AUCTION, at the Mart, Tokenhouse Yard, City, E.C., on WEDNESDAY, March 24, at 2 o'Clock precisely, the FREEHOLD PROPERTY well-known as Agate's Nursery, situate in Southbridge Road, where the business has been carried on for a great many years. Also, at the same time, a DETACHED HOUSE with large Garden, also well suited for the Nursery Business. Possession of both will be given on completion of the purchase.

Full particulars will be forwarded on application to the Auctioneers, Croydon, and 32, Nicholas Lane, City, E.C.

MESSRS. FRASER AND BENTON, HORTICULTURAL AND AGRICULTURAL AUCTIONEERS AND VALUERS, Romford and Grays, Essex.

Transit Agency for Plants, Seeds, &c.

C. & BLACKITH AND CO., late BETHAM & BLACKITH, Cox's and Hammond's Quays, Lower Thames Street, London, S.E.—Forwarders to all parts of the World.

Wood Engraving.

MR. W. G. SMITH, ARTIST and ENGRAVER on WOOD, 15, Mildmay Grove, London, N.

Window Glass, Sheet Lead, Paints, &c.

THOMAS MILLINGTON AND CO., IMPORTERS and MANUFACTURERS. New LIST of PRICES, very much reduced, on application.

87, Bishopsgate Street Without, E.C.

WILLIAM ROE, LANDSCAPE GARDENER, 42, Paternoster Row, St. Paul's, London, E.C., and Osborne Terrace, Lozells Road, Birmingham.

Designs prepared, the Work superintended if required, or Estimates given.

WANTED, with possession in September, a FLORIST or NURSERYMAN'S BUSINESS on a small scale. Rent under £50. Valuation accepted. Without delay address

F.R.H.S., Sunningdale Post Office, near Ascot.

Ilford, Essex,

TO BE LET, by Tender, from year to year, SEVERAL PIECES of VALUABLE LAND, cultivated as Orchard and Market Gardens, situate in the parish of Ilford, in the county of Essex, containing together 23 acres, 1 rood, 37 perches, and several Farm Buildings, heretofore portion of Clement's Farm, the property of William Thompson, Esq.

The conditions subject to which the Premises will be Let, and the Form of Tender, can be seen at the house of Mr. GREEN, Clement's Farm, Ilford, of whom further particulars may be obtained on personal application.

Sealed Tenders may be sent to Messrs. ANDREWS, BARRETT, AND ANDREWS, Solicitors, Weymouth, on or before March 15.

FOR IMMEDIATE DISPOSAL, in consequence of the ill-health of the Proprietor, an old-established NURSERY, SEED, and FLORIST TRADE, in the Midland counties. For particulars apply to

Mr. R. COOPER, 152, Fleet Street, London, E.C.

Victoria Colony, Kansas, U.S.—To Farmers and OTHERS.

TO BE SOLD, fine STOCK FARMS of 640 Acres and upwards, Freehold, from 10s. to 25s. per acre. Grass in its natural condition unsurpassed for feeding Sheep and Cattle. For PAMPHLET containing full particulars respecting this Property, apply to

ROBERT W. EDIS, Esq., F.S.A., 14, Fitzroy Square, London, W., Architect to the Estate.

ROYAL WESTERN HORTICULTURAL SOCIETY.

SPECIAL PRIZE LIST for the Grand Spring Exhibition, to be held in the New Guildhall, Plymouth, on TUESDAY and WEDNESDAY, June 1 and 2. Patron: HIS ROYAL HIGHNESS THE PRINCE OF WALES, K.G. President: SIR MASSEY LOPES, Bart., M.P.

SPECIAL PRIZES.

STOVE and GREENHOUSE PLANTS.—For the best group of twenty (ten in bloom and ten fine-foliage), 1st, £20; 2d, £10. For the best group of ten, grown by gentlemen's gardeners, 1st, given by Dr. Woodman (Lucombe, Pince & Co., Exeter), £5 5s.; 2d, given by the Society, £2 2s.

ROSES.—For the best show of twelve varieties (in pots), 1st, £12 12s.; 2d, £6 6s.

AZALEAS.—For the best stand of specimens, six distinct varieties, 1st, £10; 2d, £5.

CUT ROSES.—For the best forty-eight distinct trusses, £3 3s.; for the best twenty-four distinct trusses, £2 2s.; for the best twelve distinct trusses, £1 1s.

BOUQUETS—For the best three (one bride and two bridesmaids'), £1 1s.; 2d, 10s. 6d.

VEGETABLES.—For the best collection, not to exceed twelve varieties, £3 3s.

The foregoing Prizes are open for competition to all England, except the Prizes for the best group of ten Stove and Greenhouse Plants, which are open to gentlemens' gardeners of Devon and Cornwall only.

It is requested that ten days' notice of exhibiting, stating the probable space required, be given to the Secretary, and all to reach the place of exhibition before 9 A.M. on the day of Show.

F. B. BOND, Hon. Secretary.

16, Penrose Street, Plymouth.

POTATOS for PLANTING.—Samples good and true. Myatt's Prolific, 16s. per sack of 16 stones; Red-skinned Flourball, 16s. ditto. Special offers for large quantities. New 4 lb. 4½ bushel sacks, 1s. 3d. each. Remittances to accompany all orders.

Most of the best English and American varieties in stock. Wholesale and retail prices on application.

CHRISTMAS QUINCEY, Potato Seed Grower and Merchant, Peterborough.

Hollies.

ANTHONY WATERER respectfully invites the attention of Holly buyers to the very fine Stock to be seen growing at Knap Hill. It comprises upwards of Thirty Thousand Plants, from 3 to 20 and 12 feet high, of the finer Gold, Silver, and Green-leaved kinds, affording a choice in size and variety such as can be met with in no other Nursery in Europe. Every Plant has been recently removed, and will be guaranteed.

The Stock of Common Green Hollies alone occupies 5 acres of land, and Purchasers will find them in large numbers of all heights up to 15 feet.

Knap Hill Nursery, Woking, Surrey.

To Seed Potato Buyers.

HAVING had numerous enquiries from different persons in all parts of the country when ordering SEED POTATOS of me, such as "Can you guarantee your stocks to be true; and if so, how can you offer them at a much lower price than other Houses?" and "How is it you charge so little for Sacks and Bags?" In reply, I beg to say, that to the best of my knowledge the Seed is as good as can be procured, and the reason I can charge such low prices is, because I reside in the midst of extensive Growers, and that I buy for Cash only. The American varieties I have direct from an Agent in New York, in large quantities, so am placed on the best terms, added to which I superintend my own business as far as possible, and am satisfied with small profits. Sacks and Bags I procure from the Manufacturers at their lowest quotations.

This I trust will satisfy my friends and the public generally, and induce them to send for List of Prices at once from

CHRISTMAS QUINCEY,
Seed Grower & Merchant, Wholesale and Retail, Peterborough.

New Potatos for 1875.

JOHN CATTELL with the greatest confidence recommends the following, which have received a First-class Certificate:—

ECLIPSE KIDNEY (Cattell), price 6s. per 7 lb.
RELIANCE KIDNEY (Cattell), price 4s. per 7 lb.
ADVANCER KIDNEY (Cattell), price 4s. per 7 lb.

The Set 12s. for cash with order. Trade price on application.

See large Advertisement in last page of the *Gardeners' Chronicle* for January 9, 1875.

Full description, and testimonials, post-free on application.

Sole Wholesale Agents in London, Messrs. HURST AND SON, 6, Leadenhall Street, E.C.

Nursery and Seed Establishment, Westerham, Kent.

RHODODENDRONS.—The six most distinct and beautiful hardy Rhododendrons—

BRVANUM .. .. .. vivid scarlet,
MRS. JOHN CLUTTON .. beautiful clear white,
JOSEPH WHITWORTH .. rich dark lake,
MICHAEL WATERER .. very fine crimson,
MINNIE.. .. .. .. white, beautifully spotted,
EVERESTIANUM .. .. delicate rosy lilac,

are offered in any quantity, nice bushy plants, at 2s. 6d. each, by

W. H. ROGERS, Red Lodge Nursery, Southampton.

A CATALOGUE, containing the names of upwards of one hundred other choice varieties, may be had on application.

NEW ROSES.

SIR GARNET WOLSELEY (Cranston's).
CRIMSON BEDDER (Cranston's).
CLIMBING JULES MARGOTTIN (Cranston's).

All the new Continental Roses for 1875—upwards of forty varieties.

Descriptive LIST on application to

CRANSTON AND MAYOS, King's Acre Nurseries, near Hereford.

Richmond Nurseries, Richmond, Surrey.
(ESTABLISHED 1802.)

To the TRADE and LARGE CONTRACTORS.

G. AND W. STEELL have to offer this season, extra to their usual large stock of ROSE, FRUIT, FOREST, and ORNAMENTAL TREES, EVERGREEN SHRUBS, &c., a large quantity of fine, clean-grown and straight in the stock Standard GOLDEN QUEEN and other varieties of variegated HOLLIES, from 2 to 5 feet in the stem; Pyramid Green and Variegated do., from 2 to 7 feet; also an immense quantity of Hybrid and Ponticum RHODODENDRONS, uncommonly well set with bloom-buds, which they are prepared to supply at extremely low figures. Where large quantities are required special prices will be given.

Especial Notice.—Sow Now.

NO BEDDING PLANTS REQUIRED.

Twelve most striking SUBTROPICAL PLANTS, as grown in Battersea Park.
Twelve most striking ANNUALS for the present year.
Twelve most striking FLORIST and PERENNIAL PLANTS.

A liberal sowing of each, named, and sent post free for 5s., by Post Office Orders payable High Street, Borough, S.E.; or Epsom, Surrey.

RANSLEY TANTON, F.R.H.S., Wholesale and Retail Seed Merchant, Borough End, London Bridge, S.E.

Best Seeds Only.

DON'T PAY FOR EXPENSIVE ILLUSTRATED CATALOGUES!!!

NOW ON VIEW—SAMPLE GROWTHS of 1874. Upwards of 16,000 persons have visited this Establishment since the Exhibition of Seeds was opened.

CATALOGUES free, in which all novelties of merit are shown. Seeds carriage free and 5 per cent. discount.

R. TANTON, F.R.H.S., Wholesale and Retail Seed Merchant, Borough End, London Bridge, S.E.

Public Notice.

MR. R. TANTON, F.R.H.S., begs to apprise the Public that he does not supply SEEDS or NURSERY STOCK to any one trading in Epsom; therefore no Stock offered by Mr. Tanton can be obtained from Epsom, only through him.

The Nurseries, Epsom, Surrey.

March 1, 1875.

TO THE TRADE.

PEARS, extra fine dwarf-trained, all the leading kinds.
,, extra fine pyramids on Quince, 4-yr., 5-yr., and 6-yr. old.
PLUMS, extra fine dwarf-trained.
,, extra fine pyramids, fruiting.
CHERRIES, extra fine dwarf-trained.
,, pyramid, fruiting.
,, extra fine Morello, fruiting.
PEACHES, Maiden, twenty to thirty varieties.
THUJA AUREA, 1 to 1½ foot, 1½ to 2 feet, 2 to 2½ feet, 2½ to 3 feet; grand specimens.
,, WAREANA, 1, 2, to 3 feet.
,, GIGANTEA, 3, 4, to 5 feet.
YEWS, English, 2 to 2½ feet, 2½ to 3 feet, 3 to 3½ feet; fine.
THUJOPSIS BOREALIS, 3 to 3½ feet, 3½ to 4 feet; fine.
PINUS AUSTRIACA, several times transplanted, 2, 3, 4 to 5 feet.

Special quotations on application to

CRANSTON AND MAYOS, King's Acre Nurseries, near Hereford.

JAMES TYNAN, Seed Warehouse, 68, Great George Street, Liverpool, offers:—

GLOXINIA CRASSIFOLIA GRANDIFLORA.—Magnificent and distinct strain; leaves broad and fleshy, recurving so as to almost cover the pot; flowers much larger than in the older sorts, very brilliant and varied in colour. Sown in January or February, they bloom the following autumn. Erecta and horizontalis, separate or mixed, 1s. and 2s. 6d. per packet.

STEPHANOTIS FLORIBUNDA.—Fine variety from the Mauritius, flowering profusely at every joint, and possessing in a high degree the delightful fragrance of this beautiful climber. 1s. 6d. per packet.

CYCLAMEN PERSICUM, Prize strain.—Seed saved from one of the best collections in the kingdom. 1s. 6d. per packet.

DOUBLE PETUNIA, large flowering.—Will produce a large percentage of splendid double flowers of great size, and charmingly varied shades of colour. 1s. 6d. per packet.

Post-free on receipt of Stamps or Post Office Order.

Send for CATALOGUE of CHOICE VEGETABLE and FLOWER SEEDS.

1875.

GENUINE FARM SEEDS,

COMPRISING

PASTURE GRASSES, CLOVERS, AND FIELD ROOTS

OF SUPERIOR QUALITY ONLY.

CATALOGUES NOW READY.

THE LAWSON SEED AND NURSERY COMPANY, LIMITED,
106, SOUTHWARK STREET, LONDON, S.E.; and at EDINBURGH.

SOLE WHOLESALE VENDORS OF PHOSPHO-GUANO.

LOBELIA PUMILA MAGNIFICA.

THE

PINE APPLE NURSERY COMPANY

Will commence sending out this fine Lobelia on March 15 next.

Price 2s. 6d each, or 24s. per dozen for not less than half a dozen.

It received the Floral Certificate at the Royal Botanic Society, and a First-Class Certificate at the Royal Horticultural Society. It has been favourably noticed by all the gardening papers, and the *Gardeners' Magazine* of July 18 says of it:—"This dwarf bedding Lobelia, exhibited by the Pine-Apple Nursery Company, is unquestionably the most important of the many bedding Lobelias introduced of late years. The colour of the flowers is a deep indigo blue, and as there are no conspicuous eyes to mar the general effect, a solid mass or band will tell in a wonderful manner.

MAIDA VALE, LONDON, W.

SELECTED CONIFERS AND EVERGREENS,

VERY CHEAP.

ARBUTUS ANDRACHNE, 2 to 2½ feet, 21s. per doz., 150s. per 100.
BIOTA COMPACTA, 4 to 5 feet, 42s. per doz.; 5 to 6 feet, 60s. per doz.
CHINESE JUNIPER, 5 to 6 feet, 24s. per doz., 150s. per 100; 6 to 7 feet, 30s. per doz., 200s. per 100; 7 to 8 feet, 36s. per doz., 250s. per 100.
COLCHIC LAUREL, 3 to 4 feet, 4s. per doz., 30s. per 100; 4 to 5 feet, 6s. per doz.; 42s. per 100.
PORTUGAL LAUREL, 1½ to 2 feet, 5s. per doz., 34s. per 100.
PICEA NORDMANNIANA, 4 to 5 feet, 60s. per doz.
PICEA PINSAPO, 7 to 8 feet, 120s. per doz.
YEW, English, 2 to 2½ feet, 9s. per doz., 70s. per 100; 2½ to 3 feet, 15s. per doz., 90s. per 100.
YUCCA GLORIOSA PENDULA, 1½ to 2 feet, 18s. per doz., 100s. per 100; 2 to 2½ feet, 24s. per doz., 150s. per 100.

COLLECTION OF TWELVE STANDARD ORNAMENTAL TREES, THE MOST BEAUTIFUL FOR GROUPING, 24s., viz.:—Almond, Acer Negundo variegata, Double Scarlet Thorn, Elm Elegantissima, Purple Beech, Silver Variegated Cornus, Silver-leaved Poplar, Scarlet Horse Chestnut, Scarlet Mountain Ash, Tulip Tree, Variegated Mahaleb, Weeping Silver Birch.

COLLECTION OF TWELVE OF THE MOST DISTINCT AND BEAUTIFUL HARDY CREEPERS AND WALL SHRUBS for 15s., viz.:—Akebia quinata, Berberidopsis corallina, Bignonia grandiflora, Clematis Jackmanni, Ceanothus Veitchii, Cydonia japonica, Escallonia macrantha, Jasminum revolutum, Lonicera aureo-reticulata, Magnolia grandiflora, Passiflora Colvilii, Wistaria sinensis.

COLLECTION OF TWELVE MOST EFFECTIVE AND ORNAMENTAL IVIES, the most useful of all Evergreens for Walls, Trellises, &c., 12s.

ROSES.

THE NEW ROSES OF 1875 that are most highly recommended, price 30s. per dozen, or twenty-four varieties for 60s. 80,000 TEA-SCENTED and NOISETTE ROSES, in Pots. STANDARD, DWARF, and CLIMBING ROSES in great variety. Strong H. P. ROSES, in Pots, for Forcing.

BEAUTIFUL HERBACEOUS AND ALPINE FLOWERING PLANTS, give no trouble, and are permanent in adorning Garden Beds, Borders, and Rockeries, 30s. per 100 varieties.

VEGETABLE AND FLOWER SEEDS, the choicest and best Collection for a Large Garden, 21s. (carriage paid). For particulars see Lists.

Descriptive Priced Lists of all kinds of Nursery and Seed Stock on application.

RICHARD SMITH, Nurseryman & Seed Merchant, WORCESTER.

ROYAL HORTICULTURAL SOCIETY, 1875.

SIXTEEN

Gold, Silver, and Bronze Medals,

With Valuable Money Prizes,

WILL BE OFFERED BY

Messrs. SUTTON & SONS,

At the various Royal Horticultural Society's Meetings during 1875, for

THE BEST SPECIMENS OF

New Varieties of Vegetables, Flowers, and Fruits

Introduced by Messrs. SUTTON in 1875.

Further Particulars may be had on application to

SUTTON & SONS,

THE QUEEN'S SEEDSMEN, READING.

SEED CATALOGUE,

Not the Handsomest, Not the Largest,

But a useful one of Forty Pages,

Is now published, and will be sent free on application to

HARRISON & SONS,

SEED GROWERS, LEICESTER.

PLANTING SEASON.

RHODODENDRONS

WILL BE SUPPLIED,

In Fifty of the most Popular and finest known Hardy Kinds,

Sturdy, Bushy Plants, 1½ to 2 feet high, at

£10 per 100,

Carriage Free to any Railway Station in England.

Many of these are Raised from Layers, and better Plants of their height cannot be desired or obtained.

A Descriptive Catalogue free on application to

ANTHONY WATERER,

KNAP HILL NURSERY, WOKING, SURREY.

HEATHERSIDE NURSERIES.

Nurseries (270 Acres in extent) near Bagshot, Surrey.

SEED ESTABLISHMENT AND LONDON DEPÔT,

QUEEN VICTORIA STREET,

CLOSE TO THE MANSION HOUSE STATION.

A LONDON BRANCH

Has just been opened, as above, where a succession of Sample Plants will be on view, and where also the

Flower, Vegetable, and Agricultural Seed Business

will be carried on and made a special object.

The very extensive Stock is, this season, in splendid condition. It includes every species of

ORNAMENTAL TREES and SHRUBS, Evergreen and Deciduous (of all sizes),

FRUIT TREES, ROSES, RHODODENDRONS, &c.

Buyers are invited to visit the Nurseries, at Bagshot, to inspect, and personally select what they require to be sent to them when removal is safe.

Descriptive Catalogues obtainable on application.

Please address orders to

THOMAS THORNTON,

Heatherside Nurseries, Bagshot.

Forest Trees, when taken in quantity, charged at a proportionately reduced price.

Carnations, Picotees, and Pinks.

ISAAC BRUNNING AND CO. beg to announce that they have this Season a very fine and extensive Collection of the above to offer, strong plants of which are now ready for sending out. LIST of Varieties and Prices, together with Illustrated SEED CATALOGUE, on application. Our ONE GUINEA COLLECTION of CARNATIONS, &c., contains six pair of choice Show Carnations, six pair of choice Show Picotees, twelve pair of Show Pinks, and twelve choice mixed Carnations and Picotees for borders.

Carriage and package free on receipt of Post Office Order. Half of the above quantities, 11s.

"Belgrove, Queenstown, County Cork, Ireland, "February 15, 1875.

"Mr. W. E. Gumbleton has this day received the Carnation and Picotee Plants, with which he is much pleased, and would like another dozen of either the same or other varieties."

ISAAC BRUNNING AND CO., Great Yarmouth Nurseries.

To Gardeners.

Gardeners are most respectfully Invited to Visit

THE PINE-APPLE NURSERY,

MAIDA VALE, LONDON, W.,

Where it is anticipated they will be highly gratified.

JOHN BESTER, Manager.

Now ready, gratis and post free,

DICK RADCLYFFE & CO.'S

ILLUSTRATED CATALOGUE.

PRIZE MEDAL SEEDS.

LONDON VIENNA

ENGLAND'S GLORY TO PLEASE

CARRIAGE FREE. WIDE CATALOGUE.

GARDEN REQUISITES.

129, HIGH HOLBORN,

LONDON, W.C.

AS SUPPLIED TO THE QUEEN — AS SUPPLIED TO THE PRINCE OF WALES

SUTTON'S GRASS SEEDS FOR ALL SOILS.

CARRIAGE FREE.

Prices and full particulars on application.

All who intend Laying Down Land to Grass, should read

MR. M. H. SUTTON'S New Illustrated Essay,

"PERMANENT PASTURES,"

The most Practical Work on Grasses and Grass Lands yet published.

Price One Shilling, post free.

"Without exception it is one of the most practical Essays ever penned, and should be in the hands of every Agriculturist."—*Midland Counties Herald.*

"I do not know of anything to equal it."—*Prof. Buckman.*

"If you want to grow the right sorts of plants, you must sow the right sorts of seeds, and you cannot do better than read Mr. Sutton's paper on laying down Grass, which you will get by sending to Reading."—*Agricultural Gazette.*

Sutton & Sons

THE QUEEN'S SEEDSMEN, READING.

FRANCIS & ARTHUR DICKSON & SONS.

106 Eastgate St. & The "Upton" Nurseries **CHESTER.**

Illustrated Catalogue of Vegetable & Flower Seeds,

Post free on Application.

Quality unsurpassed.

THE MOST VALUABLE VEGETABLE PRIZE OF THE YEAR.

IMPORTANT ANNOUNCEMENT.

JAMES CARTER & CO.

Have the pleasure to announce, that by special permission of the Council of the Royal Horticultural Society, the Competition for the CARTER CUP, value Fifty Guineas, together with £30 in Money Prizes, for VEGETABLES, will take place at South Kensington, on WEDNESDAY, July 7, 1875.

CARTER'S,

THE ROYAL SEEDSMEN,

237 and 238, HIGH HOLBORN, LONDON, W.C.

MAURICE YOUNG'S

NEW DESCRIPTIVE CATALOGUE

Is now ready, and may be had on application.

IT COMPRISES:—

HARDY JAPANESE and other CONIFERÆ.
HARDY ORNAMENTAL TREES, SHRUBS, and EVERGREENS.
RHODODENDRONS in fine named varieties; PONTICUMS, and other common kinds for covers.
ROSES, Standard, Half-standard, and Dwarf, in all the best kinds.
FRUIT TREES.
CLEMATIS, and other climbing Plants.
Cheap EVERGREENS and DECIDUOUS TREES and SHRUBS for Planting Belts and Shrubberies.
TRANSPLANTED FOREST TREES.
QUICKS, and other Hedge Plants.
DWARF EVERGREEN and VARIEGATED PLANTS for Winter Bedding, &c.

DESIGNS, PLANS and ESTIMATES prepared for Laying-out and Planting New Grounds, and for Improving Park Scenery and Existing Shrubberies and Plantations.

MILFORD NURSERIES, near GODALMING.

CLEAN AND WELL GROWN

TREES AND SHRUBS.

	£	s.	d.
ARBOR-VITÆ, from 2 to 6 feet, fine, 3s. to 6s. per doz.; per 100, 18s. to 36s. per doz.; per 100, 75s. to	2	0	0
LIBOCEDRUS DECURRENS, 1 to 4 feet, 9s. to	12	0	0
CEDRUS AFRICANA, 3 to 5 feet, 12s. to 18s. per doz.; per 100	5	0	0
JUNIPER, Chinese, 2½ to 3 feet, 12s. to 15s. per doz., per 100	5	0	0
CEDARS, Red, 2½ to 3 feet, 6s. per doz., per 100	1	10	0
YEWS, English, 2½ to 2½ feet, 9s. per doz., per 100	3	0	0
" Irish, 3 to 4 feet, 12s. per doz. .. per 100	4	4	0
LAUREL, Common, 1 to 1½ foot, 4s. per 100; 1½ to 2 feet, 6s. per 100; 2 to 3 feet, 8s. per 100; 3 to 4 feet .. .. per 100	0	12	0
" caucasica, 1 to 1½ foot, 16s. per 100; 2 to 3 feet .. .. per 100	2	0	0
" Colchic, 1 to 1½ foot, 12s. per 100; 2 to 3 feet .. .. per 100	1	0	0
LIGUSTRUM SINENSIS, 3 to 4 feet, 6s. per doz., per 100	1	10	0
" japonica, 1½ to 2 feet, 8s. per doz... per 100	2	10	0
PINE, Austrian, 1½ to 2 feet, 40s. per 1000; 3 to 4 feet, ... per 1000	3	0	0
FIR, Scotch, 1½ to 2 feet, 25s. per 1000; 3 to 4 feet .. .. per 1000	1	10	0
BEECH, 2 to 3 feet .. .. per 1000	1	5	0
OAK, English, 4 to 6 feet .. .. .. per 1000	2	10	0
SYCAMORE, 5 to 6 feet .. .. .. per 100	0	12	0
BEECH, Purple, 5 to 7 feet, 10s. per doz. per 100	3	15	0
LABURNUMS, 6 to 8 feet, 4s. per doz. per 100	1	0	0
WEEPING WILLOWS, American, fine per doz.	0	12	0
ACER NEGUNDA VARIEGATA, 6s. per doz., per 100	2	0	0
TREE BOX, 2 feet, very bushy, 20s. per 100 2 to 3 feet .. .. per 100	1	5	0
DEUTZIA SCABER, 4 feet, fine, 6s. p. doz.; per 100	1	10	0
ROSES, Climbing, strong, 6s. per doz. .. per 100	2	0	0

Our Nursery Stock is the most varied and largest in the East Riding of Yorkshire, and removes well. See our Trade and other CATALOGUES.

FLOWER SEEDS.

Thirty varieties for 3s., including German Stock and German Aster, post free.

GARDEN SEEDS.

The Guinea Collection contains eight quarts of Peas, &c., carriage free, and warranted of equal quality to any house in the world.

Martin & Son

Seed Growers, Merchants, and Nurserymen, Cottingham. Established 1788. Hull Establishment, 61, Market Place.

THE NEW PLANT AND BULB COMPANY have received the following SEEDS from Japan direct:—

STYRAX JAPONICA, syn. SERRULATUM.—A bush or small tree, much cultivated in Japan on account of its highly ornamental appearance. See *Botanical Magazine*, tab. 5950. Flowers white; a valuable addition to our hardy shrubs. Per packet, twelve seeds, 1s.; forty seeds, 2s. 6d.; seeds large.

RETINOSPORA, species.—No description or specific name with the seed, but judging from the small quantity sent we should imagine it to be a rare kind. Per packet, 1s. and 2s. 6d.; seeds small.

CRYPTOMERIA JAPONICA. — A well-known, valuable, ornamental tree. Per packet, 1s. and 2s. 6d.; seeds small.

JAPAN COCKSCOMB, Scarlet.—An entirely new variety of Cockscomb. No description will convey any idea of the brilliant colouring of this variety—a rich glowing scarlet. The combs are almost as delicately cut as ruffled lace, and often in pyramidal masses. This is by far the handsomest of Cockscombs, and will no doubt, after this season, become a great favourite, and entirely set aside the dull crimson of our English variety. Per packet, 1s., 1s. 6d., and 2s. 6d.

JAPAN COCKSCOMB, Golden.—This affords a striking contrast to the preceding; its counterpart in everything but colour. Per packet, 1s., 1s. 6d., and 2s. 6d.

LILIUM CORDIFOLIUM. — An extremely scarce and valuable Lily, seldom, if ever, arriving in good condition (as bulbs) in this country. Seed, 1s., 1s. 6d., and 2s. 6d. per packet. The usual Discount to the Trade.

Lion Walk, Colchester.

The Planting Season.—Special Offer.

B. WHITHAM, The Nurseries, Reddish, near Stockport, has the following fine healthy TREES and SHRUBS to dispose of, at the extremely low prices quoted, viz.:—

AREA THEOPHRASTA, 4 to 6 feet, 30s. per 100; 6 to 8 feet, 50s. per 100.

PINES, Austrian, many times transplanted, 1½ to 2½ feet, 10s. per 100; 2½ to 3½ feet, 15s. per 100.

BEECH, 2 to 3 feet, 4s. per 100, 30s. per 1000; 3 to 4 feet, 6s. per 100, 50s. per 1000; 4 to 5 feet, 15s. per 100; 5 to 6 feet, 25s per 100; 6 to 8 feet, 35s. per 100; 8 to 10 feet, 50s. per 100.

BERBERIS AQUIFOLIA, 1 to 1½ foot, 5s. per 100; 1½ to 2 feet, 10s. per 100.

CHESTNUTS, Horse, 5 to 6 feet, 12s. per 100; 6 to 7 feet, 15s. per 100; 7 to 8 feet, 25s. per 100.

CHERRIES, Extra strong Standards, 12s. per dozen.

LIMES, 2 to 3 feet, 7s. per 100; 3 to 4 feet, 12s. per 100; 4 to 5 feet, 15s. per 100; 5 to 6 feet, 20s. per 100.

POPLARS, Lombardy, 3 to 4 feet, 5s. per 100; 4 to 5 feet, 7s. per 100; 5 to 6 feet, 12s. per 100.

,, Ontario, 3 to 4 feet, 5s. per 100; 4 to 5 feet, 7s. per 100; 5 to 6 feet, 10s. per 100.

PRIVET, 2 to 3 feet, 15s. per 1000; 3 to 4 feet, 20s. per 1000.

RHODODENDRONS, choice named sorts, 1 to 2 feet, 18s. per dozen.

,, Cunningham's White, 1 to 1½ foot, 50s. per 100.

,, pallidum, 1 to 1½ foot, 50s. per 100.

,, ponticum, 3 to 6 inches, 40s. per 1000; 6 to 9 inches, 70s. per 1000.

,, ,, very fine for grafting, 9 to 15 inches, 100s. per 1000.

,, ,, very bushy, 1 to 1½ foot, 25s. per 100, 200s. per 1000.

SYCAMORE, 3 to 4 feet, 40s. per 1000; 6 to 8 feet, 12s. 6d. per 100; 8 to 10 feet, 20s. per 100.

YEWS, English, 2 to 2½ feet, 70s. per 100; 2½ to 3½ feet, 90s. per 100.

,, Irish, 3 to 4 feet, 100s. per 100; 4 to 5 feet, 140s. per 100.

WRIGHT'S GIANT WHITE CELERY.—This is quite a distinct pure white variety; it is very crisp, and of excellent flavour, combining a robust, compact habit, forming very solid hearts, which blanch very easily. Heads of this variety have been grown weighing from 8 to 10 lb. each, and can be highly recommended for exhibition, private or market purposes. 1s. per ½ oz. packet.

WRIGHT'S RED GROVE and WHITE GROVE CELERIES.—These possess all the good properties of the Giant White, but do not grow quite so large. 1s. per ¼ oz. packets. The usual discount to the Trade.

The following fourteen firms have secured supplies of the above for this season, for which I beg to thank them, soliciting extended patronage:—

Hurst & Son, London.	Godwin, F. G., Sheffield.
Cooper, Robt., London.	Lawson Seed Co., Edinburgh.
Daniels Bros., Norwich.	Downie & Laird, Edinburgh.
Dickson, Brown & Tait, Manchester.	Drummond & Son, Sterling.
Dixon, E. P., Hull.	Howden & Co., Inverness.
Holmes, Ed., Lichfield.	Laird & Sinclair, Dundee.
Brotherton, Wm., Leeds.	Finney, S., & Co., Newcastle.
Nutting & Sons, London.	Umpleby, Geo., Leeds.

CUCUMBERS.—Wright's Wonder, fine white-spine, and Wright's Improved, black-spine; these will grow 24 to 30 inches long, are very prolific and of mild, good flavour. Pearson's Long Gun, Rollisson's Telegraph, Berkshire Champion, Improved Sion House, Masters' Early Prolific. 1s. per packet. Lowest price quoted per 100 seeds on application.

W. WRIGHT, Seed Merchant and Nurseryman, Market Square, Retford, Notts.

JERUSALEM ARTICHOKES.—This delicious vegetable to be had in any quantity. Trade supplied.

LITTLE AND BALLANTYNE, The Queen's Seedsmen, Carlisle.

Cabbage Plants! Cabbage Plants!

TRUE to NAME.

MESSRS. W. VIRGO AND SON can now supply any quantity of strong—

ROBINSON'S DRUMHEAD	3s. 6d.	per 1000
EARLY BATTERSEA	3s. 6d.	,,
NONPAREIL	3s. 6d.	,,
ENFIELD MARKET	3s. 6d.	,,
RED PICKLING	5s. 6d.	,,

Wonersh Nurseries, near Guildford, Surrey.

ROSES, Dwarf, fine plants, 6s. per dozen; 25 for 10s.; 50 for 18s.; 100 for 33s.:—Baroness Rothschild, Malmaison, Duke of Edinburgh, Madame Charles Crapelet, Charles Lefebre, Camille Bernardin, Persian Yellow, Annie Wood, Baron Hausmann, Marie Baumann, Senateur Vaisse, William Wood, and all other good sorts, true to name.

BLACK and RED CURRANTS, Fruiting Trees, extra fine, 3s. per dozen, 20s. per 100.

SEAKALE, Planting, 5s. per 100. Packing free, on receipt of Post Office Order.

Trade prices on application.

RICHARD LOCKE, Alexandra Nurseries, Redhill, Surrey.

Planting Season, 1874-75.

MESSRS. JOHN STANDISH AND CO. invite the attention of intending Planters to their large and valuable Stock, consisting of all the newest and best varieties of the Japanese Importations, as well as a vast quantity of SPECIMEN CONIFERÆ, HOLLIES, LAURELS, DECIDUOUS and EVERGREEN PLANTS, ROSES, FRUIT TREES, &c., all of which are in excellent condition for removal.

Their NEW CATALOGUE is now ready, and will be sent, post free, on application.

Royal Nurseries, Ascot, Berks.

NEW BEDDING VIOLA—WAVERLEY.—The flowers of this beautiful variety are large, of good substance, and produced in great profusion from early spring until late in autumn. Colour very bright violet, shaded with purple towards the centre; yellow eye, with pure white brow. The most effective bedding Viola of its colour yet raised, and very hardy. Prices: One plant, 2s. 6d.; six plants, 10s., or 18s. per dozen, post free. The usual Discount to the Trade.

ROBERTSON AND GALLOWAY, Seed Merchants and Nurserymen, Glasgow and Helensburgh.

Plants have been supplied to the following Firms in—

Aberdeen ..	James Cocker & Sons	Glasgow ..	J. & R. Thyne
,, ..	John Joy, Jun.	Hammersmith	J. & C. Lee
Altrincham ..	Wm. Clibran & Son	Helensburgh ..	James Telfer
Battle	B. W. Knight	Kelso	Stuart & Mein
Bristol	Robert Ward	Langport ..	Kelway & Son
Cirencester ..	J. Jeffries & Son	London ..	Hugh Low & Co.
Dumfries ..	James Service	,, ..	B. S. Williams
Edinburgh ..	James Dickson & Sons	Musselburgh ..	Thos. Handyside
,, ..	Downie&Laird	Perth	Dickson & Turnbull
,, ..	Lawson Seed & Nursery Co.	Rothsay ..	R. & J. Chisholm
Ghent	Louis Van Houtte	Stevenston ..	James Clasper
		Woolwich ..	H. Cannell
Glasgow ..	Austin & McAslan	York	James Backhouse & Son

Cheap Plants.

WILLIAM BADMAN offers the following plants for present potting:—

VERBENAS, Purple, White, Scarlet, Crimson, and Rose, from pots, 2s. per dozen, 12s. per 100; rooted cuttings, 1s. per dozen, 6s. per 100, 50s. per 1000.

PELARGONIUMS, Scarlet, White, Crimson, and Rose, best sorts, good plants, from single pots, 1s. 6d. per dozen, 10s. per 100.

LOBELIA, speciosa, true, from cuttings; also pumila grandiflora and Little Gem, 2s. per 100, 20s. per 1000.

HELIOTROPIUM, finest dark varieties, 1s. per dozen, 6s. per 100, 50s. per 1000.

CALCEOLARIA, Golden Gem, finest bedder, 1s. per dozen, 6s. per 100, 50s. per 1000.

AGERATUM, Imperial Dwarf, Blue, makes a fine bed, 1s. per dozen, 5s. per 100, 40s. per 1000.

IRESINE, Lindeni, crimson leaf, good, 1s. per dozen, 6s. per 100, 50s. per 1000.

COLEUS, Verchaffeltii, 1s. per dozen, 6s. per 100.

STELLARIA, aurea, new golden edging plant, 1s. per dozen, 4s. per 100, 30s. per 1000.

GERANIUMS, Show and Fancy shorts, strong plants, for spring bloom, 4s. per dozen.

CENTAUREA, candidissima, silver leaf, strong plants, 3s. per dozen, 20s. per 100.

Package included. Terms cash.

Cemetery Nursery, Gravesend.

NEW CATALOGUE for 1875, post free for two Stamps.—Our LIST of the newest and best varieties grown of the undernamed classes of plants is now ready, and may be had on application. Prices very moderate. Plants true to name. Geraniums in all the various classes, Fuchsias, Chrysanthemums, Lobelias, Coleus, Dahlias, Show Carnations, Picotees, Pinks, Pansies, Phloxes, Pentstemons, Antirrhinums, Double Potentillas, Pyrethrums, Delphiniums, and all leading Florists' Flowers and Bedding Plants, Greenhouse and Stove Plants, Spring-flowering and other choice Hardy Plants, Winter-flowering and the best Conservatory Decorative Plants, Show and Fancy Pelargoniums, Vegetable and Flower Seeds, &c.

WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

Planting Season.—Avenue Trees.

LIMES, 12 to 16 feet high, straight stems, girting 4 to 8 inches at 4 feet from the ground, with well-balanced heads, and splendidly rooted. A stock of more than 5000 of these fine Trees to select from.

PLANES, OCCIDENTAL, 12 to 16 feet.
HORSE CHESTNUTS, 10 to 12 feet.
SCARLET HORSE CHESTNUTS, 10 to 12 feet.
NORWAY MAPLES, 10 to 16 feet.
All being stout, straight stemmed, and finely rooted. Every Tree has been removed within two years.
POPLAR, CANADENSIS NOVA, 18 to 20 feet.—This new variety of Poplar, far exceeding in rapidity of growth any tree I am acquainted with, is strongly recommended as a Town Tree, especially in smoky districts. There are hundreds in this Nursery 3 years old, measuring 18 to 22 feet high, and stout in proportion.

ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey, S.W.

Gardens, Gardens, Gardens.

FURNISH YOUR VILLA GARDENS with OUR COLLECTIONS of choice Ornamental Trees, Shrubs, Roses and Fruit Bushes.

No. 1 Collection includes—
20 EVERGREEN SHRUBS.
25 FLOWERING SHRUBS.
25 STANDARD and DWARF ROSES.
25 CURRANTS, of sorts.
25 GOOSEBERRIES, of sorts.
10 ORNAMENTAL TREES.
One hundred and thirty fine plants for £5 5s.

No. 2 Collection,
Double the above, with greater variety.
Two hundred and sixty fine plants for £10.
Carriage paid to London.

MASTERS AND KINMONT, Exotic Nursery, Canterbury.

FRED. PERKINS, 2, Gold Street, Northampton, offers:—

PINUS AUSTRIACA, 50,000, well grown, 2½ to 3½ feet, 30s. per 1000.
LAURELS, Common, 2 to 3 feet, 50s. per 1000; 3 to 4 feet, 60s. per 1000.
Also, in large quantities, at unusually low prices:—
WHITETHORN QUICK, 2-yr. transplanted.
SCOTCH SPRUCE and BALM of GILEAD FIR, 2½, 3½, up to 4 feet.
BEECH and HORNBEAM, 4 to 5 feet.
BIRCH and HORSE CHESTNUT, 5 to 6, and 6 to 8 feet.
LABURNUM and MOUNTAIN ASH, 6 to 8 feet.
ALMONDS, fruit bearing, 6 to 8 feet.
ELMS, 8 to 10 feet.
LIMES, 6 to 8 feet.
WALNUTS, 4 to 5, and 5 to 6 feet.
HAZEL and Black Italian POPLAR, 3 feet.
LILAC, White and Purple, 3 to 4 feet.
BOX, Green and Variegated, 3 feet.
HOLLY, Green, 1½ to 2 feet.
ASPARAGUS, extra strong for forcing.
POTATOS, Oxfordshire Kidney, true, 5 tons.
Sample and prices on application.

New Roses.—Strong Plants now Ready.

JOHN FRASER, of the Lea Bridge Road Nurseries, Essex, has much pleasure in offering strong plants of the following carefully selected varieties of NEW ROSES for 1875, which may be relied on as being the best of this year:—

HYBRID PERPETUAL ROSES.

Adanson	Hippolyte Jamain
Arthur Oger	La Souveraine
Antoine Mouton	Madame Rougier
Colonel de Sansal	Mademoiselle Ilona de Adorjan
Casimir Perier	May Turner
Comtesse de Serenyi	Mons. E. Y. Teas
Duchess of Edinburgh	Princess Antoinette
Gonsoli Gaetono	Souvenir du Baron de Semur.
Henry Ward Beecher	

TEA-SCENTED ROSES.

Aline Sisley	Marie Guillot
Duchess of Edinburgh	MademoiselleThérèse Genevay
Jean Ducher	Perle des Jardins.

PERPETUAL MOSS ROSE.

Soupert et Notting.

LIST, with full descriptions of above, may be had on application.

To Planters and the Trade.

MESSRS. MASTERS AND KINMONT beg to call the attention of Planters and the Trade to their stock of the following trees, which can be furnished at low prices:—

LIMES, 7 to 9 feet, clean growth.
THORNS, of sorts, Standard and Pyramid, including Paul's new Double Scarlet.
ASH, Weeping, 6 to 10 feet stems, good heads.
WILLOWS, Weeping, American, Babylonian, and Kilmarnock.
ELMS, of sorts, grafted, 5 to 7 feet, including Huntingdon, fastigiated, and cork-barked.
BIRCH, 8 to 10 feet.
PHILADELPHUS, of sorts.
VIBURNUM, of sorts.
LILAC, of sorts.
OAK, Scarlet, 6 to 8 feet.
YUCCA RECURVA, very fine.
ROSES, Standard and Half-Standard.
,, Dwarf, on Manetti.
CURRANTS, Black.
GOOSEBERRIES, of sorts.
ABIES CANADENSIS, 3 to 5 feet.
AUCUBA JAPONICA, 1 to 2 feet.
CUPRESSUS SEMPERVIRENS, 2½ to 4 feet.
Exotic and Vauxhall Nurseries, Canterbury.

SEED POTATOS.

H. & F. SHARPE

Invite the attention of the Trade to the following varieties of SEED POTATOS, which they have grown from the finest selected stocks especially for Seed purposes, viz.:—

RIVERS' ROYAL ASHLEAF,
MYATT'S PROLIFIC KIDNEY,
LAPSTONE KIDNEY,
BERKSHIRE KIDNEY,
FLUKE KIDNEY,
WALNUT-LEAVED OXFORD (for Forcing).
EARLY FORTYFOLD,
,, ROBSON'S CHALLENGE,
,, DALMAHOY,
,, FLOURBALL,
WALKER'S IMPROVED REGENT,
YORKSHIRE REGENT,
PATERSON'S VICTORIA.
RED-SKINNED FLOURBALL,
LATE FORTYFOLD,
WHITE ROCK.

AMERICAN VARIETIES.

EARLY ROSE.
BRESEE'S KING of the EARLIES,
CLIMAX,
EARLY GOODRICH,
AMERICAN WONDER,
BRESEES' PEERLESS.
BRESEE'S No. 6,
EXCELSIOR.

For Prices (which are very moderate), and further particulars apply to
H. AND F. SHARPE, SEED GROWERS, WISBECH, CAMBRIDGESHIRE.

SATURDAY, MARCH 6, 1875.

LENT LILIES.

THIS pretty name for the

> "Daffodils
> That come before the swallow dares, and take
> The winds of March with beauty,"

is in very general use in England, and refers to the time of flowering—Lent being originally only another name for spring, although now restricted to an ecclesiastical season; and to the Lily-like appearance of the plant. Not that our ancestors were at all particular in their use of the term Lily: the Lilium inter spinas of the Book of Canticles was understood by them as referring to the Honeysuckle, although, as Coles says in his *Art of Simpling*, "that the Lilies amongst the Thornes were Woodbines is not known to every one." It is not necessary to multiply instances to show that the term "Lily," like "Rose," has been, and is still employed in popular parlance as a general name for almost any flower; thus the large Bindweed (Convolvulus Sepium) is in many places called Hedge Lily, and, to go farther a-field, the beautiful Ranunculus Lyallii is known as the Water Lily by the New Zealand shepherds, although it has as little affinity as the Water Lilies themselves with the order Liliaceæ.

Of late years Daffodils and their allies have received their full share of public attention, and seem likely to recover that position in popular favour which was theirs two centuries back, when Parkinson, in his *Paradisus Terrestris*, devoted pages to the description of Daffodils. Among them, however, he includes many plants which are now-a-days excluded from even the widest application of the term, such as Hemerocallis, Sternbergia lutea, the Atamasca Lily, and others. Mr. Baker has fully elaborated the botanical history of the various species in his papers upon the genus, originally published in these columns in 1869. A few brief notes on the popular history of Daffodils may now be added as a supplement to his more important contributions.

Some botanists have doubted whether the Daffodil is a native of this country. It has certainly a suspicious partiality for the neighbourhood of farmhouses and similar localities; but if not really a British plant, its naturalisation is of very distant date. Parkinson says it "is so common in all England, both in copses, woods, and orchards, that I might well forbeare the description thereof, and especially in that, growing wilde, it is of little respect in our garden;" and other herbalists mention it as undoubtedly an English plant. Various double varieties were in cultivation at the date of Parkinson's work (1629), among which he mentions Tradescant's great Rose Daffodil, which "may well be entitled the Glory of Daffodils," and has a "faire large great flower, as great and double as any Province Rose;" Parkinson's Daffodil, which he raised in his own garden in 1618, and Gerrard's double Daffodil, which "Mr. Gerrard first discovered to the world, finding it in a poore woman's garden in the west parts of England [in Wiltshire, according to Lobel], where it grew before the woman came to dwell there, and, as I have heard since, is naturall of the Isle of Wight." These and many others are well figured by Parkinson; the one known as "Master Wilmer's green double Daffodil" appears to be that which is now-a-days most frequent in gardens.

The Daffodil is a favourite with children, who have a rhyme—

> "Daffadowndilly is coming to town
> In a green petticoat and yellow gown;"

or, as the Sussex version runs—

> "Daffadowndilly grew by the well;
> Who was her mother, no one could tell."

It was also a favourite with the poets, and nothing but its somewhat hackneyed use would prevent us from quoting at length Herrick's exquisite poem, "To Daffodils." Wordsworth, too, speaks of a "host of golden Daffodils;" and Spenser, Milton, and Drayton have references to it. A field of Daffodils is a very striking and beautiful object, the somewhat stiff bend of the scape just below the blossom gives the plant an appearance which, for want of a better term, may be called "pre-Raphaelite," and which is very effective.

The name Daffodil is said by some writers to be "simply the old English word affodyle, which signifies that which cometh early;" but Dr. Prior looks on it as a corruption of the Latin asphodelus, and thus identical with asphodel. He says the name was "subsequently confused with that of another flower, the so-called Sapharoun or Saffron-Lily. With the taste for alliteration that is shown in popular names, the Sapharoun-Lily, upon blending with Affodilly, became, by a sort of mutual compromise, Daffadown-dilly, whence we get our Daffodilly and Daffodil." Daffodil and Asphodel have, however, long been distinct enough in popular parlance, although it appears that there was a danger of confounding them, as Markham, in his *English Housewife* (1637) says, "You must be carefull that you take not Daffodil for Affodill." Other country names for it are Bellflower, Lent Rose, Lents, and Butter-and-Eggs, although this last is more usually applied to the double garden forms. Culpepper calls it Lide-Lily, "because it flowereth in March, which month in some counties is called Lide." Like Lent, Lide was an old equivalent for the spring season; we meet with it in the old distich, which recommends us to "eat ramsons in Lide."

Like many other ornamental plants, the Daffodil has but few useful qualities to recommend it. The flowers have been employed in France as an antispasmodic, and a good yellow colour has been extracted from them. Gerarde, however, speaks of the employment of the plant in cases of palsy: he says, "The distilled water of Daffodills doth cure the palsie, if the patient be bathed and rubbed with the said liquor by the fire. It hath beene prooved by an especial and trustie friend of mine, a man learned and a diligent searcher of Nature, Master Nicholas Belsor, somtimes of King's Colledge in Cambridge." As an embrocation this distillation of the Daffodil has been employed in palsy, and also in dropsy in more recent times. A spirit has been distilled from the root which at one time seemed likely to be of considerable commercial importance; and a decree was published in France in 1855 by which alcohol obtained in Algeria from the Daffodil or an allied species was ordered to be admitted into France without payment of duty. *B. M.*

New Garden Plants.

PHALÆNOPSIS LEUCORRHODA., *sp. n.**

This is a highly curious plant. Phalænopsis intermedia, Lindl. (see Paxton's *Flower Garden*, iii., fig. 310), has nearly the leaves of P. amabilis, and flowers more nearly approaching to those of P. Schilleriana, with a peculiar callus; this may be a hybrid

* *Phalænopsis leucorrhoda*, Rchb. *f.*—Aphrodite-Schilleriana; foliis P. Schillerianæ; flore prope P. Aphroditis; labelli lacinia antica, utrinque acutangula, cirrhis anticis basi multo latioribus; callo sellæformi, basi bidentato, extrorsum gibboso.—Flores albi, tepala purpureo lavata; sepala extus flavida; labelli laciniæ laterales basi purpureo-striolatæ; callus aureus atro-purpureo guttatus; sepala lateralia intus basi purpureo-maculata.

between P. Schilleriana as the male and P. amabilis as the female. The present novelty appears to be a hybrid between the pollen parent, P. amabilis, and the seed parent, P. Schilleriana. The leaves are said to be quite those of a dark mottled P. Schilleriana. The flower is rather larger than the flowers of an average Schilleriana are in many-flowered inflorescences. The colours might be richer, yet they are rather lovely; the chief colour is white; the unusually long petals being washed in the middle with rose; the white lip has the small short lines (nearly linear spots) on the base of the lateral laciniæ, as in Schilleriana; even the peculiar dots on the base of the middle part, which are so conspicuous in the last-named species, are at least indicated. In lieu of the middle lacinia, with rounded angles of P. intermedia (Lobbii), which are those of P. Schilleriana, we hear of it with sharp angles, as in P. amabilis. The callus is much nearer that of P. amabilis than that of P. Schilleriana, it having three prominences. The lateral sepals bear inside similar small dark spots to those which ornament P. Schilleriana. The sepals are tinged with pale yellow in their centres inside, and are wholly yellowish outside. The column is rather rosy, and very short, as in P. amabilis, not elongate as in P. Schilleriana.

I have used in the Latin description the name of P. Aphrodite for science, and in the English remarks I speak of P. amabilis. The plant alluded to is, however, the same. It is well known that Dr. Lindley's P. amabilis, the Manilla plant, with blunt, dark leaves, is not Dr. Blume's original P. amabilis, which is what Dr. Lindley called P. grandiflora. Those names are so much in use in the trade, in the meaning of Dr. Lindley, that it is prudent to keep them as they are for horticultural purposes, not to make a terrible confusion, perhaps a *pronunciamento*, or even a revolution of amateurs.

I have to thank Mr. Low for this great curiosity and perhaps unique novelty. He writes: "The plant which produced it (viz., the flower) has leaves like those of P. Schilleriana, perhaps not quite so much white in the mottling as the former, but still before it flowered any one would have bought it for P. Schilleriana. Roots also as flat as in that species." The plant must, therefore, be of Philippine origin, and if Mr. Low should have lately disposed of plants of P. Schilleriana, the possessors of those may do well to watch the flowers of their plants. And if I had the satisfaction of being Mr. Low, I would now make a "strike" in selling any plants of supposed P. Schilleriana which have not flowered, the new thing having decidedly a much higher value by its being new, and exceedingly rare. *H. G. Rchb. f.*

Platycerium Willinckii, *sp. n.**

This fine and very distinct species of Stag's-horn Fern is a native of Java, whence it was introduced by M. Willinck, of Amsterdam, who exhibited it with much *éclat* at Ghent in 1873. It has since passed into the hands of the Messrs. Veitch & Sons, of Chelsea. The accompanying sketch (fig. 56) was made a few weeks since from the original plant, now growing in one of Messrs. Veitch's propagating-houses, and gives a very correct idea of its general aspect.

Like its congeners, this Platycerium is epiphytal, and protects its root-stock by the broad, roundish, imbricating bases of its sterile fronds, which, in the specimen in question, are six inches broad. The sterile fronds are erect, and slightly spreading, 12 to 18 inches high, and about a foot broad, cut down into deepish blunt-ended lobes on a dichotomous plan, the ultimate lobes being about an inch broad. The fertile fronds, which are produced in threes, not in pairs, as in some nearly allied kinds, issue from the growing point situated in a notch in the side of the orbicular close-fitting base of the sterile ones, and at once fall straight down to a length of 2½ feet; they are quite narrow in all their parts, the basal portion being upwards of a foot long and from two to two-and-a-half inches broad at the point where the fronds become forked. The branches are quite entire on one of their margins, and dichotomously cut into numerous lobes on the other side; but in some of the fronds these lobeless or entire margins are those forming the two inner or adjacent sides of the primary branches, the lobate sides being on the exterior, while in other fronds this arrangement is reversed, and the two inner sides are lobed while the outer ones are entire. There are about three series of lobes in each branch; the ultimate divisions varying from two or three to several inches in length, and being about half an inch broad as they approach the apex, which is tapered at last to a bluntish point. It is on these ultimate lobes that the patches of spore-cases forming the sori are developed; they are, consequently, very unequal in length, since they extend from near the base of the lobes almost to the apex, and occupy the whole surface except a narrow line on each margin. The fronds appear to be less coriaceous than those of the other species known in gardens. The venation between the principal veins consists of a series of unequal, elongated, hexagonal areoles, with occasional free veinlets.

As a species, this plant is thoroughly distinct from any of those at present known. With regard to its general habit it groups with P. grande, P. Wallichii, and P. biforme, in having long pendent fertile fronds cut into many narrow furcate divisions, and very broad erect sessile barren fronds with a lobate margin; but it differs entirely in its fructification, which, instead of forming a patch on the disk in the sinus of the branches, as in P. grande: or on a projecting lobe occupying the same position, as in P. Wallichii: or on a separate, stalked, rounded lobe, as in P. biforme, covers nearly the whole surface of the apical lobes, as is well shown in our figure. This novelty will prove a welcome addition to the few well-marked and very ornamental species of Stag's-horn Ferns already familiar in our hot-houses, and, if report be true, there are others in store in the islands of the East, which may some day reward the search of some keen-sighted explorator. *T. Moore.*

* *Platycerium Willinckii*, Moore.—Fronds large, dimorphous, subcoriaceous, thinly furnished with minute stellate hairs; at length glabrous and of a polish green colour; sterile fronds bifarious, sub-orbicular and sinuately-lobed at the base, and there imbricated around the growing point, erect, the upper part deeply cut into numerous spreading, blunt, furcate lobes; fertile fronds in threes, elongate, pendent, narrowly cuneate, with scarcely any disk, bipartite for about two-thirds of their length, one of the margins of each primary branch entire, the other bearing numerous lobes in about three series on a dichotomous plan, the ultimate lobes ensiform, narrowing to the bluntish point; sori forming long narrow unequal patches at the apex of the ultimate lobes of the fronds.

LINDLEY AND THE ORCHIDS.

In the preface to the second volume of his *Xenia Orchidacea*, just completed, Dr. Reichenbach, the pupil and successor of the late Dr. Lindley in the study of the numerous and perplexing family of Orchids, gives a short sketch of the lamented Lindley's Orchid-life—if we may be allowed the term—with some incidents of their always friendly intercourse, from which we make the following extracts.

He says:—"Instead of introducing this volume with an account of my own labours and hopes, I prefer giving some reminiscences of a man, whose death, at half-past 6 o'clock in the morning of November 1, 1865, falls within its period of issue—I mean of Lindley."

John Lindley found no useful work treating of the overwhelming majority of Orchids—namely, those with waxy pollen masses. Louis Claude Richard's excellent little memoir is essentially the starting-point of our knowledge of European Orchids. True, R. Brown's earlier celebrated elaboration of the Australian Orchids includes thirteen species with waxy pollen, referred to four "genera"; but there is a total absence of a proper appreciation of the important characters. In London our investigator had the not always willingly-accorded access to a small collection of specimens stuck down on paper, and the gradually increasing numbers of cultivated forms, mainly grown at his and Cattley's instigation, unfolded alluring malformations to the yet unprepared mind such as those which even now cause us to look forward with much suspense to the first flowering of many newly introduced forms.

During the period of Lindley's earliest labours many leading men were striving to reach the same goal, and discover the key to a systematic arrangement of Orchids. Kunth, who was so fortunate as to participate in the teachings of the great master, L. C. Richard, unhappily united the Ophrydeæ and the Neottieæ, against the opinion of the latter. On the other hand his researches into and separation of the Epidendroid genera were far more successful than the contributions of Blume in his *Tabellen* and *Bijdragen*. Neither the latter, nor Aubert du Petit-Thouars—for whom, however, we must conceive a liking if we take him according to his times—developed that accuracy of observation in the investigation of the contents of the anther which Lindley made his great object, and in which lies the greatest merit of his labours among Orchids. R. Brown soon retired from the competition.

Probably we should be right in saying that the young self-dependent Lindley owed nothing to fortune. We might regard his residence in London as a gift of fortune, but he went thither from Norwich on his own responsibility, provided with a single letter of recommendation from his amiable friend, William Hooker. To remain there, especially during the critical period of the arrangement of Sir Joseph Banks' library, was a sad task; and for a long time the young interloper found no favour, on account of his having introduced, in conjunction with the reserved Scot, Brown, the bold zoologist, Gray, and the still youthful Hooker, the natural system of the hated Frenchman, where the more numerous disciples of Linnæus had thought to pass their lives in the glory of pondering and admiring the great Swede.

Lindley possessed, moreover, extraordinarily fine powers of observation, very uncommon energy, a brilliant talent for drawing, an acute and truthful discrimination, and a happy, appropriate, even poetical style of description, which, however, from want of time, he never fully developed. This circumstance, too, was the cause of some shortcomings in his monographs. The more thoroughly be carried out his first examination, the more he considered himself justified in making it the basis of future work. Hence, he freely took up his old descriptions, and even diagnoses, without alteration; and if the materials were insufficient, the results must be still more doubtful; but he was ever ready to defend himself with a repetition of his first views, if his statements were questioned. Much too honest not to acknowledge with pleasure his errors, if discovered by himself, he was not always inclined to be just respecting the representations of others. I remember well the case of Calanthe vestita, Wall, whose Epidendrous affinities he laughingly refused to study with me from fresh specimens, adding with that humour so characteristic of him, "I will never look at that stupid plant again." It is a remarkable fact that Lindley permitted himself to be led by the gardening world, although he was honoured as the leader. It was my wish that the union of several genera, rendered necessary by the connecting links of new discoveries, should be done by himself, especially as I was perfectly satisfied that he recognised the necessity for it as fully as I did. "I should have all the amateurs up in arms against me," he replied. "They have had bother enough to get the existing names into their heads." He did not fall into the easy course of allowing those gentlemen to retain their own nomenclature.

I am inclined to believe that Lindley did not possess to a very high degree the gift of at once recognising what he had seen before—a gift that greatly facilitates the labours of the systematist. "Let us examine it first," he used to say, when we were looking at anything—and who investigated with more pleasure? The mere sight of his favourite, always brightly shining, simple "Ross," was sufficient to raise his spirits. Happy as a child, and oblivious of all cares, he would prepare and draw the most delicate flowers with the greatest joy—and he was always endeavouring to invest his representations with a certain grace. When finished, he would exclaim with pride, "There!" And it was with real satisfaction doubtless that he used to say, "Ah! I am a dandy in my herbarium."

Overwhelmed with duties, he very seldom was able to linger leisurely over his investigations. His scientific labours were carried on at intervals, when he was relieved from the pressure of the most unconcongenial official duties.

Thus, Lindley spent forty of the best years of his life in uninterrupted devotion to our favourites, probably unsurpassed in perseverance by any monographer, and certainly equalled by few. During this time he, like so many other botanists, might have written scores of volumes, which is certainly a great recommendation in the eyes of those who estimate a scientific man's efficiency by the number and size of the books he may write; but this was an honour he willingly renounced. [Surely Lindley was a voluminous writer. Eds.] Before all, it should not be forgotten that Lindley never occupied such a position in life as would justify any one in demanding scientific work from him. He never belonged to the favoured few, and nobody in wealthy England did aught for him in this respect, although the proud Briton willingly lulls himself into the belief that his country is also an Eldorado for scientific men. [We very much doubt whether scientific men have that high opinion of their country. Eds.] All that Lindley accomplished was the free gift of a man who, to the last, was engaged in the most severe exertions his vital powers would endure.

That Lindley passed away without realising his greatest wish—that of finishing a second complete elaboration of all Orchids—is the fault of circumstances which he had no power to alter, but which others might easily have controlled for him.

Traces of the mental exhaustion which saddened Lindley's last years are to be found in some of his last works. It was exceedingly painful to me when I went to him, the excellent man whom I had known ever since 1849, and found that he did not remember one of his favourites—he who shortly before was one of the most active workers; and he felt the full weight of the affliction, upon which he expressed himself with such touching eloquence to Bateman and myself. I still see him in the verandah at Turnham Green, as he appeared one October evening, when he called after me, bidding me not to forget to pay him a visit as often as I came to England. Except his household and physician, I was the last who saw him. I was also present at his interment, when Bentham, J. D. Hooker, T. Thomson, and many others, paid him the last tribute of respect on November 5.

We cannot tell how long science, how long botany will be pursued; but we may affirm that, so long as a knowledge of pants is considered necessary, so long will Lindley's name be remembered with gratitude.

PLANTS THAT EAT ANIMALS.

The Bladderwort (Utricularia) is a common plant, growing in shallow ponds and swamps; Dr. Gray, in his *Manual of the Northern United States*, describes twelve species found within this range, and almost every muddy pond contains one or more of them. Some grow wholly or nearly out of water; but the species which I am about to describe are immersed, with finely dissected leaves on long stems floating in the water. Scattered among the leaves, or along the stems which are destitute of leaves, are numerous little bladders, the use of which we had supposed was to float the plant at the time of flowering. The flowering stems of most of the species are smooth and free from leaves or bladders, and shoot up straight from the water to a height of from 3 to 12 inches, bearing at the top from one to ten curiously-fashioned flowers of a yellow or purple colour. It has always been taken for granted that these little bladders were made to float the plant, although I had noticed that the stems most heavily laden with bladders sank the lowest in the water.

About a year ago (in December, 1873) a young man now at Cornell University and myself, on placing some of the bladders under the microscope, noticed animalcules—dead Entomostraca, &c., apparently imprisoned therein. But our attention was not sufficiently aroused to follow up the subject very closely; we laughingly called it "our new carnivorous plant." But as the bladders always seemed to be open, the significance of the fact of the imprisoned animal was not very apparent. We thought it could hardly be for the purpose of feeding the plant, but a kind of wanton cruelty. Still, my curiosity was aroused. I soon found larger animals in the bladders—dead larvæ of some aquatic insect—large enough to be seen distinctly with the naked eye. But I was not aroused to earnest work until I watched the movements of an imprisoned living larva, and saw its struggles and final death. This was in October, 1874. I now visited the ponds and procured abundant material.

The plant that I experimented mostly with was the one known to botanists as Utricularia clandestina. I soon became so deeply interested that I scarcely took note of time, and the small hours of the morning frequently found me absorbed in the work.

My observations were now more specially directed to the structure of the little bladder, which is quite complicated and very beautiful. It seems to be composed of irregular cells, and evenly distributed over the inner surface are clusters of star-like points, always four in number, arranged very regularly. The office of these stellate points I am as yet unable to determine. I have thought they might be to prevent the living animal from making too much exertion.

My next work was to see what prevented the escape of the animal from the bladder, and to this end I directed all my attention for several days. The animal that I found most commonly entrapped was a snake-like larva, about the length of the mosquito larva, but more slender and of lighter colour. Under the microscope it appears quite formidable, with fierce-looking jaws, and a pair of telescopic horns which it thrusts in and out at pleasure. Near the head are two beautiful brush-like telescopic feet, and at the other extremity are two more feet, which the animal thrusts out as a sort of propeller while swimming. I worked with this larva for several days, determined, if possible, to see him walk into the trap. I repeatedly took individuals from the water and placed them in the live-box with a spray of plant containing bladders; but it was of no use, the obstinate things would not accommodate me. The light or unnatural position, or both combined, made them fairly frantic, and they dashed about, paying no attention to the bladders. But I entrapped them another way. I put growing stems of the plant in a small dish of water with several larvæ, and set it aside. In a few hours thereafter I would find the living larvæ imprisoned. This served for another purpose, but not for the object I was aiming at. Forced to give up this plan of seeing the larvæ enter the bladder, I now directed my attention to the smaller ones—animalcules proper. I placed the bladders in water inhabited by numerous tiny creatures, and soon had the satisfaction of seeing the *modus operandi* by which the victim was caught.

The entrance into the bladder has the appearance of a tunnel-net, always open at the large end, but closed at the other extremity. The little animals seemed to be attracted into this inviting retreat. They would sometimes dally about the open entrance for a short time, but would sooner or later venture in, and easily open or push apart the closed entrance at the other extremity. As soon as the animal was fairly in, the forced entrance closed, making it a secure prisoner.

I was very much amused in watching a water-bear (Tardigrada) entrapped. It went slowly walking around the bladder, as if reconnoitering—very much like its larger namesake; finally it ventured in at the entrance, and easily opened the inner door and walked in. The bladder was transparent and quite empty, so that I could see the movements of the little animal very distinctly, and it seemed to look around as if surprised to find itself in so elegant a chamber; but it was soon quiet, and on the morning following it was entirely motionless, with its little feet and claws standing out as if stiff and rigid. The wicked plant had killed it very much quicker than it kills the snake-like larva.

Entomostraca, too, were often captured—Daphnia, Cyclops, and Cypris. These little animals are just visible to the naked eye, but under the microscope are beautiful and interesting objects. The lively little Cypris is encased in a bivalve shell, which it opens at pleasure, and thrusts out its feet and two pairs of antennæ, with tufts of feather-like filaments. This little animal was quite wary, but, nevertheless, was often caught. Coming to the entrance of a bladder it would sometimes pause a moment and then dash away; at other times it would come close up, and even venture part of the way into the entrance and back out as if afraid. Another, more heedless, would open the door and walk in; but it was no sooner in than it manifested alarm, drew in its feet and antennæ and closed its shell. But after its death the shell unclosed again, displaying its feet and antennæ. I never saw even the smallest animalcule escape after it was once fairly inside the bladder.

So these points were settled to my satisfaction—that the animals were entrapped, and killed, and slowly macerated. But how was I to know that these animals were made subservient to the plant? If I could only prove that the contents of the bladders were carried directly into the circulation, my point was gained. This now was my sole work for several days, to examine closely the contents of the bladders. I found the fluid contents to vary considerably, from a dark muddy to a very light transparent colour. Hundreds of these bladders, one after another, were put to the test under the microscope, and I found that to a greater or less extent I could trace the same colour that I found in the bladder into the stem on which the bladder grew, though the observation was not so clear and satisfactory as I could wish. After more critical examination I arrived at the conclusion that the cells themselves, and not their contents, change to a red colour; the stems also take on this colour, so as to make it appear as if a red fluid was carried from the bladders into the main stem, which is not specifically the fact so far as the observations yet made determine, though the main point, that the contents of the bladders are carried into the circulation, does not seem open to question.

The next step was to see how many of the bladders contained animals, and I found almost every one that was well developed contained one or more or their remains, in various stages of digestion. The snake like larva above mentioned was the largest and most constant animal found. On some of the stems that I examined fully nine out of every ten of the bladders contained this larva or its remains. When first caught it was fierce, thrusting out its horns and feet

Fig. 56.—Platycerium willinckii.

A, Sporangia; B, Stellate hairs and spores from back of leaf; C, Stellate hair from surface of leaf.

and drawing them back, but otherwise it seemed partly paralysed, moving its body but very little; even small larvæ of this species, that had plenty of room to swim about, were soon very quiet, although they showed signs of life from twenty-four to thirty-six hours after they were imprisoned. In about twelve hours, as nearly as I could make out, they lost the power of drawing their feet back, and could only move the brush-like appendages. There was some variation with different bladders as to the time when maceration or digestion began to take place, but usually, on a growing spray, in less than two days after a large larva was captured the fluid contents of the bladders began to assume a cloudy or muddy appearance, and often became so dense that the outline of the animal was lost to view.

Nothing yet in the history of carnivorous plants comes so near to the animal as this. I was forced to the conclusion that these little bladders are in truth like so many stomachs, digesting and assimilating animal food.

What it is that attracts this particular larva into the bladders is left for further investigation. But here is the fact, that animals are found there, and in large numbers, and who can deny that the plant feeds directly upon them? The why and wherefore is no more inexplicable than many another fact in Nature. And it only goes to show that the two great kingdoms of Nature are more intimately blended than we had heretofore supposed, and, with Dr. Hooker, we may be compelled to say, "our brother organisms—plants."

About December 1, after I had made most of my observations, I wrote to Dr. Asa Gray and to Mr. Darwin, both on the same day, telling them of my discovery. Dr. Gray then informed me that Mr. Darwin had been engaged in the same work on Utricularia, and also sent me a note from him, bearing date August 5. From this note it would appear that at that date he had not worked the matter up as far as I had—at least had not found so many imprisoned animals—but, with his superior facilities, he may have far outstripped me. Since writing the foregoing I have frequently trapped the snake-like larvæ and seen them enter the bladders. They seem to be wholly vegetable feeders, and specially to have a liking for the long hairs at the entrance of the bladders. When a larva is feeding near the entrance it is pretty certain to run its head into the net, whence there is no retreat. A large larva is sometimes three or four hours in being swallowed, the process bringing to mind what I have witnessed when a small snake makes a large frog its victim. *Mary Treat, Vineland, N.J., in "New York Tribune."*

YOUNG GARDENERS' NOTE-BOOKS.

The remarks of various writers in the *Gardeners' Chronicle* of late, upon the desirableness of young gardeners making lists of the names of plants, have induced me to forward you the following observations on the subject.

At this period of the year, young gardeners commence to write out lists of plants adapted for certain objects. As the next step they add notes of the probable "treatment" necessary for the successful growth of these plants. Both these are solid steps by which to mount the ladder of their profession.

In after years comes the wish to display the beauties of vegetation, and to make clear their ideas thereupon. To be able to exhibit these beauties to the general public, as well as to the learned lover, who can by labour find them for himself, and to develope effects, so that both special and ordinary observers may see their beauty, is the result to be aimed at. For young gardeners to gain the knowledge which it is necessary they should obtain to be able to arrive at this point, the labour and study of many years are involved. They must drink in deeply the general impressions produced upon the mind by the aspects of vegetation and their accompaniments, and by their diversities, or rather, in relation to the present subject, the impression produced at various times of growth. The study of these general and special impressions will give advantages in respect to arrangement that nothing else will.

In my list-making of early days I have felt the want of system in studying this third step, and have sustained much loss from its not being added to the two former. This want emboldens me to forward the enclosed sample of a table of observations, the utility of which, in assisting young gardeners in taking their notes upon vegetation, and as affording them assistance in working out their ideas into results in further years, will at once be apparent.

Should this table be fortunate enough to gain the approval of students they might readily form a cheap book for taking observations in accordance therewith. In filling in the columns every note should be made in presence of the subject annotated. It might be an inducement to young men to make such observations if you would promise to publish any collection of notes possessing sufficient merit. [We should most willingly help in this matter so far as the demands on our space will allow. Eds.]

In conclusion, I venture to assert that the gain of real pleasure in the case of all students who have thus impressed upon their feelings a clear conception of the beauties of vegetation will be far greater than those who are non-students can possibly be aware of. *Joseph Forsyth Johnson, Royal Botanic Gardens, Belfast.* [We agree in principle with our correspondent, who seems to have landscape-effects solely in view, but botanical accuracy should also be studied. Eds.]

DOWN HOUSE, BLANDFORD, DORSET.

On visiting Down House, the seat of Sir W. H. J. Marriott, Bart., a few days ago, I was most agreeably surprised to find the following Orchids, which I think are worthy of mention. In one of the Cattleya-houses, and facing the door upon entering, stood two splendid specimen Cymbidiums, one eburneum and the other eburneum Dayi—the former with eight fine flowers expanded, the latter with eleven flower-spikes, and differing from the former by being spotted on the labellum. Suspended from the roof, and growing in a basket, was a magnificent specimen of Dendrobium thyrsiflorum, with fourteen flower-spikes (very fine), each measuring a foot long; from three of the single growths come two spikes each. This Dendrobium, when seen as here, is one of the most beautiful of any of this type, and should be grown in the most limited collection. Grouped with the Cymbidium were two Odontoglossum Insleayi, one a very fine variety with six flowers on one spike. Odontoglossum hystrix had thirty-one flowers on one spike, very fine. There were some good Odontoglossum Alexandræ, with from eight to twelve flowers; two O. pulchellum majus, with a dozen spikes each. The rarely seen (I believe) Odontoglossum platyodon from New Grenada had only four flowers, nearly as large as those of O. Alexandræ, but of a bright yellow. Dendrobium lituiflorum, a good variety, D. eburneum, D. infundibulum, D. luteolum, D. fimbriatum oculatum, were all good and well flowered; likewise Cypripedium niveum, villosum, venustum, and Roezlii; Oncidium

ILLUSTRATIVE TABLE OF THE CHARACTERISTICS OF VEGETATION.

	Subject.		Outlines.			Masses.			Young Leaf.			Perfect Leaf.			Fall of Leaf.			Flowers.			Fruit.			Stems.			Observations.
			Form.	Colour.	Time.	Form.	Colour.	Time.	Form.	Colour.	Time.	Form.	Colour.	Time.	Form.	Colour.	Time.	Form.	Colour.	Time.	Form.	Colour.	Time.	Form.	Colour.	Size in feet.	
Trees.	Cedrus Libani	Permanent.	Bold and zig-zag, terminating with irregular table-like top	Deep dark green, alternating with much light	P	Horizontal massing of thick deep shaded foliage	Deep green, with alternating lights	P	Tender and fine	Light green	5 6 7	Strong and fine	Dark olive	P 1 2 3 4 8 9 10 11 12	Hard and sharp	Brown	5 6 7	In catkins or cones	Light yellow	10 11 & 12	Oblong flat-topped cone	Dark brown	7 8 9	Most natural	Dark grey		
	Acer Pseudo-Platanus	Deciduous.	Irregular rounding outlines	Rich deep shades and lights	5 6 7 8 9	Horizontal arrangement ovate; thick shaded foliage	Much shades and lights		Delicate	Light golden green	5 6																
Shrubs.	Rhododendron ponticum	Permanent.	Rounding irregular outlines		P	Rounding masses, leaves arranged in circles		P	Delicate and elliptical	Light green	5 6	Ovate	Greyish green	1 2 3 4 8 9 10 11 12	Hard	Brown	5 6	Round	Purple	5 & 6	Umbel	Brown	9		Greyish brown	15	
	Rose	Deciduous.	Climbing			Light undulating masses				Delicate green	5 6		Dark green			Yellow and brown	10 11	Cup-like	Various	5 6 7 8 9 10 11 12					Green	1 to 20	
Carpeting Plants.		Permanent.																									
		Deciduous.																									

Note.—P. is for Permanent, and the numbers in the column for time represent the months of the year. The detailing of vegetation as above would greatly assist persons to select characteristic plants for their scenery.

Krameri and Papilio, the latter with several spikes; Oncidium luculosum, Calanthe Turnerii, some having had forty flowers on a spike; Comparettia falcata, and Miltonia cuneata; these altogether forming a charming sight at this cold season. In the same house, showing flower, were Vanda coerulescens, two spikes, Epidendrum Imperator and and ibaguense, Oncidium flexnosum, and several good Cattleyas and Lælias, too numerous to detail; while noticeable, and growing most luxuriantly, were Dendrobium Falconeri (this plant had fifty flowers last year), Wardianum and Bensonæ, making grand growth; also some of the finest pans of Anactochilus I ever saw, viz., Petola, Lowii, Dayii, xanthophyllus, Ordianus and intermedius. These are beautiful objects when seen as here, but alas! how seldom do we meet with them; they are in pans 1½ to 2 feet diameter, and are grand examples of good culture. Mr. Hill had taken the tops off some of them and stuck them in the moss on the surface of his Saccolabium and Vanda pots, and in these positions they were growing marvellously.

Passing into the cool Orchid-house, there was standing just inside the door a grand lot of Disa grandiflora in pans 2 feet through, with from fifty to sixty strong shoots each; next stood some nice plants of Masdevallia, in variety; several good Odontoglossums—Alexandræ, showing good spikes, also fine plants of triumphans, maculatum, Warneri, Rossii, Andersonianum, nebulosum and hystrix; Oncidium macranthum, the spike over 7 feet long; O. cucullatum, fine; with several good Lycastes, and Epidendrums. Orhcis foliosa and Ophrys tenthredinifera were in flower, the latter a most peculiar plant. In the plant-stove, mixed with a nice clean collection of foliage plants, including the best of the new Dracænas, Crotons, and Palms, &c., were some good Gesneras, as exoniensis and refulgens, mixed with Begonias odorata, nitida, subpeltata, semperflorens, fuchsioides, Ingramii, which had a charming and most lively effect at this dull season of the year; the whole reflecting great credit on the liberality of the owner and the skill and ability of the clever gardener, Mr. Hill. *A. Outram, Victoria Nurseries, Holloway.*

TRADE MEMORANDUM.

It may not be without interest to some of our readers to bring under their notice a "special list of new and rare seeds" which has been forwarded to us, particularly as the stock is said to be so small "that only a limited quantity can be supplied." What a misfortune for horticulture this is may be inferred from a few extracts. The first is "a new and matchless Yellow King Potato," of which we say no more than that it has, according to the circular, been exhibited at so large a number of exhibitions as to have obtained upwards of one hundred prizes in six months. We regret very much not to have seen this interesting novelty at any exhibition and to have received no report from our lynx-eyed reporters, who must, in this instance, have grossly failed in their duties to us and our readers. Again we find our contemporaries, the *Times* and the *Gardeners' Magazine*, as well as many others, have given testimonials in its favour, a selection from which, made on account of their "conciseness and independence," is printed in the circular. We regret, however, that we have not been able to find in the *Times* or the *Gardeners' Magazine* of the dates quoted any such comment. This may be from an oversight on our parts or from a printer's error of dates. This Yellow King ought to be known by the name of Golden King, for we find the price is 5*s.* per set, or 10*s.* 6*d.* for three, the proprietors not guaranteeing to send out whole tubers. Sealed packets of seed carefully saved from the same variety are advertised at 5*s.* the packet. We have not space to do more than allude to the "Hetpympka" Parsley, or the "Encruma," or "Ashantee Asparagus, introduced to Spain from Ashantee by the celebrated traveller and collector, Senor Don Santiago de Roxas, in 1871," and of whom, we are ashamed to confess, we never before heard. Nor were we previously aware that Wheat grew near Coomassie; but as "Ashantee Wheat" is announced at 5*s.* a packet in the circular, of course we must be mistaken. "A single head" will, we are told, produce "three or four pints of grain." We should have supposed this to have been Millet, not Wheat; but perhaps we are in error, for Millet seeds are to be had for feeding little birds at considerably less than 5*s.* a packet.

As it would be an act of injustice to omit to mention the name of the firm which advertises (by circular) these novelties, we may state that the name on the circular is that of Messrs. Dunbar & Co., of 91, London Wall, Moorgate Street, E.C. We regret that our own endeavours to secure—by a personal interview with Messrs. Dunbar or their agents—seeds of some of these rarities have failed, owing to the unfortunate absence of the principals or their agents from their place of business on the second floor, and which, moreover, bears but feeble traces of the enormous business which of course the introducers of such rarities must be doing.

Fig. 57.—DENDROBIUM AMŒNUM.

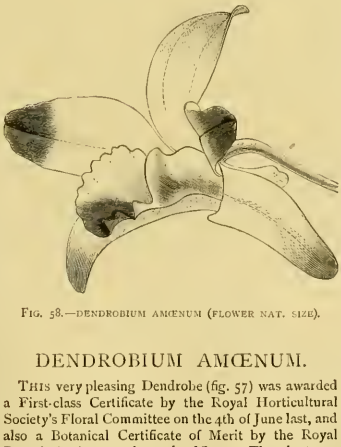


Fig. 58.—DENDROBIUM AMŒNUM (FLOWER NAT. SIZE).

DENDROBIUM AMŒNUM.

This very pleasing Dendrobe (fig. 57) was awarded a First-class Certificate by the Royal Horticultural Society's Floral Committee on the 4th of June last, and also a Botanical Certificate of Merit by the Royal Botanic Society on the 10th of June. The plant was exhibited on both occasions by Mr. W. Bull, of Chelsea, to whom it had been sent by Major E. S. Berkeley; and we learn from Mr. Bull that it was collected at an elevation of 5000 feet, at a point where frost frequently occurs. It is, no doubt, a very desirable introduction, not only on account of its distinct character, but also from the delightful fragrance of its flowers.

The plant as exhibited, and which we presume was blooming from the imported stems, was of slender growth, the stems being about two feet high. The flowers (fig. 58) prove to be rather small, but as a compensation they are numerous; they have a white ground colour, and the sepals and petals are distinctly tipped with rosy purple, while the lip is coloured like the other parts of the flower. These blossoms are most deliciously sweet-scented, the fragrance resembling that of Violets—a quality which alone would be sufficient to recommend it to cultivators. *T. M.*

ON ARBOURS OR BOWERS.

Arbours are a necessity abroad, but even in this country many love such open-air retreats. At Interlaken, last autumn, I saw a very nice natural one, formed by a Plane (P. occidentalis); the trunk formed the centre and sole support, and on three sides the branches were trained down to the ground and formed a complete shelter from the sun: four or five persons could sit under it. On the same self-supporting plan, at Spa, I was startled by a huge crimson umbrella of Virginian Creeper. It occurred to me if there had been, in the case of the Vine, two or three plants set originally for the centre support, twined so so as to form one stem, a greater height of bower might have been attained and strength to bear the weight of the summer growth. As it was, two people could sit in comfort. One cannot expect deciduous alleys, arches, or arbours, to be strictly symmetrical, or on the perpendicular, at the end of autumn. The young wood requires arranging and curtailing, but, I bethought me, how superior such shelters were to the sentry-boxes of trellised woodwork one meets with, over which the creepers never do grow as expected, and which are so often either fresh painted and nailed out of the carpenter's hands, or in a state of dishevelled disrepair. With a real tree each season only strengthens and beautifies the arbour. A Laburnum would form in our country a beautiful golden umbrella, or arbour, as likewise would a Mountain Ash. Both are free flowerers and certain fruiters, easy to train and wattle, and around each bower there would be sure to spring a perfect sod of seedlings, pleasant to watch, and useful for wattling when the wall gets thin as the tree grows older. Those who love bowers sit under them, I presume, and had better do so early and late, when the rowans begin to colour, and so keep in check the voracious thrushes. Possibly a tame winged hawk might keep them off, or a well-fed tabby with kittens trained merely to blink at and watch the birds. For my own part I like to see the blackbirds gorging themselves, and struggling, with wings out-stretched to keep their balance on a weakly shoot, which they do not intend to leave until every berry is devoured.

Weeping trees of course are all ready and natural for sun shelters, and have always been used. Planted and grown for bowery purposes their position as to sun and wind should be particularly considered. Ash and Elm are the best I have ever seen; Thorns, Birch, Willow—good weepers all—would be, I fancy, too small-leaved, and Beech too close in growth. The dark impervious evergreen bower, of Yew for instance, I cannot like. There is always a stuffy, dusty, unventilated air in it, and one pants for the open. Possible eavesdroppers outside prevent freedom of conversation; and inside are certainly spiders—old, grey, dusty ones, that have woven their first and now know they they are in their last web, in that very bower—desperate spiders, made up of eyes and nipping jaws. In the fresh deciduous arbour, on the contrary, however closely grow the branches, you can see as well as be seen—can hear all the gentle summer sounds and feel "the air nimbly and sweetly" passing through the leaves (*Macbeth*, act i., s. 6). There the spiders are young and active "spinners in the sun." Heavy-bodied "white cross" Arachne (a beautiful insect) makes her web as you sit; and another garden spider, of small body and preternaturally long legs, will harmlessly stalk over you. True, caterpillars dropping down by their swinging threads, on cocoon "thoughts intent," may alight on your neck, an unwelcome Eve (*Paradise Lost*, book v.), but sitters in bowers must lay their account for such trivial annoyances as insects. Always busy when in the garden, I have never had time to "take mine ease in mine" arbour (*Henry IV.*, part i., act iii., s. 3); but nothing would tempt me into fog-houses or rustic Heather erections,* with benches of decaying

* Such structures are very suitable for glens and woods, or points of view where shelter from a storm or rain may be frequently required.

Pine logs, out of which protrude rusty old nails; or, if of sound Fir, then resinous oozings greet you. Wooden houses, like enlarged bathing-machines, are likewise odious, scribbled and whittled over in all directions. When such are the garden sun-shelters, I think one is better off indoors at once, with wide-open windows, in a comfortable chair. To sum up these desultory remarks, the best bowers surely are—

1. A noble tree, not far from the house, in the style of the grand Beech at Newbattle Abbey. 2. A Weeping Ash or Elm. 3. The umbrella, or trained and wattled arbour of a growing tree. 4. The clipped evergreen bower. (For invalids who must have such close shelter, and no circulation of air, a conservatory or cool plant-house would surely be more pleasant.) 5. The purely artificial house of moss, wood, or plaster.

6. "'A Temple to Friendship,'
Cries Laura, enchanted,
'I'll build in this garden—
The thought is divine.'
The temple was built;
And it now only wanted
An image of Friendship
To place on the shrine."
(*Author unknown.*)

F. J. Hope, Wardie Lodge, Edinburgh, Dec., 1874.

P.S.—I have had the large "white cross" spider settled in the baskets of mixed plants in the rooms. If the web was destroyed when we left the room at night, by the morning he had a new one completed in another plant all ready.

"In eager watch he sits,
O'erlooking all his waving snares around.
The prey at last ensnared, he dreadful darts
With rapid glide along the leaning line."
Thomson's "Seasons"—Summer.

For an invalid this spider is a most interesting object, and I have never found it to leave the plants, so there need be no fear of its intruding where not desired. Scotch people are careful not to kill spiders, from belief in the Bruce's traditional insect, it is said.

PLANT GOSSIP.

Scilla peruviana is flowering in the Cape-house at Kew. It is a rare plant in this country, and perhaps few know that what is usually grown under the specific title is the variety Ughi. S. peruviana may be obtained from the Continent as S. ciliaris. It has long, narrow, dull green leaves, with a densely ciliated margin, thus differing conspicuously from the well-known variety. Little, if any, difference can be found in the inflorescence. Both are very ornamental, and distinct in appearance for conservatory decoration, varying in colour from deep blue to paler shades with a yellowish cast. The raceme is conical, about 7 or 8 inches in diameter, and the flowers dense. It is a native of Spain, and should not be called the Peruvian Hyacinth.

—— In the *American Naturalist* for February Mr. Edward Palmer mentions a mode in which Martynia proboscidea is employed in Arizona, where it is very common. Its large seed-pods, after being deprived of their outer covering, are used by all the Indian tribes of Arizona in ornamenting their willow baskets. The method resorted to is first to soften the pods by means of water; they are then straightened, split into the requisite strips, and worked into the baskets, forming the black ornamentation seen in those made by all the tribes of Arizona. The same writer, in referring to the Resurrection Fern of Florida (Polypodium incanum), says that he collected some apparently dead examples, and sent them to the Cambridge Botanic Garden in April last. On his return there in September the plants, which had moist moss placed round their roots, were secured to blocks of wood and hung up in the greenhouse. The leaves unfolded and assumed a bright green colour, and the plants now appear to be in a healthy condition.

—— The discovery of the Venus' Fly-trap appears, from a note in the *Hortus Collinsonianus*, to have been made about 1759 by Arthur Dobbs, Governor of North Carolina. His description of it is as follows:—"The great wonder of the vegetable kingdom is a very curious unknown species of Sensitive. It is a dwarf plant. The leaves are like a narrow segment of a sphere, consisting of two parts, like the cap of a spring purse, the concave part outwards, each of which falls back with indented edges (like an iron spring fox-trap); upon anything touching the leaves, or falling between them, they instantly close like a spring trap, and confine any insect or anything that falls between them. It bears a white flower. To this surprising plant I have given the name of Fly-trap Sensitive." This seems to be the earliest notice of the plant, and antedates the letters of Ellis upon the subject.

—— The chaste, snowy Primula nivea, generally grown as nivalis, is a most attractive form to cultivate in pots at this season of the year. It flowers too early in the season, and the blossoms are of too delicate and fragile a character, to have full justice done it in the open air, except in a very favourable and sheltered position. It is well adapted for growing in pots in a cold house, for it does not require warmth but simply protection from the wintry elements. It deserves generous treatment, and where grown in good soil, such as a good yellow loam, with which plenty of leaf soil is mingled, it throws up its large trusses of pure white blossoms on stems as high again as the leaves, and so shows them off to the best advantage. Its simple beauty is one of its greatest recommendations.

—— According to an American correspondent of the *Floral Magazine*, the Iris iberica, as grown and flowered in the States, differs considerably from the coloured plates that he has access to, and he affirms that no coloured representation has yet done it justice. "The flowers," Mr. Chitty writes, "come much larger, and the colour richer and more distinct. It appears to be perfectly hardy in our climate. In the spring of 1873 we planted a large bed in the open ground, putting in very small pieces. During the season they grew very rapidly, many of them making towards fall plants a foot in diameter, some of which produced in the following May as many as from fifteen to twenty flowers each. Some of the flowers, after the drooping petals were raised to the horizontal, measured 5½ inches in diameter. We have now a large bed of this plant in the open air, and as the mercury this winter has been more times below zero than we have ever known before, its hardiness will be thoroughly tested."

—— The display of Cyclamens, usually so attractive a spectacle at this time of the year at Mr. H. Little's, Cambridge Park, Twickenham, is again well worthy a visit, as the houses present as much of beauty and interest as on any previous occasion. Certainly no private grower can excel Mr. Little in the extent of his collection, excellence of cultivation, or variety of colouring, the latter point being most marked. A long span-roof house, with broad stage on either side, contains nothing but Cyclamens of various ages and sizes, but all in full and beautiful bloom, probably just now at their best. There are besides a large number of seedlings blooming, although, so far, nothing has been produced so striking as were the deep-coloured seedlings of last year—Royal Purple and King of Purples—both of which, now in flower, stand out in striking contrast to the many lighter hued flowers by which they are surrounded. In all the newer flowers there is a marked tendency towards size of bloom, breadth and substance of petal, and intensity of colouring. There is a large bulb of eleven years' growth with a large healthy head, but the blooms, no doubt good in their day, point out forcibly the immense progress that has been made in the improvement of the Cyclamen since that plant was a seedling. Mr. Little is an enthusiastic as well as an intelligent hybridist, and is producing the most satisfactory results.

Foreign Correspondence.

The Island of Kawau, Auckland, New Zealand (the property of Sir Geo. Grey, K.C.B., F.R.S., late Governor of New Zealand).—The island contains about 7000 acres, two-thirds of which is under bush, and the rest is cleared and under grass, and carries a large number of sheep. Sir George has the whole of it in his own hands, and employs about twenty men, who live in different parts of the island; their wives and families make up a population of about seventy souls.

The garden in which this house stands would delight the heart of a botanist; it is full of trees and plants from all parts of the world. Plants from all climates seem to thrive in this delightful place. Oranges and Lemons are now hanging on the trees as thickly as at Mentone. Loquats are fully ripe, and are in perfection. We had a large dish of Strawberries yesterday; and green Peas, Asparagus, and young Potatos are in abundance. Peaches, Nectarines, Apricots, Figs, Plums, Pears, and Cherries, will all be ripe in a couple of months. The trees, all of which grow like standard Apple trees in England, are now covered with little green fruit. Bananas, too, thrive in the open air, and though the leaves are somewhat split by the winter winds, yet the fruit is beginning to show.

Palms of many kinds are planted about, and a large hill covered with Pines rises out of the garden. Bulbs from the South of Europe, Primroses, Foxgloves, and Violets from England, all grow under the shadow of Pines from California, of Olives from Spain, and of Bamboos from India. The hedge in front of my window is composed of Honeysuckles, Passion-flowers, and bushes of Pelargonium and Heliotrope 6 feet high, all now in full blossom.

Sir George must have spent a fortune in bringing plants and animals, birds and insects, from all parts of the world. He tells me that he had a quantity of earthworms and English snails sent, and they are now flourishing. The latter I can vouch for—on the Strawberries.

The English pheasant is very plentiful all over the island, and peacocks in some places. The Californian quail is literally in myriads; they are calling throughout the place, this being their breeding season. There can be no difficulty in killing fifty or sixty brace in a day to one gun, in the proper season.

Fallow deer are numerous, but keep to the bush. There are some red deer and sambur, but not so many as the fallow. There are quantities of wild cattle in the bush, and they are shot whenever they are seen; but they increase rapidly, and have become a great nuisance, eating so much grass.

Pigs infest the bush, and are a greater nuisance than the cattle. This year alone they have destroyed £200 worth of lambs. Sir George turned out some American peccaries, but they have not been seen since.

There are hundreds of kangaroos of different kinds, and these have to be killed in numbers on account of the quantity of grass they eat. The most common is the tree kangaroo of New Guinea, dozens of which can be seen in the woods close by the garden.

Opossums are becoming a great nuisance; they only come out in the night, and make sad havoc in the garden, eating the young shoots of the fruit trees. A man sits up on moonlight nights to shoot them.

In the ponds about are carp and perch, but the extent of fresh water is but small, and all artificial, for the island is everywhere very undulating, and if you are not walking down a hill, you are very certain to be walking up one. *From a Correspondent.*

Forestry.

Planting of forest trees, like the sowing of grain crops, is too important a work either to be vaguely described, or to admit of anything hazy or obscure hanging over it that can possibly be removed. If the agriculturist commits an error one year in sowing, he can next year, or at least in a rotation, find opportunity for correcting it; but if certain kinds of errors or mistakes are made in planting, they are put at once and for ever beyond the planter's power of correcting. Certain kinds of errors may be mitigated and others considerably modified, but all such are exceptionally slight if they do not carry with them injurious results to the end of the history of the plantation. Having myself committed many mistakes in planting, I can at least caution others against falling into similar errors. The distance apart at which forest trees should be planted, is a subject which very legitimately admits of various opinions being formed and expressed. In reference to Scots Fir, Larch, and Spruce, alone or mixed, I have planted them at all distances from 2 to 6 feet, both inclusive, and the results at all distances have been equally satisfactory or equally disappointing—not on account of the distances at which the trees were planted but chiefly on account of the size or extent of the plantation and the manner of treatment the plants subsequently received by way of thinning. I have superintended the planting of 800 acres in one season on sandy and gravelly moorland, the plants put in 4 feet 9 inches apart, and on examination four months subsequent to planting less than 3 per cent. of deaths had occurred. This plantation or forest when finished will comprise probably 5000 acres, which if planted say 3½ feet apart must have required, in addition to the extra plants and labour, to be thinned long before any benefit could be derived from the thinnings, thereby entailing such an unwarrantable expense that the benefits arising from the closer planting would not have covered it. I have also on many occasions planted heavy clay soils and strong loams, when 20 to 30 per cent. of deaths occurred, and in addition to the natural deaths as many more plants were destroyed by game and being overgrown with rank herbage. In these cases the plants were put from 2 to 3 feet apart, according to the size of plantation. In planting small groups—say 1 acre or less—where the chief object is shelter and early effect in the landscape, my practice is to plant very thick, say 2 feet apart, and thin early, sometimes the third year, if the growth is rapid. Similar advantages arise from having a thick crop of trees to select the growing crop from, as from having a good braird of Turnips to thin out. If only as many Turnips grew from the seed as was necessary for the permanent crop, without requiring to thin them, according to a well-established fact in connection with agriculture, the crop would not be nearly so good as under the usual treatment of thick sowing and timely thinning.

However well a plantation may thrive from the time of planting, one part of the trees will be twice as tall and better grown in every respect than the others. If there is, therefore, as many straight and

well-proportioned trees as to constitute a crop of, say, 800 per acre, after all the crooked, dwarfed, and other inferior grown ones are cut down, the additional number of plants, and labour both of planting and cutting down before they are of any money value, will amply compensate for the additional expense, seeing the object of planting is thereby very perfectly fulfilled.

Next, if not equal in importance to that of properly putting the plant into the ground, is to give it due and proper facilities for growth and development; and as no inconsiderable portion of the moorland put under plantations in Great Britain (specially in Scotland) is either too cold and wet, or too close and hard for forest trees to grow well in, it is necessary to render dry that which is wet, and break up and render free, loose, and open that which is too retentive. Trenching is, of all known means, probably the most effective for accomplishing the latter object, while draining in one of the many well-known ways is effective enough in accomplishing the former.

Trenching, however efficient in breaking up and pulverising the soil, is too expensive for general planting operations; hence it is seldom done except upon a limited scale. Pitting the ground is a common and cheaper means of preparing it for the growth of trees than trenching, but the evils connected with it renders the practice so far objectionable that it is with many planters entirely abandoned. Pits formed in either hard or clayey soils become only receptacles for water to stagnate in, to the destruction of the plants. As a rule, plants do not succeed so well in pits as they do in unprepared soils. Without, however, explaining the causes which lead to the failures in pitting, I shall state the preferable system which I practise, and have adopted for many years with very great success above all others.

One or more men go over the ground to be planted, and with a sharp spade pare off a thin turf from the exact spot in the centre of which the tree is to be planted. The parers are succeeded by others with the planter's foot-picks, who at each place where the turf has been removed insert their instrument once, twice, or thrice, thereby stirring and loosening the soil all around where the plant is to be put in. The foot-pick used differs from the drainer's and trencher's tool of the same name in being broader on the back or part that forms the fulcrum, and also in being sharper and lighter, the handle being wood. This operation in effect trenches the ground in a most effective manner at a cost of about 5*s.* per 1000 plants, while pitting would cost about 25*s.* for doing similar work much less efficiently. If the plants are small they are notched in in the usual way, and the ground receives a good firm tramp with the foot, it having been rendered very loose and open by the process of boring. One great advantage of the use of the borer, as it is locally termed, is that the process may be carried on at any season and at any stage of the plant's growth. I have greatly improved certain unhealthy plantations several years planted by boring the trees round at some distance from the base of the stem. *C. Y. Michie, Cullen.*

Apiary.

Work to be attended to in March.—Every skilful beekeeper, who has an eye to a profitable investment, will learn the grand secret, "keep your stocks strong." Early in this month examine each hive carefully, for we can only expect those hives which contain a strong and healthy stock to be profitable.

Look well to the entrance of the hive; if the bees are observed to void a yellowish excrement you have cause to suspect dysentry. This disease is brought on either from dampness or improper and sour food. I have always found the best remedy is cleanliness, and feeding with good new honey.

Also it is well this month, if the apairy is composed of straw skeps only, to give to each stock a clean floor-board; if this is impossible, the sooner the old boards are cleansed the better. In bar-frame hives gently lift up the upper part, on a fine, warm day, and brush all the dead bees and other dirt from the bottom-board. Bees attend closely to all sanitary matters in the working season, their dead are speedily carried forth; but in the winter this cannot be done because of their close confinement, therefore it is well to aid them in the matter; they will afterwards appreciate and repay the kind forethought.

If they have not commenced soon after the month of March has set in, to carry pollen to the hives, when the weather is favourable, something is wrong, and the sooner the stock is examined the better. Perhaps they are a queenless colony, if so unite them to some other stock; the hive, with its valuable comb, will be reserved for a swarm. Sometimes, as it was ten years ago, the greater part of the month is cold and frosty, with occasional slight snow storms, and with scarcely a Crocus visible until the third week: if this should be so during the present month, we cannot, of course, expect to see any pollen carried in. It has been found useful under such circumstances to place barley-meal within reach; the bees have used it instead of pollen. I shall refer again to this subject.

If any stock is deficient in food, which may be ascertained by feeling the weight of the hive, give them a small quantity of newly-made syrup each warm afternoon; this will stimulate and do the colony good; breeding will also go on at a greater rate, but care should be exercised not to smear any syrup or honey on the hive or floor-board, it will entice robbers, and most likely produce fighting. I have used most successfully the best barley sugar; in using this, which is not stored in the cells, it can easily be ascertained when food is scarce.

The winter Aconite (Eranthis) and various species of spring Crocus yield the chief supply of pollen during this month. It is scarcely needful to remind bee-keepers to close the entrance if snow lies on the ground. Hundreds of bees perish from being enticed out by the glare of the sun and snow combined. *R.*

The Hive of Hives.—As our bee-keeping friends are now eagerly scanning the various illustrated lists and making inquiries about hives for the coming season, I propose to bring a few useful novelties from time to time before them. I make no comments upon their merits, and do not recommend one maker before another. The "Hive of Hives" is the name given to the hive which is figured below (fig. 59). Why Mr. Pettitt has adopted this name I am unable to state. Perhaps he had the idea that it was the best hive ever invented, or the most practical ever brought before the apiarian world. Each inventor thinks his own child the best, and I do not envy any man his thoughts.

This hive contains thirteen bar-frames, besides a mock or dividing frame, by which the size of the hive can be enlarged or contracted at pleasure. There are

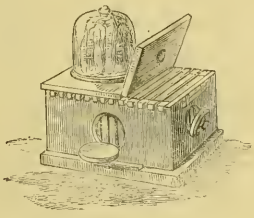


Fig. 59.—Pettitt's Hive of Hives.

very few hives which can be used by the experimental bee-keeper either as a collateral (a system which many readers will recollect gained numerous adherents and followers, under the guidance of old Father Nutt, but which is now seldom used), or employed and worked with super on the top, but the hive I now bring before the notice of your readers can be worked under either system, at the option of the bee-master. The frames, which are on the natural scale of 1⅜ inch from centre to centre of combs, I think preferable to the Langstroth scale, or 1⅝ inch. It is fitted with the patent metal rack, which at once secures uniformity in placing the bars in the hive. The top bar of the frames extends quite through the back and front of the hive, projecting about half an inch; this gives greater power and facility in the removal of combs for examination.

Mr. Pettitt, the manufacturer, is well known in the South of England as a successful apiarian; his place of business is 151, Snargate Street, Dover. Amongst his stock, without doubt the largest and most comprehensive in bee-keeping requisities to be met with in Great Britain, are all kinds of hives, from the plainest and simple cottagers' skep to the grand mahogany temple hive; he also supplies stocks of either the black or Italian breeds. Mr. Pettitt's catalogue is well worth perusal, and his little volume on the *Humane Treatment of the Honey-bee* contains much valuable and original information, as well as advice, on the management of the apiary. *R.*

Notices of Books.

Description, Culture, et Usage des Arbres, *Arbrisseaux, et des Plantes herbacées et Frutescentes de plein air et de serres, employées dans l'ornementation des parcs et jardins*, &c. Par A. Alphand. Paris, Rothschild. Folio.

This is a reprint from that truly magnificent publication entitled *Les Promenades de Paris*, of which we have had occasion to speak on more than one opportunity. A work of that character, and of that size and sumptuousness, is after all so ill adapted for general use that to the great majority of horticulturists and landscape gardeners it is a sealed book. M. Rothschild has, therefore, exercised a wise discretion in issuing in a separate form the tabular lists of trees, shrubs, and herbaceous plants used for the decoration of the Paris squares, and for the ornamentation of public buildings on occasions of state or festivity. The tables contain in alphabetical order the botanical names and native localities of the several plants, the soil and aspect suitable for them, the purpose they are best adapted to fill in landscape gardening, the general character of the leaves, flowers, and fruit, together with such brief general observations as may be required. In this way more than 2000 species and varieties are catalogued under their appropriate headings. It is greatly to be regretted that this list was not submitted for the revision of some competent botanist previous to its re-issue. Its value would thereby have been enhanced, and sundry errors in nomenclature avoided. It is a useful though still rather cumbrous list of the plants which are most in use for decorative purposes.

Les Plantes Ornementales, à feuillage panaché et coloré. Redigé par MM. Cogniaux et Elie Marchal. Edité par Alexis Dallière. Ghent. (Ornamental Foliage Plants, &c.)

M. Dallière is well known to horticulturists as one of the most enterprising of nurserymen in that city of nurserymen—Ghent. His establishment does great credit to his business capacities, and is by no means the least interesting of the two hundred or more nursery establishments in or about the city. It is with no surprise, therefore, that we find him following the example of the Van Houttes, the Verschaffelts, and the Lindens, in publishing a series of coloured plates representing some of the most noteworthy of the ornamental plants cultivated by him.

The plates are chromo-lithographed by M. Stroobant, and the botanical descriptions are drawn up with care by MM. Cogniaux and Marchal, M. Dallière himself contributing the cultural notes. The plates are in general very characteristic, though some, *e.g.*, that of Tillandsia musaica, are rather over-coloured. Devoted as they are principally to the representation of foliage plants, they contain few botanical details. Indeed, as many of the plants have not yet flowered, still less fruited, their precise botanical position is in some cases still doubtful. MM. Cogniaux and Marchal have not overlooked this difficulty, and their descriptive notices are so worded that no one need be misled on these points. Considered as a series of horticultural plates, this publication is creditable to all those concerned in it. Two volumes have been published, containing together sixty plates.

Xenia Orchidacea: *Beiträge zur Kenntniss der Orchideen.* Von Dr. Heinrich Gustav Reichenbach. Zweiter band, zehntas heft.

This part of Dr. Reichenbach's contributions to orchidology completes the second volume of his publication bearing the above title. The first volume of this work was completed in 1858, and in the preface to that volume the author gives an account of the materials at his disposal, and mentions the few described species he had then had no opportunity of examining. Among other things, he alludes to the kindness and assistance he had experienced at the hands of the late Dr. Lindley. The preface to the second volume is devoted to the memory of that great man, the founder of this Journal, who probably did more to popularise botany in this country, and to infuse scientific principles into practical gardening, than any other single man. The ideas of a foreigner, and a rival in the study of Orchids, respecting our lamented master, may interest our readers, and therefore we give a nearly complete translation of Dr. Reichenbach's preface in another place.

The *Xenia*, as is doubtless known to many of our readers, is a collection of descriptions and figures of new species, most of which have been published elsewhere, many in this journal. The plates, numbering 100 in each volume, illustrate one or more species, and are beautifully drawn by Reichenbach himself. Some are partially coloured, or patches of colour are put on to indicate in a general way the colouring of the flowers, and as the colours in our opinion are often too bright, the first impression on seeing them is not a favourable one.

—— The March number of the *Florist* contains a good coloured figure of the flower and fruit of Pyrus Maulei, already described in our columns; and also of Lady Henniker Apple, a large Codlin-shaped Apple, highly recommended as a kitchen Apple by Mr. Barron. The tree was raised as a seedling by Mr. Perkins, gardener to Lord Henniker, and the stock is in the hands of Messrs. Ewing & Co., of Norwich.

HORTICULTURAL EXHIBITIONS, 1875.

March.

16.—Manchester Botanical and Horticultural Society's Floral Meeting in the Town Hall. Manager, Bruce Findlay.
17.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.
24.—Glasgow and West of Scotland Horticultural Society. Spring Exhibition. Sec., F. G. Dougall, 167, Canning Street, Glasgow.
27 to April 3, inclusive.—Royal Horticultural Society, South Kensington. Mr. William Paul's Special Show of Hyacinths, Tulips, Roses, and other spring flowers.
31.—Royal Botanic Society, Regent's Park. Spring Show. Sec., W. Sowerby.

April.

4.—Special Exhibition of the Royal Horticultural Society of Antwerp.
7.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.
21.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.
22.—Royal Horticultural Society of Ireland. Spring Exhibition. Sec., A. Balfe, 28, Westland Row, Dublin.
27.—Manchester Botanical and Horticultural Society. Exhibition of Auriculas, &c., in the Town Hall. Manager, Bruce Findlay.
28.—Royal Botanic Society, Regent's Park. Spriog Show. Sec., W. Sowerby.

May.

1 to 10, inclusive.—Royal Botanic Society, Regent's Park. Mr. William Paul's Special Show of Roses, Pelargoniums, &c.
1 to 24.—Royal Botanic Society, Regent's Park. Special Exhibition of Clematis, by Mr. G. Jackman.
12.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees. Pot Rose Show.
14 to 21.—Manchester Botanical and Horticultural Society's Annual National Exhibition, at the Garden, Old Trafford. Manager, Bruce Findlay.
17 and 18.—Halifax Floral and Horticultural Society's Annual Exhibition. Sec., Leonard Kershaw, 20, Gladstone Road, West Hill Park.

THE

Gardeners' Chronicle.

SATURDAY, MARCH 6, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

Tuesday,	Mar. 9	Royal Horticultural Society: Adjourned Annual General Meeting, at 3 P.M. Sale of Poultry and Pigeons, at Stevens' Rooms.
Wednesday,	Mar. 10	Royal Horticultural Society: Lecture on the History of the Society, at 8 P.M. Leeds Horticultural Gardens Company's Spring Show. Sale of Rhododendrons, Laurels, Yews, Fruit Trees, Climbing Plants, &c., at Stevens' Rooms.
Thursday,	Mar. 11	Leeds Horticultural Gardens Company's Spring Show continued. Sale of Carnations, Picotees, Standard Roses, Fruit Trees, American Plants, &c., at the City Auction Rooms of Protheroe & Morris. Sale of Specimen Camellias, Orchids, Lilies, Gladioli, &c., at Stevens' Rooms.
Friday,	Mar. 12	Sale of Orchids, at Stevens' Rooms.
Saturday,	Mar. 13	Sale of Hardy and Ornamental Trees and Shrubs, Herbaceous Plants, Rustic Garden-work, &c., at Stevens' Rooms.

COMPARATIVELY few among practical horticulturists, we venture to say, have duly considered the extent of DARWIN'S services to horticulture. Succeeding generations will, it may be, apply his principles to their daily work quite unconsciously, but even now physiologists will admit that, since the days of THOMAS ANDREW KNIGHT, no physiologist has done so much to extend the basis on which successful culture, whether of animals or of plants, depends.

To say, as some may do, that DARWIN has never concerned himself directly with horticultural pursuits, does not invalidate our statement. When GALVANI was dissecting frogs, or GALILEO was watching the swaying of a candelabrum, neither the one nor the other thought of the practical consequences which would result from their speculations. Most of the great discoveries which have subsequently been so prolific in practical results have been made by men of science working from the love of science, without thought of aught else but the investigation of the truth. But it is quite impossible for a conscientious accurate worker in any one department to be wholly without influence on other departments. On such gronds alone we might claim for DARWIN the merit of having advanced horticulture.

We have, however, much more direct reasons for claiming him as the physiologist who has done the most in our time to advance the science of horticulture. The intelligent reader needs but to read the headings of the chapters in the *Origin of Species* or the *Variations of Animals and Plants* to find ample justification of our remarks. The illustrations there given are so numerous and so varied that it would be quite impracticable within the limits of an article of this character to do more than allude to a very small proportion of them.

Let any one who knows what was the state of botany, in this country at least, even so recently as fifteen or twenty years ago, compare the feeling between botanists and horticulturists at that time with what it is now. What sympathy had the one for the pursuits of the other? The botanist looked down on the varieties, the races, and strains raised with so much pride by the patient skill of the florist as on things wholly unworthy of his notice and study. The horticulturist, on his side, knowing how very imperfectly plants could be studied from the mummified specimens in herbaria, which then constituted in most cases all the material that the botanists of this country considered necessary for the study of plants, naturally looked on the botanist somewhat in the light of a laborious trifler. Both classes carried on their investigations in a narrow spirit of isolation, unconscious or unheedful of the assistance that either might give to the other.

The investigations of GAERTNER, of KÖLREUTER, of SPRENGEL, of VAUCHER, had been allowed to remain by British naturalists as so many dead letters. It was a chance if a page or two were devoted to them in text-books; rarely, if ever, were they mentioned in lectures, still more rarely was their bearing on horticulture alluded to. DARWIN, by his renewal and extension of these experiments, and specially by his deductions from them, altered all this. He made the dry bones live; he invested plants and animals with a history, a biography, a genealogy, which at once conferred an interest and a dignity on them. Before, they were as the stuffed skin of a beast in the glass case of a museum; now they are living beings, each in their degree affected by the same circumstances that affect ourselves, and swayed, *mutatis mutandis*, by like feelings and like passions. If he had done nothing more than this we might still have claimed DARWIN as a horticulturist; but, as we shall see, he has more direct claims on our gratitude.

The apparently trifling variations, the variations which it was once the fashion for botanists to overlook, have become, as it were, the keystone of a great theory. The variation which the florist saw, seized on, perpetuated, "improved," furnished the suggestion for the theory of "natural selection." It is quite unnecessary to go into explanations now-a-days on this point: suffice it to say that an apparently trifling variation may be (it has not been proved absolutely that it is), may be—probably is—the first stage in what will, under favourable circumstances, eventually develope into what we call a species. From this point of view a new variety raised by man, as DARWIN himself says, is a more interesting subject for study than one more species added to the crowded lists. DARWIN borrowed the idea of "natural selection," or, as it is more accurately termed, "the survival of the fittest," from the gardener. The gardener or the florist selects, causes to survive, and propagates varieties showing one particular quality or tendency which he may happen to desire; but in Nature the selection or the survival is not so simple an affair. If it were a mere question of strength, "the weakest would always go the wall;" if of speed only, the hare must outrun the tortoise; but we all know how diverse and complicated are the conditions under which living beings, plants as well as animals, exist, and we admit with SOLOMON that "the race is not always to the swift, nor the battle to the strong, but time and chance happeneth to them all." We may safely interpret the word "chance" here as the equivalent to our "circumstances."

Passing from this question of selection, in which, if DARWIN has taken much from the practical man, he has repaid him with abundant interest, we may allude to one of the great elements in the consideration of the aforesaid circumstances, viz., the "interdependence of living organisms." We all know and admit this principle to some extent, but it is probable that few of us realise how greatly and of necessity one organism is dependent upon another. Almost every gardening book we take up has a chapter or a paragraph on the insects injurious to this or that crop, but we do not find, at present, in our theories of horticulture and books of the garden, any but the slightest reference to the insects that are beneficial to the plants we cultivate. We ought to have learnt something about this from SPRENGEL, from GAERTNER, and others. HERBERT did learn and did teach somewhat of this, but his lessons never took much effect. Surely the laborious researches of, and the important practical results obtained by, DARWIN will open our eyes to this matter, and fix our attention a little more closely and fixedly on what is of such vital consequence to us. We must remember this is no visionary theory; if anybody wants facts let them study the record of DARWIN'S labour and DARWIN'S patience in the *Journal of the Linnean Society*. These labours and these facts establish beyond controversy the manifold and intricate way in which living beings are tied together, and the extreme complexity of the conditions under which living beings have to maintain their struggle for existence.

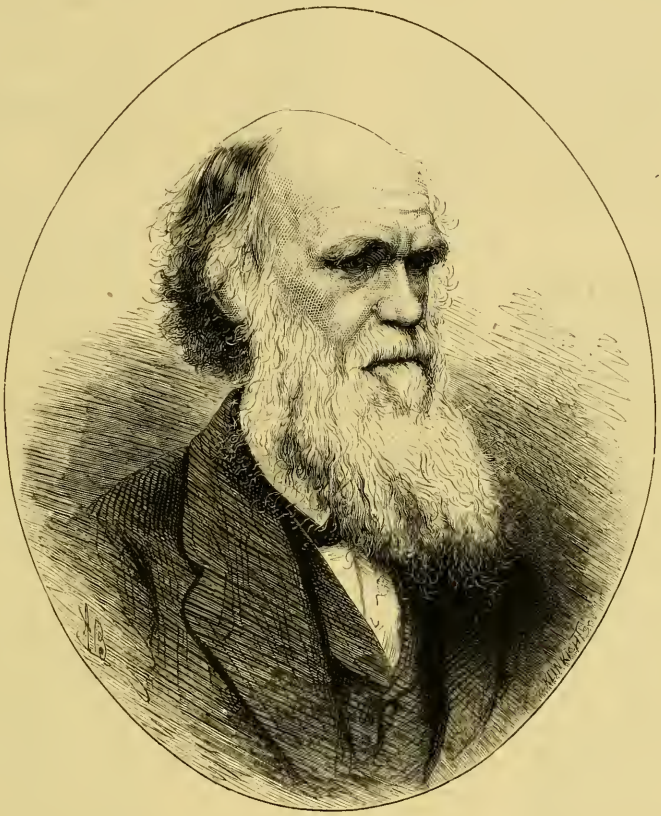
Space would fail us if we attempted to give further illustrations of this, it must suffice to mention the great subjects of fertilisation by insects, of cross-fertilisation, of hybridisation, of dimorphism, on all of which DARWIN has experimented patiently and written lucidly. While the florists have for years been selecting their pin-eyed and thrum-eyed varieties of Auricula, selecting the one and rejecting the other, it seems never to have occurred to them to inquire, or even to care about inquiring, what was the meaning of the difference. Here was a difference brought prominently under their notice, they regulated their course accordingly, they acted from motives of mere caprice or fashion, without troubling themselves any further about the matter. "Why should we?" they might have asked, in pre-Darwinian days. "Of what good would it be to us? We know what we want and how to secure it. Why concern ourselves further?" And the pre-Darwinian botanist, if he considered the matter of any interest at all, would have been unable to answer these questions. How altered is the state of things now. Thanks to the laborious experiments of DARWIN—thanks to the example he has set, the purpose of this, as of many other curious points of structure, passed over before as merely curious, has been made apparent. No more persuasive apostle of natural theology, no more powerful advocate of the argument furnished by design and adaptation, ever lived than CHARLES DARWIN.

We cannot now go into further details of physiology, important as they are. We are addressing, we presume, practical men, and we say it to them, if they now ask the botanist the meaning of the pin-eyed and thrum-eyed flowers and other similar variations, they will learn something very much to their advantage. They require improved varieties, fixity of form, abundance of seed, and robust constitution in the seedlings. Let them study the chapters on cross-fertilisation and dimorphism which DARWIN has written, and they will—unless they are blind—see how they may attain their ends. So

with such cases as "bad setters" among Vines or Cucumbers, or such things as blind Strawberries, the great physiologist of our day has supplied the thoughtful cultivator with innumerable facts, careful observations, and suggestive inferences.

It is impossible for us to do more than indicate these matters, nor can we do more than allude to the many other subjects elucidated by the genius of Darwin, and which have, or may have, a direct practical bearing on the pursuits of the gardener and agriculturist. Among them are the subjects of variation, inheritance, reversion, bud variation, acclimatisation, genealogical descent as the basis of rational classification, carnivorous plants, climbing plants, and many similar subjects. Space forbids us to do more than mention these.

Enough for us now if we have shown that to Charles Darwin, setting aside, as beside the question we are at present concerned with, all direct reference to his theories as to the origin and progress of species, are due grateful homage and reverence from every thoughtful horticulturist of the present, from every careful practitioner of the future.



CHARLES DARWIN.

The metropolitan Fellows of the Royal Horticultural Society are not likely to forget that the adjourned Annual Meeting of the Society is to be held on Tuesday next. Provincial Fellows, however, we regret to say, need such a reminder. We need not stop to inquire now into the causes of this apathy. We only ask them to shake it off forthwith. Here is an institution which is, or should be, national in its aims and sympathies—an institution capable of doing good service if it had free play in every parish in the United Kingdom; an institution which has rendered great services in the past, is still capable of doing so, and, under happier auspices, is potential for more good and greater influence than ever it had. The question is, Shall this society go to pieces because horticulturists do not subscribe in sufficient numbers, and because those that do take so little interest in its work?

It is comparatively easy to get up a flower show society—we see how successful the provincial towns are in this respect, often more so than in London; but the Royal Horticultural Society has other aims, of at least equal, and we think much greater importance than the mere holding of exhibitions. The verdicts of its committees command respect, the trials at Chiswick are valuable so far as they go; so is the possession of a collection of authoritatively named fruit trees. Its experimental garden, though small, is large enough for most purposes. Very little really is required to enhance its value as a practical garden, and at any rate there is the place where experiments and observations on the science of horticulture might be carried out—experiments and observations on which the future of horticulture, we believe, very largely depends. Now the whole country is benefited by work of this character, limited and restricted though it unfortunately is. Are the horticulturists of this country prepared to let this organisation fall to pieces from internal dissensions, from its load of debt, and from the fact that its income is so largely diverted from its legitimate purpose—the advancement of horticulture? We do not, cannot believe it; on the contrary, we believe the horticultural spirit of the country is so widely diffused that, were it once stirred, the Royal Horticultural Society, with its branches and local secretaries throughout the empire, would speedily be more powerful for good than it ever has been. Not only a greater interest in the Society's work is required, but a large accession of new Fellows and new blood. Whether this can be effected by Mr. Wilson's guinea scheme, or by some modification of it, we cannot stop to discuss now, though we believe under altered circumstances — and circumstances are changing every day—such a project would be most beneficial.

We can only earnestly beg those who wish to see the Society out of its difficulties, and to see it encouraging and directly promoting all branches of horticulture, practical or scientific,

to be in their places on Tuesday next. Those who love and care for horticulture have a better chance before them than they have had for many a long day. Let them sink for one day at least all petty jealousies, and miserable, baseless insinuations, all narrow spirit of cliquism—let every one keep his own pet hobby in his stable for that day, and by united action show that the Royal Horticultural Society is something more than a sham.

The first thing to do is to insist upon the opening of negotiations with the Commissioners. By their own mouthpiece they expressed a friendly desire to come to terms. Let us put that assertion to the test immediately, and ascertain how and in what way they are disposed to help us. All other matters, it appears to us, are matters of detail, of secondary importance. Some say there is no scheme—no policy—no programme. That surely is not the want. There have been plenty such, and long and carefully discussed, but of not one can even the first sod be turned till this primary matter is in some way satisfactorily settled. The horticulturists must come forward and do their best to this end. Not one should be absent on Tuesday, not a vote given except for horticulture, not a policy, a scheme, a hobby listened to, which is not in strictest accordance with the principle—Horticulture for Horticulturists.

—— To-morrow is the Sunday known to churchgoing people as Mid-Lent Sunday, and in some places by the somewhat puzzling title of Fig Sunday. How and why it acquired this name is not obvious, but it is certain that Figs on this day form a prominent part of the repast in various parts of the country. Such is the case in Lancashire, where the day is known as "Fig-pie Sunday," and fig-pie is eaten at dinner. (By the way, it may not be generally known that fig-pudding is a sufficiently palatable variation upon plum-pudding. It is made in the same way, but figs chopped into small pieces are substituted for the plums.) Probably the eating of figs on Mid-Lent Sunday is a remnant of the old custom of regarding that day as a festival. In Northamptonshire, however, it is Palm Sunday that is called Fig Sunday. A dish of figs is on the table at dinner in every ortbodox family; and Miss Baker, in her *Northamptonshire Glossary*, tells us that on the preceding Saturday the Northampton market is abundantly supplied with Figs, and there are more purchased at this time than throughout the rest of the year, even the charity children in some places being regaled with them. In Hertfordshire and Oxfordshire a similar custom prevails. Another custom connected with this Sunday, which is, however, more exclusively ecclesiastical than the preceding, is the blessing at Rome of the "Golden Rose," a ceremony which was formerly performed by the Pope in one of the Roman basilicas, but now takes place in the palace where he happens to be residing at the time. The origin of this custom is of some antiquity, and is assigned by various writers to the eleventh or twelfth century. Calmet states that it was instituted by Leo IX. in 1048. The Rose is described as a cluster of Roses and rosebuds growing on one thorny stem, of the purest gold, chiselled with exquisite workmanship. It is blessed by the Pope with various ceremonies, and a few grains of musk and amber are inserted by him among the petals. It was formerly bestowed upon the Prince whose privilege it was to assist the Pontiff to dismount at the basilica; but in later times it was sent to any one of exalted station for whom the Pope had an especial regard. One was sent by Leo X. to the Elector of Saxony at the commencement of the religious movement instituted by Luther, while the present Pope has thus honoured the ex-Emperor of France, and, in 1868, the ex-Queen of Spain. Last year a less exalted personage was selected, the Rose having been bestowed upon the Baronne Vigier, who, as Sophie Cruvelli, was a celebrated cantatrice, and conspicuous by her charity and good works.

—— A correspondent asks to be furnished with a list of Flowers which Expand at Certain Hours, and in acceding to his request we cite the following list from De Candolle's *Physiologie Végétale*. The observations were made at Paris—in our latitudes the hour would be slightly different. Since De Candolle wrote, a new light has been thrown on the subject, through the impulse given to so many similar matters by Darwin, and it now seems most probable that in many cases the period of expansion corresponds to the time of appearance of particular insects which visit the flowers and transport the pollen from one flower to another. It may be in the case of a cultivated flower that the right insect is not a native of the country, and then, if no substitute be at hand, the flower literally wastes its sweetness on the desert air. It is obvious, however, that too literal an interpretation must not be expected, but only a general co-relation. Again, full allowance must be made for climate, season, weather, aspect, and other circumstances. In this matter our observations, so far as they have gone, agree with those of Sir John Lubbock, who says that in his experience "the opening and closing was more gradual and more dependent on the weather than I should have expected from the statements of De Candolle and others." Our correspondent is also referred to an elaborate paper by Fritsch, abstracted in the eighth volume of the *Journal of the Royal Horticultural Society*, p. 1.

Ipomœa purpurea ..	2 A.M.
" Nil	
Calystegia sepium	3-4 A.M.
Tragopogon, &c. ..	4-5 A.M.
Papaver nudicaule, &c.	5 A.M.
Convolvulus tricolor, &c.	5-6 A.M.
Hypochæris maculata, &c.	6 A.M.
Sonchus sp. and Hieracium sp. ..	6-7 A.M.
Nymphæa, Lactuca, &c.	7 A.M.
Mesembryanthemum verbatum, &c.	7-8 A.M.
Anagallis arvensis, Pimpernel	8 A.M.
Nolana prostrata ..	8-9 A.M.
Calendula arvensis, Wild Marigold	9 A.M.
Arenaria rubra ..	9-10 A.M.
Mesembryanthemum nudiflorum	10-11 A.M.
Ornithogalum umbellatum (Lady 11 o'clock) ..	11 A.M.
Mesembryanthemum, sp.	12 NOON
Passiflora cœrulea	12 NOON
Scilla pomeridiana	2 P.M.
Silene noctiflora ..	5-6 P.M.
Œnothera biennis ..	6 P.M.
Mirabilis jalapa ..	6-7 P.M.
Lychnis vespertina	7 P.M.
Cereus grandiflorus	7-8 P.M.
Œnothera tetraptera, &c.	7-8 P.M.

In this country the Daisy (Day's Eye) opens at sunrise and closes at sunset. The Dandelion opens about 7 A.M. and closes at 5 P.M. Arenaria rubra remains open from 9 till 3; the white Water Lily from 7 till 4; the Mouse Ear, Hawkweed, Hieracium pilosella, from 8 till 3; the Scarlet Pimpernel, Anagallis arvensis, from 7 till 2; Tragopogon pratensis, from 4 A.M. till 12 noon, whence the English name of "John Go-to-bed at noon." The matter is of some interest to "hedders out," as the following case proves. The writer visited the superb terrace gardens at Monte Carlo, near Monaco, in the morning, and found edgings and "ribbons" of Gazania in startling brilliancy, so much so that they could be seen from the hill-tops at a distance. Leaving the garden, on his return to it after some hours the effect was well nigh obliterated. In the afternoon the flowers in question were asleep. A similar, but less marked change, was noticed in the case of the beds of Mesembryanthemums. We recommend those who are curious in such matters to watch their flower-beds, if these plants occur in them, and note the insects which visit them. In relation to this subject, M. Rivière has observed that Epidendrum cuspidatum exhales an agreeable odour from midnight to 5 A.M., and remains free from odour the rest of the day. This also seems to be a provision to attract night-flying insects. E. cochleatum var. fragrans, on the other hand, is sweet-scented between 6 A.M. and 6 P.M.; Cattleya bulbosa, between 6 A.M. and 11 A.M.; Angræcum distichum becomes sweet-scented from 11 A.M. till 6 P.M.; Rodriguezia crispa, from 6 A.M. till 11 P.M. Some Aroids, as Conophallus, exhale their detestable odour just at the moment when the anthers burst. All these cases would seem to be connected with the appearance of particular insects at particular times, these insects conveying the pollen from flower to flower and thereby setting the seeds. Many night-flowering plants, such as the night-smelling Stock, have dull neutral-tinted flowers, the perfume alone being sufficient to attract insects. Again, wind-fertilised flowers, which do not require the visits of insects, do not, as Sir John Lubbock has pointed out, go to sleep.

—— The Southampton Horticultural Society will hold a spring show on April 13, and a grand horticultural exhibition and gala on Saturday and Monday, July 31 and August 2.

—— Toxicophlæa Thunbergii is blooming in the Palm-house at Kew. The white flowers are deliciously scented, they are produced in dense cymes, in the axils of nearly all the leaves of the growth of last year, forming beautiful wreath-like branches. This specimen is planted out, and from the slender habit, with closely disposed leaves and flowers, may evidently be trained effectively in any desirable way. Cuttings are rooted without difficulty, and afterwards require but the simplest cultivation. A decoction of the bark was once used by the aborigines of the Cape of Good Hope for poisoning their arrows. It is the Gift Boom, or Poison-tree of the colonists. A plant closely allied, sent out by Mr. B. S. Williams, was figured in this journal as T. spectabilis about three years ago (p. 363, 1872). Another, apparently quite distinct, is cultivated in the Royal gardens under that name. There are now no flowers, but otherwise, on comparison with herbarium specimens, it appears correctly named. The most evident difference is that the leaves are much larger, and separated by long internodes.

—— Colonel Yule has some interesting notes on the History of Plants in the February number of the *Geographical Magazine*, in which he points out that Pine-apples and Tobacco are mentioned as in use in the Old World in translations of two works which appeared before the discovery of America, of course in both cases owing to an erroneous rendering of the original. He shows that the name Pine-apple was known long before the discovery of America, but was then applied to the cones of Fir trees, which are still called Fir-apples in some parts of the country. This is the only sense given to the word Pine-apple in as comparatively recent a work as Mushen's *Guide into Tongues*. The name Pine was given to Ananassa sativa by the Spanish discoverers. This appears from Parkinson's description of the plant in his *Theatrum Botanicum*. He says, "They of Brassil call it Nana, others Anana, the Spaniards and Portugalls Pinas, from the likenesse, and so does most countryes, following that name." He says that the fruit is "like to a cone of the Pine tree, which we call a Pine-apple, for the forme."

—— The Loughborough Horticultural Society's exhibition will be held on Wednesday, July 14, in the Elms Park, Leicester Road, Loughborough.

—— The current number of *The Gardener* contains the following remarks with respect to an Effectual Remedy for Bleeding Vines, from Mr. William M. Baillie, The Gardens, Beaufront Castle, Hexham:—

"After pruning our early house this winter there was a Muscat of Alexandria Vine commenced bleeding copiously from more than one wound: this I attributed to the heat from a drain which conveys the main pipes through below the border to a range of plant-houses, which had set the sap in motion. We tried various remedies, but without effect, until we tried Pooley's tobacco-dust; this we rubbed well into the wounds, dusting them well over with the dry dust. The effect was almost instantaneous, the wounds being sufficiently dry in a few hours to admit of their receiving a dressing of Thomson's Styptic. I do not lay claim to any new discovery, but as bleeding Vines are of frequent occurrence, and are, moreover, a source of loss and annoyance, and I never remember of having seen tobacco-powder recommended for prevention, I deemed it of sufficient importance to lay before your readers."

—— The Wisbech "All England Prize" Rose Show and Horticultural Exhibition for the present year has been definitely fixed for Wednesday, June 30.

—— In a communication received from Mr. James Allen, Shepton Mallet, he mentions that he, last season, obtained some seed of Cheiranthus Marshallii, which is a very infrequent occurrence. This came about as a result of what might be termed a happy accident. After the profuse spring bloom of this valuable hardy decorative plant, Mr. Allen's gardener cut off the flower stems. This induced a scanty growth, which produced a second bloom, and it was the flowers so obtained that produced the seed. It is Mr. Allen's hope that new varieties of the Cheiranthus will result. The first crop of flowers will produce an abundance of seed-pods, but on examining the seeds they will be found to be immature, and, therefore, incapable of germination. Some two or three years ago Mr. A. Dean, Bedfont, tried his hand at crossing Cheiranthus Marshallii on the Belvoir Castle Wallflower, a well-known dwarf pure yellow strain. A few seedlings raised had the growth and elongated spikes of the Wallflower, but with the rounded smaller flowers of C. Marshallii. The practical result was that both parents were spoiled, and it was thought not advisable to pursue the attempt farther. Perhaps more can be done in the way of seeding from C. Marshalli, than from attempting to cross what has hitherto been regarded as a seedless plant with dwarf types of the common Wallflower.

—— Mr. Letts, late foreman at Sandringham, succeeds Mr. E. Lewin (at Upleatham), who, as already announced, has gone to Aske Hall, another seat of Lord Zetland's. Mr. Letts was at one time a pupil of Mr. Baines, and is a young man passionately fond of the pursuit, and likely to make his mark.

—— Quite a new phase has been given to the important question of Rating Nurserymen's Greenhouses, by what transpired at the Hammersmith Police Court a few days ago. It was the case of *Hiscocks* v. *Lobjoit*, and is one of considerable importance to nurserymen, market gardeners, and others. The defendant, a market gardener, residing at Putney, was summoned by the district surveyor for not giving notice of erecting a greenhouse. The plea put in by the defendant was that the greenhouse was exempted according to clause No. 6 of 18 and 19 Vic., cap. 122. In reply the plaintiff referred the magistrate, Mr. Ingham, to a recent notice of his, that the greenhouse must be 30 feet from the nearest buildings, "whether belonging to the occupier or the adjoining

owner." The defendant contended that the clause meant from the nearest buildings of an adjoining owner, and from the ground of an adjoining owner, and pointed out what a serious case it would be for all nurserymen and florists if Mr. Ingham's construction of the clause was correct, and greenhouses had to be put 30 feet apart. According to the magistrate's reading of the clause, if any occupier put up a pigsty or even a dog-kennel in his field, he could not erect another building whatsoever nearer than 30 feet. The greenhouse in question was the fourth built in a row, from 4 feet to 6 feet apart, and defendant contended that the first greenhouse, not being a building according to one clause of the Act, it could not be considered as a building referred to in the exemption clauses. Mr. Ingham said, from the way the defendant put it, he quite saw the importance of the case, and the serious consequences to nurserymen and florists, and he should wish the defendant to consult with other growers, and, if they wished, he would have a case drawn up and submitted to a superior Court. The case was then adjourned to March 13. What is wanted is some combination of horticulturists and others interested in such matters to ventilate and take action in regard to questions of this character. It is reported that the Horticultural Club, of which but little has been heard of late, is being reorganised, and that one of its objects will be to take cognisance of matters of this character, in the interest of horticulture. Messrs. Protheroe & Morris are, we believe, likely to take action in this matter.

—— The annual show of the Fareham and South Hants Horticultural Society will be held on June 23.

—— Mr. John Neville Keynes, of Pembroke College, Cambridge, son of Mr. John Keynes, nurseryman, Salisbury, has just been elected President of the Cambridge University Chess Club, and in this capacity will captain the Cambridge team at the coming inter-University chess match, to take place in London on the Friday evening preceding the boat race.

—— The Loughborough Chrysanthemum and Fruit Show will be held at the Town Hall, on Monday and Tuesday, November 15 and 16.

—— Our contemporary, the *Globe*, a few days since had a leading paragraph advocating, on the authority of a French peasant, the use of salt in growing Potatos as a substitute for forcing. The tubers are to be planted in August on a "thin stratum of salt, each root (*sic*) having placed over it a pinch of compost, and the earth heaped over that. . . . The crop is ripe in the middle of January." Our contemporary has doubtless discovered one of those mare's nests for which the literary Uhlans of the press are famous. The discovery of the French peasant—assuming the whole story to be true—is but a well-known form of supertuberation, common enough with certain kinds of Potatos under peculiar conditions. Early Kidneys, for instance, if the first shoots have been rubbed off before planting, or are injured by frost after planting, will commonly produce a few small tubers without developing any foliage. In the same way, a heap of partially diseased Potatos covered with earth have often in the spring produced young tubers without any accompanying leaf growth. Not long since complaints of this tendency in the early planted crops were abundant in these pages, and there are few gardeners to which the phenomenon is not well known. The peasant's "invention" is therefore one of no modern character; the most that can be said for it is that it is an endeavour to convert a species of natural abortion into a marketable commodity of an exceedingly doubtful value. The application of a "thin stratum of salt" in the mode of cultivation scarcely coincides with our knowledge of its evil influence upon all forms of vegetable life. A dressing of a few hundredweights of it to the acre may be productive of benefit to ordinary crops negatively, by the partial destruction of insect life, but that could not, in the most exaggerated language, be termed "a thin stratum"—a phrase that we can better understand by the words a "thin layer,"—but it is notorious that such a dressing as this would render the soil incapable of producing vegetable life for years afterwards. Again, such a dressing of salt, if applied as described in the extract, and then covered up thickly with soil, would be liable to induce a temperature almost akin to freezing; and if the tubers passed safely through the action of the salt, their vegetating powers would probably be rendered nugatory by the reason of an intensely cold soil. Some of the particulars of cultivation require explanation: for instance, if the "breaking up" be done in August, why should it require to be again dug in September, and "weeded" in October?—as in the latter case the growth of weeds so soon after twice digging must be somewhat marvellous. The whole story wears an air of improbability, and the conclusion is simply ridiculous, as it is impossible to conceive that any beneficial result can follow upon the "discovery" of such a mode of growing Potatos. To write of the produce as "ripe" would be, under such conditions of culture, simply absurd. Potatos are only ripe when healthily matured, and this follows only after the ordinary conditions of growth, such as we are all familiar with. No better description of our Frenchman's Potatos could be found than these quotations from the article afford.

—— The annual summer exhibition of the Bitterne and West-end Horticultural Society will take place on Wednesday, June 9.

—— On the 26th ult. the friends of Mr. James Anderson, Uddingston, entertained him at dinner, and presented him with a purse of sovereigns, in the Clyde Hotel, Bothwell. The occasion of the presentation was Mr. Anderson's entering on possession of the Meadowbank Nurseries, which he managed for many years while they belonged, as a private garden, to the late Mr. Thomas Dawson. About fifty gentlemen sat down to dinner in the large hall connected with the hotel. Mr. James Nicol, accountant, Glasgow, presided, and Mr. F. G. Dougall acted as croupier. The Chairman, in proposing the health of the guest of the evening, glanced rapidly at the career of Mr. Anderson as a writer and a practical man, and stated that it was their object at present to tell Mr. Anderson of their wish that Meadowbank might become more famous in the future than it had ever been before. The Chairman proposed "The Health of Mr. Anderson," and afterwards presented him with a purse containing 150 sovereigns, and a piece of silver plate bearing the following inscription:—"Presented, along with a purse of sovereigns, to Mr. James Anderson, Meadowbank, Uddingston, at a complimentary dinner in the Clyde Hotel, Bothwell, as a mark of recognition of his fame as a gardener while in charge of the renowned Dawsonian collection of plants, and esteem for his general activity and usefulness, on the occasion of his entering into business as a nurseryman.'

—— The History of the Royal Horticultural Society is the subject of the lecture to be given at South Kensington on Wednesday evening next. The lecturer is W. A. Lindsay, Esq.

—— The spring exhibition of the Reading Horticultural Society will be held in the Abbey Ruins on Thursday, May 27.

—— The first number of the *Revue de l'Horticulture Belge*, of which we spoke in our last number, is before us. It opens with a description of a fine hybrid perpetual crimson Rose, Gloire du Ducher, by M. Oswald de Kerchove. Next follows an article on movable flower-beds, the "beds" consisting of trays of pottery or zinc of definite sizes and patterns, so constructed as to be put together puzzle-wise, when they form a regular pattern. The trays may of course be filled with any suitable flowers. This is analogous to the plan of exhibiting Roses followed by Mr. W. Paul at the Regents' Park last summer. In an article on the Colorado Potato Beetle, Dorypha decem-lineata, M. de Kerchove remarks that the European Governments ought in strict logic to prohibit, not only the importation of American Potatos, but all parcels coming from thence, all bales of cotton, and rolls of tobacco. In the news column we are told that the Belgian residents at Nice forwarded to the Princess Louise a bonquet of more than 3 feet in diameter, composed exclusively of Orange blossoms edged with a border of Parma Violets. We hope a bevy of Cupids were in attendance with a wheelbarrow on the occasion. We cordially wish our new contemporary a successful career.

—— The Royal Western Horticultural Society will hold an exhibition in the new Guildhall, Plymouth, on June 1 and 2.

Home Correspondence.

Royal Horticultural Society.—I should be greatly obliged if you would help me in a matter I have much at heart by inserting the following letter, a copy of which I have sent to several friends, with encouraging prospects of success:—"The Royal Horticultural Society is now divided into two sections, with different interests—the local Fellows, who use the South Kensington Gardens as a recreation ground; and the horticultural Fellows, who only care for them as a convenient place for holding shows and meetings. It appears likely that the two sections will more or less amicably separate, that the local people will bear the cost of the South Kensington Gardens, and that the horticulturists will have what funds they can collect to spend on horticulture proper. A long experience on the Council has satisfied me that our Society would be much stronger and more influential with a very large number of Fellows all over the country, at a guinea subscription, than with the limited number of Fellows at a high subscription. Some very influential people would cordially back this plan, but I doubt whether enough guinea Fellows would come in. I am most anxious to have a practical fact for them. While talking over the question recently, one of the great nurserymen said, 'I know something of Manchester, where I am doing some large work, and I think many would join there;' it then struck me that Manchester would be an excellent test place. By its work at the old Chiswick gardens, where new vegetables and fruits are grown side by side, judged, and names reduced by some of the best men in the country, and at the committee meetings at South Kensington, to which all new flowers and fruits are sent from all parts, and most carefully judged and reported on, real horticultural work is done which benefits the whole country. I do not think it is too much to ask a guinea from those who care for a garden, and who would like to keep the old Society in an efficient state. I have enclosed a paper, and should be very much obliged if you would sound your friends and see how many names could be collected in the next fortnight (I enclose a pamphlet to show that it is no new idea);—'Should the Royal Horticultural Society admit to fellowship at a guinea annual subscription, giving for this a transferable ticket of admission to all the Society's shows at South Kensington and elsewhere, and every day to Chiswick garden, we the undersigned would be willing to become Fellows on this footing. —— (name) —— (address).'" *George F. Wilson, Heatherbank, Weybridge, Feb.* 18.

—— What between the conflicting interests of horticulturists and non-horticulturists, none can foresee the issue of the trial through which the Society is passing. It behoves the former to prepare, even at some personal inconvenience, to do all they can for the common cause. If we are to succeed, however, all idle regrets must be set aside. We must not cavil about existing circumstances, but set to work forthwith to initiate a policy, and if possible carry the same against all opposition, real or imaginary. No prescient art is needed to affirm the fact that misunderstandings will damage horticulture more than anything else, as they have done in the past. Indeed it is the "common cause," that has been the real "scapegrace." Let the war for supremacy be, by all means, free from aught having a semblance of retaliation for imagined evils—let not a suggestion be made that can in anywise be construed into the suggestion of venality against any person or party. Thus alone can either party hope to succeed on Tuesday next. Nor let any forget that, if horticulturists have permitted themselves to be beaten, they have permitted it even within the walls of what should have been their own citadel. Horticulture proper, as represented in the Kensington garden, has so far failed, and failed signally. To succeed it must become purely national. Is it so, or has it ever been so? are queries I will not pain myself in attempting to answer. Yet the reality has to be faced, and the facts met. If it does not justly claim an extended national support, then we have the explanation why country Fellows are so lukewarm, and seem so utterly unconcerned regarding it, even including meetings of the most vital import, where their votes are of great value. On Tuesday next is to be held the adjourned meeting. What is wanted is unity and organisation. Surely from amongst our many able horticulturists such cannot be wanting, and if forthcoming, as I believe it will be, then let every horticulturist conform to that discipline by which alone success is possible. With unity and determination all things are possible. Let us meet all non-horticulturists firmly, unflinchingly, but still as friends, asserting our proper position; and then to terms with the Commissioners, who surely are not so greatly to blame. Let country horticulturists lend their aid, both as Fellows and by Fellows, and all in unison look forward hopefully to the end. *William Earley, The Gardens, Valentines, March* 3.

The Royal Horticultural Society: a Vision of the Past and Future.—A big and goodly steamship, sound at bottom and at heart—a vessel that might be registered at Lloyd's as A 1—well-equipped but somewhat heterogeneously manned, deep in the water, apparently from some heavy cargo, yet it would seem chartered by a noble and wealthy company, judging by the gay and gorgeous attire of those that paced the deck—was seen at sea helplessly drifting, by the agency of a steady wind and tide, direct for rocks and shoals. Her sails were all furled, and her fires were out. A landsman stood listless beside her helm; her passengers and crew appeared quite indifferent to their fate: some stood like stoics with their arms folded, some with their hands in their pockets, with laziness depicted on their countenances, while others lay sound asleep on the benches. To account for this strange spectacle of stoical and listless indifference to impending danger and inevitable destruction, the veil must be raised for a moment to show a glimpse of the past. The ship, it seems, from stress of circumstances

had had to shift its course, and while tacking was overtaken by a storm—a storm both sharp and boisterous, which compelled it to supplement its crew by a recruit of landsmen, who not only floundered over its deck and work, but lorded it over her sailor crew, and took the old ship further still into troubled waters, trying ever and anon to steer her into some friendly port for help and succour, without success; for ports that welcomed and hailed her in times gone by refused to take her in. At last this crew, having failed to steer her through her native element, must needs try to make her go on ice; but, to their cost, they found she could not be made to skate. At this point (like the last feather on the camel's back) the crew and passengers alike gave way, paralysed from conviction of their utter incapability to avert destruction — hence the picture represented. But while we gazed with wonder and astonishment upon this strange scene, shouts arose as if some spirits had arisen from the dead. Voices were heard to exclaim, "Is there no hand left to take the helm? Is there not a crew with pluck to work the ship—no power in earth or heaven to stay her from her onward progress to destruction?" On a sudden a change came over the surface of the deep, the wind veered round and freshened, at which the landsmen were seen to sicken and the old crew seemed to pluck up courage, for shortly there were symptons of the fires being lighted and of brisk movement among the sailors; and crew and passengers alike were heard demanding that a practical and steady hand should take the helm. When, lo! and behold, all on a sudden (it is believed on one Tuesday afternoon) the old ship was seen to have changed her course: her steam was up, her sails were set, and she was steering out to sea; the landsmen it is supposed had gone below to poke the fires, as they were nowhere to be seen. Now who's to say that this good old ship may not yet weather the storm? She may by skilful pilotage be steered into calmer waters, perhaps into some genial haven, and when the sun breaks forth some fine summer's morning her crew and passengers may be found fraternising with the princely, the noble, and the gay inhabitants of some favoured clime, who from a sunny bank had been waiting for their approach with open arms, and only chiding them for their long delay. The simile of the former part of the vision will easily be perceived; let's hope the remainder may as easily be accomplished. If it's true the change of wind took place on a Tuesday, as sailors are said to be superstitious they should bear in mind there is another Tuesday near at hand, and let them see to it that the old ship's steam is well up on that day, that her deck be cleared of all incumbrances, and manned by practised hands; and, above all things, let it be borne in mind that then, at 3 P.M., "every man will be expected to do his duty." *Nelson.*

Rating Nurserymen's Greenhouses.—In the *Gardeners' Chronicle* for Feb. 6, I see that Mr. J. Turtle, of the nurseries, Walling, is in a position similar to many others, myself among the number, who feel the unfairness of the parochial assessment upon their glasshouses. About two years since I appealed against the rating of my houses, but before doing so took the precaution to write to several of the largest owners of glasshouses in this country, to ascertain, if possible, upon what basis they were assessed. All were most kind in replying to my inquiries, and many took great pains to supply me with important particulars that I had not asked for; from which I gathered that a considerable amount of strong feeling existed upon the subject of rating. On my appearance before the Assessment Committee, the chairman refused, point blank, to allow me to refer to the evidence I had collected, and stated that nothing could be entertained by that committee, as a precedent, unless it could be found within the limits of their own Union. I often see this question cropping up in the horticultural papers, and am not a little surprised that it has not been settled before this. I have a suggestion to offer, and shall be pleased to see it taken up with that amount of earnestness which so important a matter deserves: That subscription lists be opened by the conductors of the horticultural press, and all interested in the market garden trade invited to subscribe, to defray the expense of a trial in one of the superior courts in London. Let some case be fairly tried, that its ruling may be final for others. Should it be found that, in the present state of the law, horticultural buildings for *bonâ fide* market purposes are assessable to the poor, then let the question be brought before Parliament, that it may be settled upon a broad, intelligent, *ad valorem* basis, applicable alike to all growers, and thus removed from the incapacity of parochial officers and the caprice of assessment committees. *Geo. Beer, Chesswood Gardens, Worthing, Sussex.*

—— I am very pleased to notice, by the letters in the *Gardeners' Chronicle*, that Messrs. Protheroe & Morris are prepared to take a lead in testing the legality of rating nurserymen's glasshouses as they are done at present; and I hope the subject may receive immediate support. I bind myself to pay £5 towards a fund for the purpose of bringing the matter into court for a decision, if such decision is applicable to Scotland as well as England; if not, of course we in Scotland must raise the question for ourselves—and in that case I would reserve my subscription for action here. I will undertake to get many subscriptions for the purpose in Scotland, if I am advised that an English decision will settle the case in Scotland. I took a field here that a tenant-farmer was paying £6 a year for, and before I got a shilling off the place I was rated at £217 a year, and am now raised to £307—all this on trade glasshouses, except £40 for my dwelling-house and stable. *W. Thomson.* [We trust the trade will take this matter up. It is a perennial grievance, which should be settled once for all. Eds.]

New Vines.—I shall feel obliged if some of your correspondents will give me their experience respecting the following Grapes:—Madresfield Court, Duke of Buccleuch, and Waltham Cross Seedling; also Venn's Black Muscat. I have some Vines that I am not altogether pleased with, and intend replacing them with one or other of the sorts I have given. Madresfield Court is a splendid Grape, but I am told by some that it is very liable to crack. My house is an early one, for which I require them. Those I intend discarding are Golden and Black Frontignans, both of which occupy space which I think can be better filled. *T. Martin, St. Austell.*

Monstrous Mushroom.—I have sent you a Mushroom (fig. 61), which I took from the bed this morning. Being somewhat curious in shape, I am desirous, if possible, to know the cause of this malformation. I have grown the Mushroom for a number of years, but never saw one like this before. I send you the part of stool which I broke off in taking it up, it having three parts to the stool. *G. T. B.* [Such variations are not uncommon. We suppose the spawn, in over-running the cap of one Mushroom, have somehow become reversed; but we never had an opportunity of seeing such a one in a stage early enough to ascertain the real cause. Eds.]

Fig. 61.—Monstrous Mushroom.

Fuchsia Riccartoni.—It is satisfactory that the history of this fine variety of hardy Fuchsia is now fully known. I distinctly mentioned, in the short article I wrote in the *Gardeners' Chronicle*, that all I knew concerning it was told me by the gardener who brought it into Ayrshire. From the place at which he was gardener being situated near to Riccarton, near Kilmarnock, it was reasonable to suppose he might have named it after that place, as he said it was a seedling. I find this variety, when growing in the open border, always grows stronger and flowers best in wet summers. In the autumn of 1872 I had plants of it 8 and 9 feet high, and as much in diameter, and these immense weeping bushes were covered with flowers. Here it always requires protection at the roots in severe winters. We cover them up with old tan or some litter, which is never taken off till all danger from the spring frosts in May is over. *William Tillery.*

The Large Tree at Ellon.—In your issue of February 20 I observe a paragraph, on p. 244, copied from the *Banffshire Journal*, in which it is stated that "the trunk of a massive tree in front of a house occupied by Mr. George Low, blacksmith, Ellon, referred to by Dr. Johnson, in his *Tour through Scotland*, as one of the only two trees in Scotland capable of suspending a man in being hanged, has just been destroyed." This statement is incorrect, and consequently misleading. The facts of the case are as follows. On October 3, 1860, during a violent storm of wind, the whole of the top of the tree in question was blown down. Since that time it has been allowed to stand in its dead but dilapidated condition until lately, when it was removed for the following reasons:—1st, because of its dangerous proximity to occupied houses; 2d, its decayed and insecure state; and 3d, with the object in view of preserving a small part, yet fresh, of the base of the trunk for the purpose of retaining a memento of the famed lexicographer's remark. This, instead of being destroyed, as the *Banffshire Journal* states it, has been carefully preserved, so as to prevent exposure to the weather and decay from doing that which the present authorities are accused of having done. *Adam Hewitt, Gr., Ellon Castle.*

Grafting Pears on the Quince Stock.—In the short article on the above subject at p. 246 of your impression of the 20th ult. I appear to ask, What success attends grafting from the Quince stock? whereas the question I proposed was as to grafting Pears on the Quince stock. The two questions are so widely different that the rule applying to the one would not apply to the other. Kindly correct this, so that I may get at the information desired. *Charles B. Saunders, Jersey.*

The Garston Vineyard.—I notice with much regret in your advertising columns an announcement of the sale of the above justly celebrated establishment. The magnificent examples of Grape culture that have so frequently been exhibited not only before Her Majesty Queen Victoria, and nearly all the crowned heads of Europe (by special command), but before the general British and Continental public at various international and horticultural exhibitions during the last twenty years, have undoubtedly done much to increase the growing taste, not only for Vine culture, but for horticulture generally in all parts of the civilised world; as well as to help in raising the science of Grape growing to its present extraordinary perfection. I therefore look upon the probable dismantling of the Garston Vineyard as a great national loss to horticulture. I feel this particularly myself, having gained in years gone by so much practical, and, to me, most useful knowledge from what I had from time to time seen there, and from the honest truths so freely imparted to me by its skilful and accomplished owner. I trust I may be pardoned for believing that the diffusion by means of the descriptions I then and subsequently gave of my own successful practice as a Grape grower in the pages of a contemporary, has been the means of greatly improving the system of Grape culture in the present day. In the year 1867 I gave a very minute description of the Garston Vineyard, and explained fully how the marvellous successes obtained were realised. Previous to the period mentioned above it was generally thought that to grow the Vine successfully, so as to insure a continuous crop of well-finished Grapes, it was absolutely necessary that every vinery should have a southern aspect. I explained how a vinery having a very flat roof and facing the north, and overshadowed by large Elm trees, had been constructed by Mr. Meredith and planted with late varieties of Grapes; that the Vines so situated seldom or never felt the benefit of a ray of sunshine. I also described the wonderful crops of well-finished and beautifully-coloured Grapes the Vines produced year after year, and how easily the fruit was kept in good condition to a very late period in the year, or, I may say, until well-finished new Grapes were ready for cutting in

an early house close by in the beginning of the following year. I also described the beautiful condition of the Vines in the various houses that were then producing the unequalled bunches which, for size and finish, met the admiring gaze of visitors to the horticultural exhibitions of that period, and which, up to the present time, have not been surpassed for quality and finish. Larger bunches have, within the last few years, been produced, but have not possessed that finished appearance always so noticeable in Mr. Meredith's productions. On a recent occasion (December 17, 1874) I carefully looked through the vineries, and was pleased to find the same Vines that had borne such splendid Grapes fifteen years previously more vigorous than ever, and capable of much greater results under the same or similar care and treatment. In the north house were to be seen bunches in larger quantities equal in size and finish to those produced by the same Vines in 1867. In the other vineries the Vines were equally good, and the Grapes as good as in previous years, the young wood in every instance being well ripened and stronger than I ever saw it before. I wished that the care of them for this year was in my own hands, feeling certain that by judicious management, if I wanted to gain a name as a Grape grower, I could take every first prize offered this year in this or any other country. I therefore hope Messrs. Protheroe & Morris will succeed in disposing of the Garston Vineyard entire to some enterprising firm, who might, by combining the business of horticultural builders with that of cultivators of the Vine, reap a good return for their outlay, and save from destruction the finest collection of Vines in the world. *John Wills, Royal Exotic Nursery, Onslow Crescent, London.*

Barked Elm Trees.—I can give Mr. A. Dean a crumb of comfort. Much depends, as you say, "on the depth to which the trees are barked, and other circumstances." This, however, I have learnt by observation—that trees will bear barking to a much greater extent than the faith generally prevailing on the subject will allow. Some ten years ago a number of young Maple and other trees were planted in Queen Elizabeth's Walk, Stoke Newington, and some mischievous boys barked them all round to a height of 5 or 6 feet, and so deep that the alburnum was laid bare, and in some places the heartwood was bared; yet none of the trees died, they made new bark somehow or other. [Our own experience with some young Limes is precisely similar. Eds.] I could point out some of them now, and show the dishonourable scars that remain. The new bark spread from the edges of the old bark over the exposed alburnum like thick varnish, being brown and glossy, as if nourished by extravasation of viscid sap. About the same time I planted a lot of Planes and other trees in Stoke Newington Churchyard, and these were cruelly barked by boys, but they were not much injured in the end, and are now thrifty trees, well protected with an iron palisade. You will remember some years ago M. Robert scarified the Elm trees on the public walks of Paris to get rid of scolytus, cossus, and other of their insect enemies. Not many of the trees died in consequence, though, in some cases, they ought to have died to satisfy the expectations of orthodoxy. Truth is truth, but this sort of truth must not be over much paraded, for we do not want to see trees flayed alive because the process is not sure to kill them. *Shirley Hibberd.*

—— In answer to Mr. Dean (see p. 281), allow me to say that we have a case very similar here. It is that of two very large Walnut trees, which had the bark taken off by some ignorant fishermen to dye their nets. About six years ago the bark was cut round the trunk at 1 foot from the ground, and again at 5 feet. The bark was then taken off the same as peeling Oak. Those two trees are still living, and have since carried a crop of fruit. I would also add that the buds are this year as plump and forward as the other trees near them; and as those two trees have certainly outlived their mutilation, it would only be fair to suppose that the Elms may also continue to put forth their leaves in due season. *G. Dodd, Woodstock Park, Ireland.*

Germination of Holly Berries.—Many of your readers will doubtless be aware that Holly Berries when sown often lie dormant in the ground till the second year, when the majority of them germinate. I shall be glad to hear whether any of your correspondents have ever tried removing the pulp that surrounds the seeds with a little tepid water, and then sowing the little bard seeds (of which each berry contains three or four) in a pot in the house, and if so with what result. I should also like to know the proper treatment for Californian seeds with very hard shells in order to insure as far as possible their germination. Should they be soaked in warm water, and for how long? or should the hard shells be broken and only the kernel sown? *W. E. G.*

Odontoglossum Warscewiczii and Phalænopsis.—In my note about Odontoglossum Warscewiczii, in your last number, p. 270, three words were omitted, thus giving a wrong impression. At p. 271, before the words "M. Linden gave," insert "a rival of." It is very natural that M. Linden, who was so fortunate as to introduce Odontoglossum Phalænopsis through Messrs. Schlim and Wagener, would not have said aught to discredit his own plant, but those who do not know the history of the species might understand it so. To be plain, I alluded to the representation in the *Illustration Horticole*, iii. 109, which shows the flowers, if not a little too pallid, yet much too sordid in colour. This impaired the reputation of the plant, as I have experienced myself in conversation with several amateurs. *H. G. Rchb. f.*

Kilns for Charcoal.—The common method of making charcoal in pits—that is, in conical heaps covered with a layer of leaves and earth—is here abandoned, and kilns are substituted for the pits. These kilns are made of brick, one course being sufficient, bands of iron or timber framework being added to strengthen the brickwork, with great economy. The most prevalent style of kiln is the conical shaped one, shown herewith (fig. 62). A usual size is 24 feet in diameter, with an equal height, holding about 40 cords of wood. This size has been found to be the most economical. I have had coal made in kilns of this character, and of the kind next described, for 4¼ cents (2½*d.*) a bushel, delivered, the contractor being furnished with the timber standing and the use of the kilns free. In pits the coal cost at the same time is 6½ cents (3¼*d.*) a bushel. The cost of one of these kilns with a lining of fire-brick for 10 or 12 feet up from the bottom was 1200 dols. (£250). The wood turns out more coal than when burned in pits, and 43 to 45 bushels of coal to the cord have often been made with first quality hard wood. The extra yield and less cost give a very good profit upon the cost of the kilns. The wall of the kiln (fig. 62) is carried up nearly straight for 6 feet, when it is drawn in and made to form a blunt cone. Upon the top a plate of iron is fastened in the manner of a keystone to an arch. Bands of 3-inch hoop-iron an eighth of an inch thick are placed around the kiln, and drawn together (A) with screw bolts and nuts to strengthen it. There are double sheet-iron doors at the bottom and near the top of the kiln, by which it is filled with wood or emptied of coal, and a few air-holes (B), which may be stopped up with loose bricks, are left in the bottom. When the kiln is filled it is necessary to plaster over the cracks of the doors or any that may exist in the brickwork with well-tempered clay, to exclude air. The second figure (fig. 63) shows a kiln of another shape, made to burn over 3000 bushels of coal and holding 80 cords of wood. It is a parallelogram in shape, with an arched roof, and strengthened by a framework of timber 10 inches square. The walls of this kiln should be a brick and a-half thick, to stand the pressure of the gas which sometimes accumulates within and occasionally bursts one of them with great force. A usual size is 40 by 16 feet and 16 feet high, outside measure. These larger pits need four weeks for a round—that is, to be filled, burned, and emptied; the smaller ones require three weeks, which is about the time needed to "coal" a pit. *A Charcoal Burner, in the "New York Tribune."*

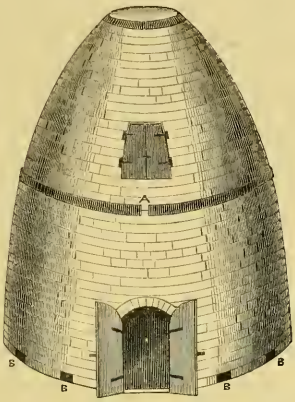


Fig. 62.—Conical charcoal kiln.

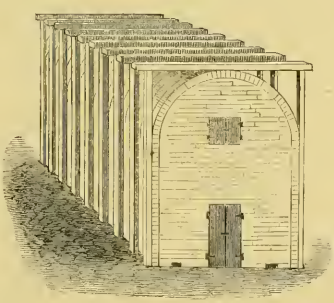


Fig. 63.—Arched charcoal kiln.

The Lindley Medal.—My attention has been drawn to a correspondence in your journal, in which the fact of my late gardener, Mr. W. Wilson, having gained the "Lindley Medal," has been called in question. Mr. Wilson is, I am sure, quite aware that he cannot claim the Medal, from the circumstance that at the time it was awarded to him I was a member of Council of the Royal Horticultural Society, but I am perfectly certain that he did have it awarded to him. I was present at the Council meeting upstairs when the recommendation of the Floral Committee that the Medal be awarded was read by the Rev. J. Dix, and remember distinctly Mr. Saunders (who, I think, was the chairman) pointing out that although the Medal had been won, it could not be given, for the reason above mentioned. This was likewise stated downstairs at the general meeting. I think Mr. Wilson ought certainly to have the "credit" of it at least, as a finer collection of Cattleya Trianæ has never been shown in the Society's rooms. *W. Marshall.*

The Fruiting of Hibiscus rosa sinensis.—Had I have been asked last summer the question whether this plant seeds I should have replied "yes," freely enough, but now I should hesitate before giving that opinion. I have two plants that have seeded every summer since they were three years old, for these are seedlings from some old ones I had previously. Last summer I picked off a good many pods in the green state merely to prevent them robbing the plants. The seed-pods are about an inch long, rather flat at the top, where they open and show the black seeds inside, which do not readily fall out, as the pods retain their nearly upright position. The shape of the seed-pod is very like the growing flower-bud, indeed, in one state of the bloom-bud there is a very great similarity between the bud and the unripe fruit, so much so that I think where they are growing naturally they might be easily overlooked. *William Burns, The Gardens, Thingwall Hall, Woodchurch, Birkenhead.*

Reports of Societies.

Royal Horticultural: *March* 3.—Bonamy Dobree, Esq., took the chair, but being called away soon after to an important meeting of the Council, the remainder of the sitting was under the presidency of Mr. Thomas Moore. The Rev. M. J. Berkeley said that the Mandarin Oranges shown by Mr. Webb were closely allied to the well-known variety called the Tangierine, but had a rather finer rind, which, however, does not separate so freely from the flesh as the last named. There was also rather more perfume in the rind of the Tangierine than in that of the Mandarin. With reference to the Kumquat (Citrus japonica), Mr. Berkeley stated that there were two varieties, one being thorny and the other thornless, to which latter section the specimen before the meeting belonged. It had been said that Mr. Bateman's plant was the only one in the country, but he thought he had seen others, though they were exceedingly scarce, owing to the fact that it could not be worked on any other stock than Limonia trifoliata, and not always successfully on that. Its propagation was indeed difficult, but on account of its exceedingly handsome appearance he hoped gardeners would try to find out some easy way of growing it. With regard to the Sweet Potato, he might remark that when Shakspeare mentioned Potatos this was the plant he alluded to, as at that time the Potato had not been introduced by Sir Walter Raleigh. The Sweet Potato was also cultivated by Gerarde. Personally he disliked the flavour, which resembled that of a hard-baked rice pudding seasoned with treacle. It was, however, much liked by some. The genus Batatas had a 4-celled ovary with one seed in each cell, instead of being 2-celled, with two seeds, as in most Convolvulaceæ. A closely allied plant, Ipomœa macrorhiza, formerly called Batatas jalapa, had roots which weighed from 40 lb. to 50 lb., and was perhaps sometimes used for true Jalap; while another Convolvulaceæ, named Rhodorhiza, gave the Oil of Rhodium, used by ratcatchers for attracting their prey. With regard to Masdevallia

melanopa, Mr. Berkeley stated that he had some doubt whether the plant shown under that name was not M. polysticta, as Reichenbach, in describing the plant in the *Gardeners' Chronicle*, 1874, p. 322, had done so from dried specimens, which misled him as to the colour of the tails; but in the *Gardeners' Chronicle*, 1875, p. 136, the Professor had put the matter right by stating that the tails of the sepals were yellow, the sepals white with purple dots, and the lip having three longitudinal keels, and far more blunt than appeared in the dried specimens. It was, he thought, a pity that the name had not been altered, for it was very misleading. Messrs. Veitch & Sons had shown him a plant unknown to them, but which he had determined to be Anthocercis viscosa, and he alluded to the matter only to state that it was one of the plants belonging to Solanaceæ, which was affected by the Potato disease, as also was the Tomato, the fruit of which was attacked and rendered quite disgusting. Alluding to the beautiful Narcissus Bulbocodium monophylla, which had only flowered once before in this country (at Kew), Mr. Berkeley stated that he had been favoured by a lady with some bulbs direct from Algeria, and that they had flowered beautifully with him lately in a cold frame. Mr. Berkeley also mentioned, as a point of some interest, that he had lately met in Halliwell's Dictionary with the word "amper," signifying a swelling or pimple, and which was, no doubt, the source whence the word "ambury" was derived.

Scientific Committee. — Dr. Hooker, C.B., Pres. R.S., in the chair.

Fungus Growing from the Body of a Caterpillar.—The Rev. M. J. Berkeley read a letter from Mr. Moseley, the naturalist on board the *Challenger*, relating to a fungus, Sphæria sinensis, growing out of a caterpillar, and which is used as food by the Chinese. The caterpillars so affected are tied together in bundles, as shown in our illustration (fig. 64), and sold in the markets. Mr. Berkeley remarked that in these cases the body of the caterpillar was permeated by the mycelium. Allusion was made to a similar fungus affecting caterpillars in New Zealand, and to Sphæria,

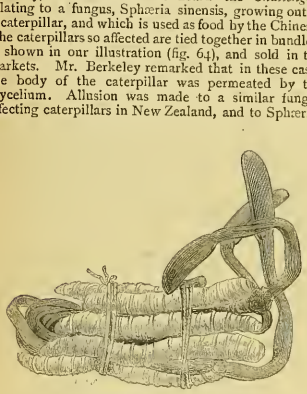


Fig. 64.—Sphæria sinensis.

or Torrubia militaris, which affects the pupæ of insects in this country.

Spawn of Polyporus betulinus.—Mr. Berkeley showed a portion of the spawn of this fungus, of unusually tough consistence. It was sometimes called Xylostroma giganteum.

Balls formed by the Leaves of Caulinia.—A specimen of a mass of leaves of Caulinia agglomerated into a ball from the movement of the waters of the Mediterranean was shown. It was analogous to the similar "moss balls" found in some of our lakes, and formed of Conferva ægagropila.

The Effect of Lichens on Trees.—A conversation arose with reference to the lichen on the leaves of Tea, mentioned at the last meeting, in the course of which Mr. Berkeley observed that lichens were really injurious to trees, as he had proved by the good effects consequent on their removal. He considered the injury was mechanical, and that nothing analogous to the spawn entered the tree.

Professor Dyer read the following passage from a report dealing with the introduction and culture of the Cinchona into the Neilgherries (p. 167, 1866):—

"Further experience in removing strips of bark indicate this to be the most profitable system. The causes of failure in our first experiments having arisen, first, from the stem not being instantly covered with moss; and, secondly, from allowing lichens to be mixed with the moss used for this purpose. This season the treatment of the plants on this system has been most successful, in consequence of the stems being covered with moss the instant the strips of bark were removed, care being taken to select such moss as was entirely free from admixture from lichens, it being found that the presence of these among the moss generated a fungus which penetrated into and injured the wood of the plants, preventing the formation of new bark. It is, therefore, of the utmost importance to select the best green moss, a uniform bright green in its texture indicating that lichens are not present." *Papers Relating to the Introduction of the Cinchona Plant into India, p.* 167 (1866); *Report of the Neilgherries Plantations for* 1864-5.

Mr. Smee asked whether lichens did not absorb by simple dialysis their mineral ingredients from the tree on which they grew.

Prof. Dyer suggested in reply that they obtained them from the decaying bark.

Mr. Berkeley alluded to the presence of lichens in the shallow erosions of the surface of old painted glass, and occasionally in small cavities in the chalk.

Dr. Hooker adverted to a species of Alga, which is stated to erode the pebbles to which it is attached in some of the Swiss lakes.

Vibrios in Cucumber Roots (see p. 118).—Dr. Bastian stated that he had examined the specimens, but had been unable, from the immature condition of the creatures, to say to what genus they belonged.

Sport in Primrose.—Dr. Masters alluded to a Chinese Primrose exhibited before the Society, and bearing one white flower among several lilac ones. The stem and leaves were also pretty regularly particoloured, one portion being green the other purple. Dr. Masters thought in this case the most reasonable interpretation was that offered by Naudin, viz., the dissociation of hybrid characters. There were other cases where a similar bilateral want of symmetry was manifested, in which hybridisation in the ordinary sense of the term did not apply; these might be cases of reversion to some ancestral state, or due to some principle of variation in different cells, not yet explained.

Floral Committee.—R. B. Postans, Esq., in the chair. The severity of the weather, and the troubled state of the Society's affairs, combined to keep Flora and Pomona away from South Kensington on this occasion, and succeeded admirably. The only things exhibited were a very nice batch of Spiræa japonica from Mr. H. B. Smith, of Ealing Dean; a nicely-flowered plant of Cœlogyne conferta, with small white flowers, yellow at the base of the labellum, from Mr. C. May, gr. to J. S. Bockett, Esq., Stamford Hill; a very finely flowered growth of Dendrobium nobile, on which were 32 blossoms, produced in nearly every case three in a spray, from Mr. Stevens, gr. to G. Simpson, Esq., Wray Park, Reigate; and a beautiful little specimen of Masdevallia melanopus, itself a miniature Orchid, with white sepals spotted with purple, and yellow tails. This specimen, which had three spikes, the strongest having five flowers, came from Mr. C. Green, Holmesdale Road, Reigate, and gained a Botanical Commendation. We understand that the plant is of easy culture, and flowers early in spring under cool treatment. The thanks of the committee were voted to the first-named exhibitor, and for the Cœlogyne.

Fruit Committee.—H. Webb, Esq., in the chair. Dr. Hooker, Pres. R.S., the Royal Gardens, Kew, sent a gigantic specimen (weighing over 15 lb.) of the Sweet Potato, Convolvulus Batatas, or Batatas edulis, received from Madeira. Mr. Pottle, gr. to Sir Richard Wallace, Bart., Ludborne Hall, Suffolk, showed specimens of a very peculiar Cabbage—in fact, a combination between a Cabbage and a Broccoli. They are planted in November with Collards, and come into use now as Cabbage, while further on in the spring they sprout out, and assume the character of a sprouting Broccoli. The crop at the present time was said to be worth three times the value of the Collards, and their delicious flavour had been well attested. The committee requested to see it again after sprouting before granting it a certificate. John Webb, Esq., Cannes, France, sent specimens of the Mandarin Orange; and from Mr. J. Sherratt, Knypersley Nursery, Congleton, came a branch of the Kumquat (Citrus japonica), with fifty-six fruits on it, proving most conclusively its great decorative value. Mr. H. Scammell, gr. to C. Reily, Esq., The Priory, Newill Park, Tunbridge Wells, showed two Smooth Cayennes and one Ripley Queen Pine, not so large as many which have been shown here, but commended on account of the peculiar circumstances under which they had been grown.

The Villa Garden.

To a great extent gardening operations in the open air have been suspended during the past and present trying weather. Snow, frost, and slush succeed each other with so much rapidity that the gardener is practically excluded from his garden. He cannot dig or sow, nor attend to his wall trees or prune pyramids and standards, if this important work has not already been done. It will be best not to attempt to prune his Roses for the present, and he cannot do better meanwhile than turn back to his *Gardeners' Chronicle* of three or four weeks ago, and study carefully the principles laid down in respect to this matter. The necessary work of putting in order creepers and climbers (among them Roses), growing on pillars, trellises, and against walls, necessitates that the thinning out of these Roses should be performed speedily, in order to get this work out of hand by the time that the full flood-tide of a vigorous plant life bursts upon us, as soon as—

"Coy spring,
With sudden passion languishing,
Maketh all things softy smile,
Painteth pictures mile on mile."

Climbing Roses.—As climbing Roses are so generally and usefully employed as decorative agents on trellises, pillars, &c., a few simple rules may be laid down for pruning them at this season of the year. The Crimson Boursault is bright in colour, vigorous in growth, and profuse in bloom—is one of the most common of pillar or wall Roses, and perhaps nothing can be more attractive than its immense clusters of deep purplish-crimson semi-double flowers. In the matter of winter pruning, the Boursault Rose requires that the shoots be well thinned out, leaving the most vigorous, and shortening them back but sparingly. Thus the strong shoots thrown up from the base of the plants should be carefully laid in from time to time, to take the place of older wood that it may be advisable to cut out when it has grown too coarse and old to fill a circumscribed space. The Ayrshire Roses, and especially Dundee Rambler, and Ruga, are excellent trellis and wall Roses; the last flowers early, and with wonderful profusion. This race of Roses has been appropriately named "Running Roses," their growth being slender and very rapid. They are particularly recommended for planting against old trees or pillars rather than against walls, unless there is a trellis for them to attach themselves to; else so much labour is requisite in nailing. The two named are well adapted for planting in north aspects—a fact well worth bearing in mind; for in many odd corners in Villa Gardens Roses of this character would be well employed. Ruga is especially hardy, if any one of the section may be said to be hardier than another. We have it growing as a pillar Rose in another aspect, where a gleam of sunshine never falls, and where the cold winds play wantonly when they come, as they do now, with cutting force from the north and north-east. Shoots are already bursting forth, the inclement weather notwithstanding. They, too, should be thinned out judiciously, not cut back. The Evergreen Roses, as they are termed, because they maintain their dark green shining foliage through a great part of the winter, and especially the charming Félicité Perpétuel, with its small but beautiful and full creamy-white blossoms, are also much used as summer decorative climbing and rambling plants. The variety named is very hardy, flourishing in almost any soil, and flowering with great profusion. This, as well as other climbing Roses, when they come to be well established, make strong heads, and they, if the position is at all favourable, should be allowed to develope their growth into a liberal negligence, as, for instance, by covering archways, mounds, or pillars with weeping heads. They ought not, in justice to their free-growing and flowering qualities, to be so planted as that it will be necessary to constantly apply the knife to keep them within bounds. That is downright cruelty. Any one with a knowledge of these Roses will have remarked that they always show a tendency to form dense drooping heads; hence they have come to be known as Weeping Roses. In the case of the delicious *abandon* which frequently characterises an old-fashioned country garden, these summer-blooming climbing Roses can be met with having huge pendent heads, and such a wealth of bloom that here it may be said—

"Nature sheds all her beauty lavishly,
From her redundant horn."

The tendency of a good deal of modern gardening is to keep everything spick and span, and within duly regulated bounds, by cutting, pruning, and clipping, and a bloom of Etiénne Levet, Victor Verdier, or La France, taken from a standard Rose, is thought to outweigh a cartload of clustering blossoms taken from a climbing Rose of the Félicité Perpétuel type. In pruning the evergreen Roses the heads should be well thinned out, a few of the most pendent shoots being left their whole length (in all cases where they can be allowed to ramble), and these shoots will flower to their very points when the great awakening comes a very few weeks hence, giving the tree the appearance of a half globular mass of ravishing blossoms.

Planting.—If not already done, let it be proceeded with at once. It is now as good a time of year as any for planting out climbing Roses; as a rule they come from the nurseries in pots, which is all to the advantage of the planter, as the roots do not thereby become dry from exposure. Let a hole be dug out, removing a good quantity of the soil if it be of a cold, clayey, and tenacious character, and replacing it with some good loam of a turfy character, and with this mix some leaf soil and well decomposed manure; there is nothing so well suited for this

purpose as that from an old Cucumber bed. The soil should be rather dry in preference to being moist and sticky. Then turn the plants out of the pot, carefully unwind the roots, spread them out regularly, and cover them with some of the finest soil; lift the plant gently up and down, not sufficiently to drag the roots from the soil, but just enough to allow of its shaking down about them. Then place on them more soil till the hole is filled up, treading it in firmly at the top. If Roses have good fibrous roots they will root into the soil, and establish themselves quickly.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
For the Week ending Wednesday, March 3, 1875.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 28 Years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Week.	Temperature of the Air. Departure of Mean from Average of 60 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
Feb.	In.	In.	°	°	°	°	°	°			In
25	29.28	—0.53	42.7	31.9	10.8	35.2	— 4.3	33.4	93	S.S.W. S.S.E.	0.05
26	29.35	—0.46	45.8	34.2	11.6	38.3	— 1.4	36.7	94	E. E.S.E.	0.01
27	29.46	—0.34	38.7	32.0	6.7	33.6	— 6.3	31.1	90	E.N.E.	0.00
28	29.57	—0.24	33.5	29.2	4.3	31.2	— 8.9	28.1	90	N.E.	0.00
Mar											
1	29.58	—0.25	33.1	30.3	2.8	31.4	— 8.0	29.0	90	N.N.E.	0.02
2	29.62	—0.22	33.5	29.9	3.6	31.3	— 9.1	28.2	87	N.N.E.	0.06
3	29.68	—0.19	36.1	32.0	4.1	33.5	— 7.0	29.5	85	E.N.E.	0.00

Feb. 25.—Overcast, dull, and snow in morning. Overcast, brisk wind in afternoon. Clear at night.
— 26.—Overcast, dull, mild, and brisk wind in morning and afternoon, but clearer at night.
— 27.—Overcast, dull, and cold throughout.
— 28.—Overcast, dull, cold, and slight snow throughout.
Mar. 1.—Overcast, dull, very cold, and slight snow throughout.
— 2.—Overcast, dull, very cold, and slight snow in morning and afternoon. Cloudy at night.
— 3.—Overcast, dull, cold, and strong wind in morning and afternoon. Clear at night.

—— In the vicinity of the metropolis the reading of the barometer at the level of the sea increased from 30.07 inches at the beginning of the week to 30.16 inches by the evening of the 21st. A rapid decrease then set in, and by the afternoon of the 24th 29.31 inches was recorded; an increase followed, and by the morning of the 26th 29.56 inches was reached; then decreased to 29.51 inches by the evening of the same day, and increased to 29.71 inches by the end of the week. The mean reading for the week was 29.72 inches, being 0.48 inch less than that of the preceding week.

The highest temperatures of the air at 4 feet above the ground ranged from 45⅝° on the 26th to 36° on the 24th, with a mean for the week of 40°. The lowest temperatures of the air varied between 34¼° on the 26th and 26½° on the 24th, the mean for the week being 30¼°. The mean daily range of temperature in the week was 9⅞°, the greatest range being on the 26th, 11⅛°, and the least on the 27th, 6⅜°. The mean daily temperatures of the air, and the departures in defect of their respective averages were as follows:—21st, 33°.6, 5°.4; 22d, 34°.2, 4°.9; 23d, 32°.2, 7°; 24th, 30°.8, 8°.5; 25th, 35°.2, 4°.3; 26th, 38°.3, 1°.4; and 27th, 33°.6, 6°.3. The mean temperature for the week was 34°, being 5°.4 below the average value, as deduced from sixty years' observations.

The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in the sun's rays, were 104° and 102¾° on the 21st and 23d, but on the 24th the highest recorded by this instrument was 40°. The lowest readings of a thermometer placed on grass with its bulb fully exposed to the sky were 25° and 24½° on the 23d and 24th, but on the 27th, 31½° was the lowest reading. The mean for the seven low readings was 28¼°.

The direction of the wind was generally E.N.E., and its strength brisk.

The weather during the first three days of the week was fine, bright, but cold, and on the last four dull, cold, and the sky overcast throughout, with snow on the 24th and 25th.

Rain or snow fell on four days in the week; the amount of melted snow and rain was a quarter of an inch.

In England the extreme high temperatures observed by day ranged between 53° at Sunderland and 39° at Newcastle-on-Tyne, the general average all over the country being 42¼°. The extreme low temperatures observed by night varied from 30° at Leeds, to 21¾° at Portsmouth, the general average being 28° nearly. The mean of the extreme ranges of temperature in the week was 14½°, ranging from 24° at Sunderland, to 10° at Newcastle-on-Tyne. The mean high day temperatures ranged from 41¼° at Sunderland to 36° at Wolverhampton and Norwich, with an average value of 38°. The mean low night temperatures varied from 33° at Sunderland to 25¼° at Portsmouth, with a general average of 30¾°. The mean daily range of temperature in the week was 7¼°, varying from 10½° at Nottingham to 4¾° at Leeds. The mean temperature for the week was 33¾°, being 7½° lower than the value for the corresponding week in 1874; the highest was 36¾°, at Sunderland, and the lowest 32°, at Norwich and Wolverhampton. Rain or melted snow was measured at each of the above stations, the amounts varying from 1½ inch at Portsmouth to one-hundredth of an inch at Manchester, the average amount over the country being half an inch.

The weather during the week was dull, cold, and the sky generally cloudy.

Snow fell generally over the country on the 21st, 24th, 25th, and 27th.

In Scotland the extreme high day temperatures varied from 44° at Edinburgh to 40° at Greenock, the extreme low night temperatures ranged from 31° at Leith to 24° at Perth, their averages being 41½° and 28° respectively. The extreme range of temperature in the week was 13½°. The mean temperature for the week was 35°, being 6° lower than the value for the corresponding week in 1874, and 1½° higher than that of England, the highest occurred at Edinburgh and Leith, 35½°, and the lowest at Perth, 34½°. Rain or melted snow was measured to the amount of six-tenths of an inch at Dundee and Leith, but at Glasgow one-tenth only was recorded; at Greenock and Paisley no rain fell; the average amount over the country was three-tenths of an inch.

At Dublin the highest temperature was 45½°, the lowest 27°, the mean 36°, and the amount of rain or melted snow 1.50 inch.

JAMES GLAISHER.

Garden Operations.

(For the Ensuing Fortnight.)

[The subjoined directions are intended to supply general information, and must, of course, be adapted to the peculiar circumstances of each locality. Other departments of the garden will be treated on from week to week in succession, according to the requirements of the season. Special directions for the management of "The Villa Garden" will be found in the preceding columns.]

PLANT HOUSES.

Plant Stove.—If there are not separate houses for growing the stove plants that will bear the full sun, apart from those that need shade, these latter should be placed at one end of the house. The shading material should now be got ready, as it sometimes happens that the early March sun does harm when the plants needing shade are left without it. Where the stove is a good light house, and the plants are in a strong healthy state, close to the glass and with plenty of roots, the night temperature may be increased to 70° or 75°, with 80° or 85° by day on bright days—5° more will do no harm. Now, whilst the external air is so cold and ungenial, I would rather let the temperature get up to the highest point named than admit air on days when there are cold cutting winds. The fires should be stopped in time in the mornings so as to keep the houses at the requisite temperature without any necessity for much air-giving.

Allamandas, Bougainvilleas, Clerodendrons, and all similar quick-growing plants that were started some weeks ago will now be pushing fast, and where it is thought advisable to increase the stock the present is a good time to set about it. Take shoots about 6 or 8 inches long off with a heel, put them in small pots well drained and two-thirds filled with good peat, to which has been added a sixth of sand, filled up with sand alone. If the cuttings are not put singly in the pots they must not remain long after they are rooted before they are potted off, or the roots will get matted. Cuttings for early blooming of the useful *Euphorbia jacquiniæflora* should now be put in; when the plants that flowered first have pushed shoots, say 6 inches long, they must be taken off with a heel, or not many will strike. The old plants that have done blooming may be cut down to within 3 or 4 inches of the pots, and put where they will be kept close, when they have broken they can be shaken out and repotted. *Epiphyllums* that have done blooming, and are beginning to grow, should, if they need it, at once be potted, but it is well to remember that they do not like over-much pot-room—more particularly grafted plants. It is good practice to keep up a stock of young plants of such things as *Ixoras, Gardenias, Rondeletias, Aphelandras,* and others of similar nature; they will strike now better than at any other time, and will make nice plants by autumn if kept growing on. When their propagation is left till later in the spring they do not root so easily, and the season is also half over before they get to growing freely. The cuttings should be taken off with a heel with a sharp knife that will make a clean cut, being very careful not to bruise the bark, as it makes them much more liable to decay.

Sarracenias.—These popular plants will bear a wide range of temperature. *S. purpurea* will live out in the open air, but so treated never exemplifies its character. The different varieties of *S. flava* and *S. Drummondii* frequently live for years struggling for existence on the shelves of very hot stoves, but this opposite extreme is equally as unsatisfactory for these as the outdoor treatment is for the other species. All the varieties will grow in a way that leaves nothing to be desired in a winter temperature of 48° to 50°, with a rise of 15° or 20°, according to the weather, in summer, placed as nearly up to the glass as possible, to impart strength to them. They may now be potted, first getting all the old soil away, as far as can be, without injuring the roots: use chopped sphagnum and fibrous peat in equal parts, with a little silver sand and a good sprinkling of broken crocks; give them a fair amount of water at the roots.

As a decorative subject, where there is room for it, *Medinilla magnifica* is a fine plant; a nice intermediate-house temperature of, say 50° at night, will suit it now: if subjected to too much heat it is liable to throw many of its flowers off. It does not like over-much moisture in the atmosphere, as many stove plants. *Aristolochias* should be grown by lovers of curious flowers. They do not need much care, and are rapid in growth. They will be in a nice flowering state in twelve months from the time the cuttings are struck. Cuttings put in now will root in a few weeks, when they should be potted on, using good loam, and sand enough to keep the soil porous, as they need a good supply of water. Plants in small pots should have a shift; give them 6 or 8 inches more room. Syringe every day, as they are liable to red-spider if kept too dry overhead. They show themselves well run on the roof, particularly over a path, or they can be put at once on a trellis, training the shoots round; but if so treated, the points must be kept higher than the rest of the plant, to keep them from stopping and breaking out afresh.

Ferns.—Attend at once to the potting of all that need it; if left till the young fronds are pushing they are liable to receive a check that may make them come deformed or crippled. The size of pot given will be regulated in some measure by the size the plants are desired to attain. Where they are wanted as large as can be of their respective kinds, then it will be necessary to give them as much root-room as they require; if it is desirable to keep them restricted in size, this can be managed by growing them in comparatively small pots. A very humid atmosphere will grow the plants with very little root-room, but it has the disadvantage of rendering them so soft that they are almost useless for cutting, and an easy prey to insects. The best soil for Ferns in general is good peat with a little sand, and about a seventh of crocks, coal cinders, or charcoal, broken small.

Heaths.—Be very careful not to give any side air during the time of the cutting winds we generally get during March. Serious harm is often done even in a few hours, the leaves turning a bronzy red shade, and never afterwards recovering their proper colour: thereby very much injuring the plants in appearance, and also weakening them, such foliage seeming to lose the power of performing its natural functions. During such weather abundance of air must be given at the roof ventilators. Any plants that are likely to suffer for want of root-room had better receive a shift now than after blooming, although the autumn is in many cases preferable to any other season for potting these plants. All the species, but especially the spring bloomers, the flowers of which will be now fast developing, will begin to require more water, consequent upon this, as also by reason of their roots commencing to work.

Soft-wooded Greenhouse Plants.—The latest batch of spring-flowering bulbs should at once be placed where they will receive sufficient light to prevent their leaves becoming drawn and weakly. *Cinerarias.*—The plants that are the latest in throwing up bloom should now be removed into the retarding house; this has the double advantage of preserving their leaves from the sun, which they much dislike, and retarding their flowers, so useful on account of their colour, much later than is possible by any other means. As these plants delight in a still moist atmosphere, it will be well if they can stand at some distance away from the front lights, and if on a moisture-holding surface it will be much better than dry shelves. *Pelargoniums* will now begin to need a little more water, through the soil becoming filled with roots and the increased leaf-growth, the latter of which will suffer if they are allowed to get too dry. *Fuchsias,* both last year's struck plants and older ones, should be kept in a nice growing temperature of about 50° in the night. *T. Baines, Southgate, N.*

FRUIT HOUSES.

Vines.—Late *Grapes* of all kinds require a long growing season to ripen them thoroughly. If they

are not fully ripe by the end of September they will not keep well, no matter how favourable the weather, or how assiduous the attention given to airing and firing; so that it is of the utmost importance that all late vineries be put into working order as soon as possible by washing the woodwork, dressing the Vines, and removing the loose surface-soil from the border, and adding new thereto. As a general rule, all houses should be started by the end of this month. Planting time is at hand, and to those intending to plant late kinds I would recommend *Gros Colman*, as next to *Lady Downe's*, I consider this the best late Grape out, only, like that variety, it must have a long season and strong heat, or it will be good in appearance only. Lady Downe's is about the best maligned Grape we have, but for all purposes still the best. Its liability to scald, which has gained it such a bad character, is preventible by simply airing freely the moment the first berry is seen to change colour, so that those who have discarded it on this account (as I am told some have) cannot have exercised a large amount of skill in its culture.

The weather is most unfavourable for early forcing—no sun, cold north-east winds, and snow or rain daily. Outside borders should therefore be covered up, and the fermenting material renewed as required, for if allowed to decline the worst results may be expected. Keep up a good supply of moisture in the early houses, and occasionally sprinkle a little guano in the evaporating pans, the ammonia arising from this generates an atmosphere at once genial to the Vines and ungenial to insect life. I am somewhat sceptical as to the merits of sulphur, so generally used, both as a remedy and a preventive for red-spider, having proved quite to my own satisfaction that its use will not prevent an attack of spider, nor yet kill it, unless applied to a surface so hot that the fumes arising therefrom greatly injure the Vines and fruit at the same time, so that I prefer the disease to the remedy. When spider is first discovered there is no better remedy, tedious though it is, than to have the affected leaves carefully sponged with clean water; also examine the border, and if at all dry give a good watering, and keep the atmosphere charged with ammonia by any of the means at command.

Vines in flower will set best when the air-moisture is not in excess; at this stage an over-moist or arid atmosphere should be equally avoided, and the ventilators opened on all occasions when the outside air permits, closing up early with sun-heat, not merely to economise fuel, but because it is better for the Vines. Rub the hand gently down the bunches of shy-setting kinds, or shake the rods two or three times a-day when in flower; this distributes the pollen, and so aids fertilisation. If the Vines are in good health, this process will insure a "good set," either in a high or low temperature, by which I mean any temperature between 55° and 85°.

Fruiting Vines in pots must sustain no check through dryness or want of food. They will take almost any amount of nourishment in the way of liquid manure, particularly if the roots are confined to the pot. When convenient, it is a capital plan to stand the pots on a bed of rotten dung, and allow the roots that find their way through the bottom of the pot to ramify in it. Vine eyes, put in as directed in a former Calendar, will now be rooted; as soon as the roots reach the sides of the pots shift them into 6-inch pots, and stand them on shelves or slabs, immediately over hot-water pipes, in preference to plunging in bottom-heat. Ply the syringe well amongst them, and pinch out all lateral growths as produced, unless they are intended for planting out this season; then of course all growth should be left intact. *W. Wildsmith, Heckfield.*

Cucumbers.—The condition of the weather must necessarily form a constant subject for the Calendar writer to build his advice on, hence the necessity for continually reverting to it, and bringing it under the notice of the cultivator, as the pivot on which many of his operations turn. The weather is now (February 22) quite winterly, frost and snow, with bitterly cold winds prevailing, rendering a little extra firing necessary to maintain the night temperatures, which must not now fall below 68°. The top-heat water valves are turned off, too, in bright weather for an hour or two at mid-day, to neutralise the sun's power, and thus avoid the evils attendant on great and sudden disparities in the temperature. It is the reverse of good practice to stop the young growths over-much through the winter, but now that the plants are growing apace the finger and thumb may be a little more active in that particular at one or two joints above the fruit. Always keep lime and flowers of sulphur in hand; the former, freshly slaked and pressed well into the affected parts, is a certain remedy for canker at the collar, and the latter is the best known antidote to red-spider. Fresh sowings must be made to meet the requirements of individual establishments. Now is the time to make up hotbeds for pits and frames, after the materials of fermentation have been thoroughly incorporated and well prepared by repeated turnings. For frames choose a good sheltered situation, and employ a good thick layer of wood faggots for the foundation. Take care to provide a bed large enough—it should be quite 20 inches wider than the frame on all sides, and built up nearly, or quite, 4 feet above the faggots, treading it fairly down in the operation, when the frame may be placed on and filled up with the same compost to within 9 inches of the top; the exterior should be quite covered. Thrust a couple of test-sticks in the frame, and when the heat is rising lay a covering of turf, grass side downwards, over the entire surface of the dung, and put about a bushel of soil in each light, raised in a hillock, to start the plants in. Don't be in too much hurry about planting out; when it is found the bottom-heat will not exceed 85° to 88° will be the time. *Thos. Simpson.*

Figs.—The earliest Figs forced in pots will now swell their fruit best by having occasionally some liquid manure given them. The night temperature may still range from 60° to 65°, and as the solar heat increases the day temperature may range from 75° to 80° at shutting up time. Syringing the trees twice a day must not be neglected, to keep red-spider down, as well as to keep the degree of moisture requisite in the atmosphere of the house in sunny weather. The Fig trees which are permanently planted out will now be making rapid growth, if forcing was commenced as advised last month. Remove all the overcrowded shoots, and stop those intended to make well developed spurs for the second crop. This thinning and stopping the shoots, is highly necessary in growing Figs well, for it makes the trees more fertile, and gives more light and air to the swelling or ripening fruit. When the borders are watered, if some good guano is mixed in the water now and then it will soon show its effects by making the foliage look healthy and vigorous—but the quantity must only be a couple of handfuls in a large pan of water. *William Tillery, Welbeck.*

HARDY FRUIT GARDEN.

The continued prevalence of cold winds from the north-east, accompanied by occasional snowstorms and frost, has so far proved beneficial by retarding the expansion of flower-buds on the early blooming fruit trees, that during the last ten days little progress has been made. This has afforded time for completing the pruning of fruit trees generally, which, from a pressure of other work, is too often neglected until the rapid advance of the season renders it imperative that it should be finished offhand. With a change to milder weather *Apricots* may be expected to be in full flower in a few days. These must be attended to as to covering in due time, or one night may destroy all hopes of a crop of fruit for this season. *Peaches* and *Nectarines* are also prominent in bud, and washing and nailing-in should be followed up as soon as a genial change in the weather will admit of some progress being made with the work; but with the weather so extremely cold as at present, nailing or tying-in trees on the open walls is a waste of time which may be more usefully employed in work requiring more active exercise or bodily exertion.

Figs which have during the winter been covered up should be uncovered in a mild day. Pruning is better deferred until the germs of the fruit are visible, so that the least fruitful shoots may be removed. To insure good crops of this delicious fruit, excessive pruning should be avoided, only the stronger or unripened shoots being taken out; and this should be done as far as practicable during the summer, so as to insure a regular and even supply of short-jointed, well-ripened shoots. These, except when required for filling in a vacant space on the wall, may be allowed to grow from the wall to the extent of 9 inches to 1 foot. The winter pruning will only be to moderately thin these, so as to admit a sufficiency of light, and by judicious stopping the points of those bearing fruit, short-jointed fruitful wood will result, while the fruit, having the advantage of more light and air, are more completely matured than when buried under a mass of leaves. Where it is absolutely necessary to make new plantations of *Strawberries* at this season, ground should be prepared by well trenching and manuring if necessary. If good and well-rooted runners of last season are at command, it is better to defer planting until growth commences, and then left with a ball of earth to each, so that no check may occur. Older plantations, treated as before recommended, may now be cleaned over, and the ground raked down. *W. Cox, Madresfield Court.*

KITCHEN GARDEN.

A prolonged continuance of frost and snow will necessarily considerably delay many operations in this department this season, and will materially swell the number of other matters which usually require attention under favourable conditions at this somewhat busy period. These considerations should enforce the execution of all preparatory work which can be done, such as having a plentiful supply of Pea-sticks, stakes, &c., in readiness for forthcoming wants. Store roots should be looked over also, and, if not already done, *Potatos* sets should be laid out singly in a place where frost is merely excluded, which is cool and moist; here the tubers will keep firm, and make but little growth, which will be of a sturdy nature. The aim at most places is to obtain a supply of new Potatos from the open ground at the earliest period possible; for this object a breadth of early kinds, as Ashleaf Kidney, Mona's Pride, or similar sorts, should be planted when the soil is in a fit state for it. Choose a south border or some other sheltered situation for this purpose. A single row planted at the base of a south wall where protection is afforded the trees, will advance the time of lifting by ten days or a fortnight. In gardens which are situated in low damp positions, where frost operates speedily, it will be found an advantage to make all preliminary preparations beforehand, and to defer planting the main crop until about April 20, when the matter should be despatched offhand quickly; by so doing the injurious effects of frost are avoided and the best results obtained. In ordinary kitchen gardens space is not generally available for late crops of Potatos, neither is it desirable to grow these in such places, because the soil is too much enriched for that purpose; but it is most suitable for early sorts and choice kinds, amongst which may be enumerated Rivers' Ashleaf Kidney, Mona's Pride, Myatt's Prolific, and Premier. It will require perfection in new varieties to surpass such sterling sorts as these. Climax, Early Handsworth, and Coldstream are good round sorts. In planting we use whole sets, which are placed 1 foot apart in the rows, which are 3 feet asunder. Between these are planted, when ready, the earliest plants of the best kinds of winter stuff. Where the soil is not heavy and no snow remains, *Asparagus beds* should be lightly forked over, and the alleys prepared for *Cauliflower* plants. These plants will have become tolerably hardy this season, still it will be advisable to defer planting them out for another fortnight. When the requisite quantity of Asparagus roots are taken up for forcing, the extent of that destroyed should be ascertained, and a corresponding quantity of roots should be planted annually. We plant these as soon as the tops of the seedlings are visible. The space which is to be applied for different crops should be settled at once, so that all matters can, under suitable conditions, be proceeded with systematically.

Forcing Department.—Where permanent planted beds of *Asparagus* are not forced, another lot of roots will be necessary to maintain the supply. *Seakale* will now advance rapidly with but little heat; when the Kale is cut remove the pots to fresh crowns, and cover as before. This excellent vegetable is not so much esteemed when Asparagus is to be had, but to obtain late supplies of it in good condition it should be covered now. When portions of the root are used to form plants, these should be cut into lengths from 4 to 6 inches long, and laid in moderately dry soil for planting. *G. T. Miles, Wycombe Abbey.*

Variorum.

Bath and West of England Society.—At the Croydon meeting of this Society for the Encouragement of Agriculture, Arts, Manufactures, and Commerce, to be held from Monday, May 31, to Friday, June 4, it is proposed to hold a flower show, of which Orchids are to constitute the principal feature. The Hon. and Rev. J. T. Boscawen is the steward of the department, and has issued the following circular:—

"In requesting your assistance for the horticultural exhibition at the forthcoming meeting at Croydon by the loan of plants, &c., the steward of that department begs to state that, in order to obviate the objections so often made against the system of exhibiting plants in competition for money prizes, it has been determined to give sums of money, in proportion to the importance and value of the plants exhibited, as gratuities to exhibitors' gardeners, and also to enable them to pay the expenses of transit, &c.

"Exhibitors are requested to forward to the steward, before May 10, a description of the plants proposed to be shown, and the name of the gardener who will be in charge.

"All plants must be staged in their allotted places on Saturday, May 29, or not later than 10 A.M. on Monday, May 31.

"Plants may be changed during the exhibition, but must not be removed between the hours of 10 A.M. and 6 P.M. on any day except the last, when they may be removed at 6 P.M.

"Gardeners are expected to water and attend to their own plants. If they are unable to do so, the steward will direct his foreman to attend to them.

"N.B.—The tent in which the plants will be exhibited is closed with glass ends, and well ventilated, so as to afford perfect security to the most delicate flowers.

"Any further information may be obtained on application to the steward, the Hon. and Rev. J. T. Boscawen, Lamorran, Probus, Cornwall."

Soils and Subsoils.—The soils upon which the agriculturist has to operate are usually classified as sandy, sandy or light loams, loams, clayey loams, heavy or retentive clays, marls, calcareous loams, peaty soils, or bog earths. This classification has reference chiefly to composition and texture, a special

chemical composition (siliceous, calcareous, &c.) being necessary for the profitable growth of particular crops, and a certain mechanical texture (friable, porous, &c.) suiting best for the permeation of rain and air, and the descent or spreading of special roots and rootlets. Loams, consisting of fertile admixtures of sand, clay, and humus or decayed vegetable matter, may be regarded as typical soils, which become, on the one hand, light, by a preponderance of sand; and, on the other, heavy, by a preponderance of clay. But, whatever their composition and texture, these soils, geologically speaking, are mainly of two sorts—soils of disintegration, arising from the waste and decay of the immediately underlying rocks, together with a certain admixture of vegetable and animal *débris;* and soils of transport, whose ingredients have been brought from a distance, and have no geological connection with the rocks on which they rest. Under the former are comprehended such as arise from the disintegration of limestones, chalks, traps, granites, and the like, and which are directly influenced in their composition, texture, and drainage, by the nature of the subjacent rocks from which they are derived. Under the latter are embraced all drift and alluvial materials, such as sand, shingly *débris*, miscellaneous silt and clay, which have been worn from other rocks by meteoric agencies, and transported to their existing positions by wind, water, or ancient glacial agencies. Besides these there are also soils, of organic origin, such as peat earths, and vegetable mould or humus, which is to a great extent also of animal origin or elaboration. Indeed, in all superficial soils there is a certain amount of vegetable and animal matter—the decay of plants, the droppings of animals, the exuviæ of insects, the casts of the earthworm, and the like, conferring upon them that dark, friable, and loamy character so indicative of richness and fertility. *From Page's "Geology in its Relations to the Arts and Manufactures."*

SHELTON OAK.—The dimensions of this famous old tree are thus stated in *Leighton's Guide, Descriptive and Historical, through the Town of Shrewsbury*, a useful little book, which has been out of print for some years:—Girth at bottom, close to the ground, 44 feet 3 inches; do., 5 feet from the ground, 25 feet 1 inch; do., 8 feet from the ground, 27 feet 4 inches. Height to the top of the main trunk, or principal bough, 41 feet 6 inches. *Proud Salopian in "Eddowes' Shrewsbury Journal."*

THE TAP-ROOTS OF TURNIPS.—It may be interesting to some of your readers to know how far the tap-roots of Turnips will enter the ground in search of food. On one of Lord Henniker's farms in this parish, and in the occupation of Mr. Cracknell—one of the best farms in the county—several Turnips were pulled up this season with tap-roots from 4 ft. to 5 ft. in length. This is good testimony of what deep draining and deep cultivation will do for this and other root crops. If Mr. C. could induce his Turnips to grow as far out of the ground as they grow into it, his stock might "stand" and "eat at ease," and probably the tops would be worth as much as the bottoms. But farmers generally, I believe, like small tops to their Turnips. The fashion often changes in bonnets, and why should we not have a change in Turnip tops? *Jno. Perkins, Thornham, Suffolk, in the "Field."*

Enquiries.

He that questioneth much shall learn much.—BACON.

[MANY enquiries which reach us would be more suitably answered by those of our correspondents whose experience or requirements are, or have been, similar to those of the questioner. These we propose, in future, to gather together for facility of reference; and as fellow feeling makes us wondrous kind, so we would fain hope that this enquiry column may serve as a bond of sympathy and good-will between our correspondents and readers, and be the means of eliciting much valuable information. EDS.]

40. DRIMYS WINTERI.—Some years ago this tree was to be found at Abbotsbury, Dorsetshire, the gardener there having kindly sent me specimens. Perhaps, if this note should catch his eye, he or his successor would kindly communicate with you to say if it be still there or not. *G., Bath.*

41. CHURCHYARD PLANT.—In the *Family Topographer*, vol. i., p. 175, is the following curious statement:—"In Woking churchyard grows a kind of plant about the thickness of a Bulrush, with a top like Asparagus shooting up nearly to the surface of the earth, above which it never appears, and when the corpse is quite consumed the plant dies away. This observation has been made in other churchyards when the soil is light red sand." Is there any such plant? if so, what is it? *R.*

Answers to Correspondents.

BASKET PLANTS: *H. W. C.* Convolvulus mauritanicus; some of the Tropæolums of the Lobbianum strain; Sedum carneum variegatum; Saxifraga sarmentosa; and the Ivy-leaved Pelargoniums, of which there are several very elegant varieties, are all good basket plants for a greenhouse temperature.

BOOKS: *C.* Mr. William Thomson's *Practical Treatise on the Grape Vine*, 7th edition (Blackwood & Sons).

COVENT GARDEN MEASURES: *S. W. P.* A half-sieve is one-third of a bushel. The wholesale dealers frequently call the half-bushel a half-sieve, but the growers do not. The bundles are made up as follows:—Turnips, 12; young spring do., 36; Broccoli, 6 to 18, according to size; Carrots, 12; young spring do., 36; Leeks, 12; Celery, 8 to 18, according to size.

MONSTERA: *H. W. C.* In your climate this would probably succeed as a greenhouse plant. It likes to be near to and to root into water. We do not suppose seeds are obtainable.

MOSS ON LAWNS: *J. Newton.* You will not succeed in getting rid of the moss until your lawn has been drained.

NAMES OF FRUIT: *W., Oxon.* We cannot identify it.

NAMES OF PLANTS: *R. H. G.* 1, Lastrea dilatata obtusa; 2, L. dilatata alta; 3, L. dilatata micromera.—*W., Oxon.* Cereus flagelliformis apparently, the old Azalea indica alba, and Selaginella cuspidata.—*G. D.* A dwarf form of Nephrodium molle corymbiferum; there are several similar forms, but without comparison we cannot say if they are identical.—*Filix-mas.* Have you not seen that six is our limit? 1, Polystichum capense; 2, Scolopendrium vulgare multifidum, a form of; 3, Cyrtomium Fortunei; 4, Adiantum Capillus-Veneris; 5, Asplenium lucidum (young), apparently; 6, Chellanthes hirta; 7, Lomaria nuda; 8, Scolopendrium vulgare laciniatum; 9, Didymochlæna lunulata.—*R. Potter.* Helleborus orientalis.—*B. W.* 1, Dalechampia Roezliana; 2, please send leaves.—*J. Marshall.* Salvia Heerii.

PEACHES: *W. Stevens.* The cause of the leaf-buds falling is due to some improper action of the roots—probably dryness, and assisted by too hard forcing.

RECREATION GROUND AT BIRMINGHAM: *T. Booth.* We cannot tell you what has been the result of the competition for laying out the "Recreation Ground" at Birmingham. You should apply to those to whom you sent the plans.

VINES: AERIAL ROOTS: *T. W. H.* Aërial roots are generally believed to be caused by the maintenance of a too moist atmosphere, or by the roots of the Vines being in a border too cold to allow of their growth being made at the same time and rate as the foliage; and probably sometimes by both causes combined.

WELLINGTONIAS: *No.* 8. We cannot say whether the Wellingtonia is poisonous to cattle, but we would recommend you to keep the fencing up, rather than cut the lower branches off.

☞ FOREIGN SUBSCRIBERS.—We are requested by the Publisher to desire Foreign Subscribers sending Post Office Orders, to be good enough to write to the Publisher at the same time.

CATALOGUES RECEIVED.—Hender & Sons (Bedford Nursery, Plymouth), Catalogue of Bedding Plants, Fruit Trees, Vegetable and Flower Seeds, &c.—Vilmorin, Andrieux & Co. (4, Quai de la Mégisserie, Paris), Catalogue of Trees, Shrubs, Conifers, &c.—Harrison & Son (Royal Midland Seed Warehouse, Leicester), List of Choice Seeds for the Garden and Farm.—E. G. Henderson & Son (Wellington Road, St. John's Wood, London), Illustrated Catalogue of Flower, Vegetable, and Agricultural Seeds.—J. Coombs (The Ferns, Enfield, Middlesex), Catalogue of Cuttings of Geraniums, &c.

COMMUNICATIONS RECEIVED.—O. T.—J. W.—R. T. C.—W. I.—J. G. B.—D. T. F.—A. E. R.—Ward & Co (please say in what part of the world the island is situated).—B. P.—J. S. T.—J. Morse.—R. T. C. (only a portion of your note received).

Markets.

COVENT GARDEN, *March* 4.

The markets generally are very quiet, and without sufficient alteration to merit any notice. Some new Potatos are to hand from Malta, and we expect some from Lisbon shortly. There is a very good supply of frame Ashleafs of good quality from the Channel Islands, varying from 6*d.* to 1*s.* 6*d.* per pound; many samples of the old are diseased. *Thos. Taylor, Wholesale Apple Market.*

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Azaleas, p. 12 sprays	0 6–	1 6	Lily-of-the-Valley, 12 sprays	2 0–	6 0
Camellias, 12 blooms	2 0–	6 0	Mignonette, 12 bun.	4 0–	6 0
Carnations, 12 blooms	2 0–	4 0	Narcissus, per doz...	1 0–	3 0
Cineraria, p. bunch..	0 9–	1 6	Pelargoniums, 12 spr.	1 0–	2 0
Cyclamen, 12 blooms	0 3–	0 6	— Zonal, do. ..	0 9–	1 6
Deutzia, per bunch..	0 6–	1 0	Primula, dbl., p. bun.	0 9–	1 6
Epiphyllums, 12 bl.	1 0–	2 0	— single, do. ..	0 4–	0 9
Eucharis, per doz. ..	6 0–12	0	Roses, indoor, p. doz.	2 0–	6 0
Euphorbia, 12 sprays	1 6–	6 0	— French, do. ..	2 0–	3 6
French Lilac, p. bun.	2 0–	5 0	Snowdrops, 12 bun.	1 6–	4 0
Heliotropes, 12 sprays	0 6–	1 0	Spiræa, 12 sprays ..	2 0–	4 0
Hyacinths, per spike	0 3–	0 6	Stephanotis, 12 sprays	9 0–15	0
— Roman, per 12 spikes	1 0–	4 0	Violets, per 12 bun...	1 0–	3 0

PLANTS IN POTS.

	s.	d.s.	d.		s.	d.	s.	d.
Azaleas, per dozen..	30	0–	90	Heaths, in var., doz.	12	0–	30	0
Begonias, do. ..	6	0–	12	Hyacinths, per doz.	4	0–	12	0
Bouvardias, do. ..	9	0–	18	Lily of the Valley, 12 sprays	3	0–	9	0
Cineraria, do. ..	9	0–	18	Mignonette, do. ..	4	0–	6	0
Cyperus, do... ..	6	0–	12	Myrtles .. do.	3	0–	9	0
Deutzias, do. ..	8	0–	18	Pelargoniums, dble., per doz.	6	0–	12	0
Dracæna terminalis	12	0–	30	— Scarlet, do. ..	6	0–	9	0
— viridis, per doz.	12	0–	24	Primula sinensis, do.	4	0–	8	0
Epiphyllums, each ..	1	6–	3	Solanums, do. ..	6	0–	18	0
Ficus elastica ..	1	6–	7					
Fuchsia, per doz. ..	6	0–	12					

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, per ½-sieve	2 0–	3 0	Nuts, Cob, p. lb.	1 6–	2 0
Chestnuts, per bush.	10 0–	20 0	Oranges, p. 100	8 0–12	0
Grapes, English, p.lb.	6 0–	12 0	Pears, p. doz.	4 0–12	0
Lemons, per 100	8 0–	12 0	Pine-apples, p. lb.	3 0–	6 0
Medlars, per doz. ..	....		Walnuts, p. bush.	16 0–	..

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, Fr., doz.	4 0–	..	Horse Radish, p. bun.	3 0–	5 0
Asparagus, English, per bundle ..	12 0–	15 0	Leeks, per bunch ..	0 2–	0 4
— French, p. bund.	2 0–	..	Lettuces, per doz. ..	1 6–	..
Beans, French, p. 100	6 0–	..	Mushrooms, per pott.	1 0–	2 0
Beet, per doz. ..	1 0–	2 0	Onions, young, bun.	0 4–	0 6
Broccoli, p. bundle ..	0 9–	1 6	Parsley, per bunch..	0 4–	0 6
Brus. Sprts., p. bush.	6 0–	..	Parsnips, p. doz. ..	0 9–	1 0
Cabbages, per doz. ..	1 0–	2 0	Peas, per quart ..	8 0–	..
Carrots, p. bundle ..	0 6–	0 9	Radishes, per bunch.	0 2–	0 4
Cauliflowers, per doz.	2 0–	6 0	— black, Turnip, do.	.. –	0 6
Celery, per bundle ..	1 6–	2 0	Seakale, per bundle	2 0–	3 0
Cucumbers, each ..	2 0–	4 0	Shallots, per lb. ..	0 3–	..
Endive, per doz. ..	1 0–	2 0	Salsify, per bundle ..	1 6–	..
Herbs, per bunch ..	0 2–	0 4	Turnips, per bundle.	0 6–	0 0

Potatos:—Early Shaws, 120s.; Early Myatt's 140s.; Early Regents, 120s.; and Early Dons, 120s. per ton.

SEEDS.

LONDON: *March* 3.—In consequence of the late wintry weather, there is now less doing in agricultural seeds. All grades of red Clover are nevertheless held with considerable firmness, stocks being by no means excessive. Alsikes continue neglected. For white Clover there has been an improved inquiry. In Trefoil seed the tendency of prices is upwards, a good quantity of this description having recently changed hands at occasionally enhanced currencies. A fair business has been doing in imported Italian and Scotch Rye-grasses. Spring Tares are in steady request at the decline noted last week. Of winter Vetches there are none offering. For Hemp and Canary seed the orders received are quite of a retail character. White Millet, as a substitute for the latter, meets with increased favour. Fine black Rape seed, being very scarce, readily obtains an advance of 1*s.* to 2*s.* per qr. Other articles, in the present comparatively quiet state of our market, offer no subject for remark. *John Shaw & Sons, Seed Merchants*, 37, *Mark Lane, E.C.*

CORN.

At Mark Lane on Monday business was slow in all departments, and the quotations for Wheat were not without difficulty maintained. Barley was less wanted, a few efforts to obtain more money for grinding produce were wholly unsuccessful. Malt was nominally unchanged. Oats were firm, and prices advanced about 6*d.* per qr. on the week. Maize was cheaper rather than otherwise. Beans and Peas realised late rates. The flour market was quiet, though firm for American barrels.—Wednesday's market was quiet, and no material change occurred in the value of Wheat. Barley was dull and weak, but Oats maintained their advance of Monday, while Maize, Beans, and Peas were equally as dear as on that day. Flour was rather inclined to recede.—Average prices for the week ending Feb. 27:—Wheat, 40*s.* 11*d.*; Barley, 42*s.* 11*d.*; Oats, 29*s.* 7*d.* For the corresponding week last year:—Wheat, 62*s.* 1*d.*; Barley, 49*s.* 3*d.*; Oats, 29*s.* 4*d.*

CATTLE.

At the Metropolitan Market on Monday trade was brisk for choicest quality beasts at about last Monday's quotations. In sheep only briskness was shown in the demand for choicest kinds: prices about the same as last Monday. There were very few calves on offer, and they were consequently dearer. Quotations:—Beasts, 3*s.* 8*d.* to 4*s.* 8*d.*, and 5*s.* 6*d.* to 6*s.* 4*d.*; calves, 5*s.* to 6*s.* 10*d.*; pigs, 4*s.* 4*d.* to 5*s.* 4*d.*; sheep, 5*s.* 6*d.* to and 5*s.* 10*d.*, and 6*s.* 4*d.* to 7*s.*—At Thursday's market trade in beasts was brisk for choicest qualities, at about Monday's quotations. In sheep trade was slow, except for high-class descriptions, at but little alteration in prices. Calves were perhaps dearer than on Monday.

HAY.

The report from Whitechapel is to the effect that the supply of fodder was short, and the better descriptions sold steadily on somewhat higher terms. Prime Clover made from 100*s.* to 120*s.*; inferior, 85*s.* to 95*s.*; prime meadow hay, 90*s.* to 112*s.*; inferior, 55*s.* to 75*s.*; and straw, 33*s.* to 40*s.* per load. Cumberland Market quotations:—Superior meadow hay, 114*s.* to 120*s.*; inferior, 90*s.* to 98*s.*; superior Clover, 118*s.* to 126*s.*; inferior, 95*s.* to 105*s.*; and straw, 40*s.* to 45*s.* per load.

POTATOS.

The Borough and Spitalfields markets report a moderate supply of Potatos on sale, and the trade as steady, at the subjoined quotations:—Regents, 75*s.* to 110*s.*; Victorias, 105*s.* to 135*s.*; flukes, 115*s.* to 145*s.*; rocks, 65*s.* to 70*s.* per ton. Last week's imports into London amounted to 1630 tons from Dunkirk; 376 tons from Rouen; 2479 bags from Antwerp; 260 from Boulogne; 5 bags from Hamburg.

COALS.

Business at market on Monday was active, but no change occurred in prices. On Wednesday there was an advance of 1*s.* per ton, the vessels to arrive having been detained by stormy weather. Quotations:—Bebside West Hartley, 21*s.* 9*d.*; Wall's End Lambton, 25*s.* 6*d.*; Wall's End Newbattle, 23*s.*; Wall's End East Hartlepool, 25*s.* 9*d.*; Wall's End Tees, 25*s.* 9*d.*

WANTED, as PROPAGATOR, a young rising Man, having a fair general knowledge.—State reference and wages require to CHARLES NOBLE, Bagshot.

WANTED, a steady, industrious MAN, who thoroughly understands the work of a Kitchen Garden and would make himself generally useful under a head gardener. Wages 20s. per week.—H. A., Post Office, Battle, Sussex.

WANTED, as NURSERY MANAGER and SALESMAN, an experienced Man. Must be a successful Grower of Rhododendrons, Roses, Conifers, &c., and have a general knowledge of the profession.—Apply, stating terms, &c., to WILLIAM IRELAND, Pilton Nurseries, Barnstaple, Devon.

WANTED, a good strong young MAN, accustomed to Nursery-work. Wages to commence at 18s. per week.—JOSEPH GREEN, The Nurseries, Garforth, near Leeds.

WANTED, an active MAN, used to the Market Trade. Must be quick at Potting and Tying. A permanancy, if suitable.—HENRY STROUD, Florist, Green Lanes, Stoke Newington, N.

WANTED, THREE young MEN as IMPROVERS, for the Glass Department. Wages 15s. per week.—State particulars to GEORGE COOPER, Rose Hill Nursery, Derby.

WANTED, two steady and industrious LADS, from 14 to 18 years of of age. Must have some knowledge of Rose Budding and Tying. Comfortable lodgings found.—Apply, by letter, stating wages required, to HENRY BENNETT, Manor Farm Nursery, Stapleford, Salisbury.

WANT PLACES.

To Gardeners in Want of Situations.

WHOSE CHARACTERS WILL BEAR STRICT INVESTIGATION.

THE PINE-APPLE NURSERY COMPANY devote special attention to this important matter—proper Men to suitable Situations. For a GARDENER, or for a SITUATION, please send full particulars to Mr. JOHN BESTER, the Pine-Apple Nursery Company, Maida Vale, London, W.

B. S. WILLIAMS, having at the present time several very excellent GARDENERS upon his Register, is desirous of placing them in Situations where great experience and trust are required. B. S. W. would at the same time beg to intimate that when a Gardener is applied for that the filling of the situation should be left with him, as that would prevent unnecessary correspondence and delay.—Victoria and Paradise Nurseries, Upper Holloway, London, N.

Head Gardeners.

JOHN LAING can at present recommend with every confidence several energetic and practical Men, of tested ability and first-rate character. Ladies and Gentlemen in WANT of GARDENERS and BAILIFFS, or GARDENERS for First-rate Establishments or Single-hand situations, can be suited, and have full particulars by applying at Stanstead Park and Rutland Park Nurseries, Forest Hill, London, S.E.

GARDENER (HEAD), where three or more are kept.—Age 40, married, one child (age 10); well up in all branches of the profession, can also undertake the Management of Land and Stock. Seventeen years in present place. Leaving through death.—J. W. LANGLANDS, King's Road, Clapham Park, Surrey, S.W.

GARDENER (HEAD), where one or two are kept.—Age 26, married, three children; understands the profession in all its branches. Three years' good character. —C. B., The Gardens, Brondesbury Park, Kilburn, N.W.

GARDENER (HEAD), where one or two are kept.—Age 27, married; understands Vines, Cucumbers, Melons, and Flower and Kitchen Gardening. Good character. —W. G., 1, Catherine Terrace, Holland Park Road, Kensington, W.

GARDENER (HEAD).—Age 30, single; thoroughly practical in all branches. No single-handed place accepted.—M. M., 81, Sunnyside Road, Hornsey Rise, London, N.

GARDENER (HEAD).—Age 39, married; thoroughly understands the profession in all its branches. Left last situation through death and change of hands. Good character. Seven years in last place.—A. B., Post Office, Grays, Essex.

GARDENER (HEAD).—Married, no incumbrance; has a thorough practical knowledge of the profession, Forcing of Fruits and Flowers. Excellent testimonials. —J. G., Messrs. Hugh Low & Co.'s Nurseries, Upper Clapton, London, E.

GARDENER (HEAD), age 38, married. — J. SPAVEN, four years and a half at the Royal Kitchen Garden, Hampton Court, S.W., offers his services to any Nobleman or Gentleman requiring a trustworthy and efficient servant. —8, Queen's Road, Teddington, S.W.

GARDENER (HEAD), age 35, married.—W. WINOSOR, for seven years Head Gardener to G. Miles, Esq., Llangattock Park, is open to engage with any Lady or Gentleman requiring the services of a really competent Man.—W. WINDSOR, Bonvilstone, Cardiff.

GARDENER (HEAD).—Age 38; has a thorough knowledge of the routine of Gardening. Eight and a-half years' good character. Wife no objection to the Management of Poultry.—P. B., Knockholt, near Sevenoaks, Kent.

GARDENER (HEAD), to any Nobleman or Gentleman requiring a thoroughly practical Man.—Age 40, married; has had upwards of twenty-five years' practical experience in some of the leading places in England and Scotland. Twelve years in last situation. Death of employer cause of leaving. First-class character from the family.—W. L., Sydenham Park Nursery, Sydenham, S.E.

GARDENER (HEAD), age 29, married.—A GENTLEMAN can highly recommend his late Gardener, who has a thorough knowledge of the profession in every branch. Has had fourteen years' experience in extensive Establishments under first-class practical Men. Excellent references from previous employers.—N. GERMAN, 70, Duke Street, Whitehaven.

GARDENER (HEAD), age 28, single.—JAMES WOODFIELD, Gardener, Osberton, can with confidence recommend his Foreman, George Ledger, to any Lady or Gentleman requiring the services of a good general Gardener. He has been twelve years in the profession in good Establishments, and is fully competent to undertake the Management of a good place.—Osberton Gardens, Worksop, Notts.

GARDENER.—ALFRED SQUIRES, ten years Gardener to J. L. and R. L. H. Phipps, Esqs., Leighton Park, Westbury, Wilts, is open to engage with any Nobleman or Gentleman requiring the services of a thoroughly practical Man. Well experienced in the Growth and Management of Orchids, Stove and Greenhouse Plants, the Early and Late Forcing of Grapes, Peaches, Melons, Cucumbers, &c.; is also a practical Kitchen Gardener, and accustomed to extensive Pleasure Grounds and Flower Gardens. Undeoiable character from the Gentleman he is now leaving.

GARDENER and GENERAL MANAGER. —D. BUCHANAN, seventeen years Gardener and General Manager to the late and present Capt. Trotter, Dyrham Park, Barnet, Herts, is now at liberty to engage with any Nobleman or Gentleman requiring the services of a first-class Man in the above capacity, or as Gardener only. Has had large experience in Breeding Stock, Designing and Erecting Buildings, Hot-water Work, Laying-out Grounds, &c. Is desirous of obtaining a place where first-class fruit is required. Character unexceptionable, and testimonials from several of the best men in England and Scotland. Would be glad to recommend an excellent young Man as Foreman in a good Garden.

GARDENER (HEAD). — Middle-aged, two children (away from home). Thirty years' experience in Gardening in all its branches. Can Superintend Land and Stock. Has been Head Gardener sixteen years. Can be highly recommended by late and previous employers. Wife can take Charge of House in absence of family. The suburbs of London preferred.—S. PERKINS, 2, Pelican Terrace, Newbury, Berks.

GARDENER (HEAD, WORKING), where one or two Assistants are kept.—Married, small family; understands Gardening in all its branches. Six and a-half years' good character from present employer. Total abstainer. —J. H., The Gardens, Kemnal, Chislehurst, Kent.

GARDENER (HEAD, WORKING).—Age 30; understands Forcing, Vines, Stove and Greenhouse Plants, and the general routine of Flower and Kitchen Gardening. Good references.—R. T., 10, Swain's Lane, Highgate, N.

GARDENER (HEAD, WORKING), age 41.—A GENTLEMAN wishes to obtain a situation for his late Gardener, whom he can with confidence recommend to any Lady or Gentleman as a thoroughly efficient Man in all departments.—J. G., 4, Zetland Road, Birkenhead.

GARDENER (HEAD, WORKING).—Age 33, married, four children; thoroughly practical in all branches, also the Laying-out of new Grounds and Management of Land and Stock. Over six years' first-class character.—E. C., 5, Johnson's Terrace, Bromley Common, Kent.

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GARDENER (HEAD, WORKING).—Age 26, married, one child; thoroughly experienced in all branches of the profession. Unexceptional good character from present and previous employers.—W. TOWNSEND, Holmbury Gardens, Wotton, Dorking, Surrey.

GARDENER (HEAD, WORKING).—Age 28, single; understands the Management of Vines, Peaches, Melons, Cucumbers, Stove and Greenhouse Plants, &c., under glass; also Flower, Fruit, and Kitchen Gardening. Good character.—H. S., Elm Cottage, Defoe Road, Lower Tooting, Surrey.

GARDENER (HEAD, WORKING).—Age 32, married, two children; seventeen years' practice in all branches of the profession, particularly Early and Late Forcing of Fruits, Flowers, and Vegetables, and Flower and Kitchen Gardening. Highest references from last and previous employers.—J. HANKINS, 1, Wilton Cottages, Grove Road, Acton, W.

GARDENER (HEAD, WORKING).—Age 35, married, two children. Seventeen years' experience in good gardens, 7½ with present employer. Satisfactory reason for leaving. Good character from present and previous employers. — HEAD GARDENER, Winsted Court, Sittingbourne, Kent.

GARDENER, in a Gentleman's Garden, where several are kept.—Age 23. Four years' good character from present employer.—R. H. F., North Luffenham Hall, Stamford.

GARDENER. — Married, no family; well acquainted with Outdoor Work, also the Cultivation of Fruits and Plants in general. Wife could take charge of Poultry or Dairy.—J. B., The Gardens, Kenton Court, Sunbury, S.W.

GARDENER.—Age 24; has a good practical knowledge of Flower and Kitchen Gardening, Stove, Fruit, and Plant Houses. Good references.—F. EVANS, Oakley House, Gledhow, Leeds.

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FOREMAN, in a Gentleman's Establishment. —Age 24; thoroughly competent to take Charge of the Houses or Kitchen Garden. Has had nine years' experience.—T. ROGERS, Frimley Park, Surrey.

FOREMAN, in a good Establishment.—Age 27; twelve years' good practical experience in all branches of the profession. Has held a situation as above. Character will bear strictest inquiry.—A. W., 4, Quebec Mews, New Quebec Street, Portman Square, London, W.

GARDENER (SECOND), in a Nobleman's Garden.—Age 22. Six years and a half in Elmham Hall Gardens. Good reference.—W. FUTTER, Elmham, East Dereham, Norfolk.

GARDENER (SECOND), in a Nobleman's or Gentleman's Establishment.—Age 26, married, no family; eleven years' experience. Can have a good character from present employer.—E. GEEVES, Albert Road, Belvidere, London, S.E.

GARDENER (SECOND), in a Nobleman's or Gentleman's Gardener.—Age 21, respectable. Two years' good character from present situation.—Address, stating wages, W. K., 6, Finsbury Cottages, Nightingale Road, Wood Green, London, N.

GARDENER (UNDER), in the Houses.—Age 21.—A. B., Stapleton Park, Pontefract, Yorkshire.

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IMPROVER, in a good Garden.—Age 19, respectable.—H. B., The Ridgeway, Woodhays, Wimbledon.

MANAGER, or TRAVELLER.—Twenty years' experience. Thoroughly competent and practical. Has travelled England, Scotland, and Ireland in the Trade.—B. S., 16, Tenant Street, Derby.

SALESMAN, in the Flower, Fruit, or Vegetable Market. Over thirty years in the trade.—S. C., 8, Heron Road, Milkwood Road, Camberwell, S.E.

To Seedsmen or Florists.

CLERK.—The Advertiser, who understands the Seed Trade (disengaged after 3 o'Clock in the afternoon), is open to an engagement as above during spare time.—J. ADAMSON, 7, Rathbone Place, Oxford Street, W.

CLERK. — The Son of a Nobleman's Gardener wishes for a situation as above in a good Nursery. Is expert in Writing and Accounts.—X. Y., Post Office, Retford, Notts.

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To Florists.

BOUQUETIST.—Young Lady. — B. C., *Gardeners' Chronicle* Office, W.C.

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Sale No. 4431.—Choice Lilies.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, March 15, at half-past 12 o'Clock precisely, 10,000 magnificent BULBS of LILIUM AURATUM from Japan, in the finest possible condition, being quite as plump and fresh as English-grown bulbs; also, a great variety of other JAPANESE and CALIFORNIAN LILIES and HARDY ROOTS.

On view the morning of Sale, and Catalogues had.

Hardy Plants and Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, March 17, at half-past 12 o'Clock precisely, RHODODENDRONS with buds, LAURELS, YEWS, CLIMBING PLANTS, FRUIT TREES, ROSES, HERBACEOUS PLANTS, GLADIOLI, &c.

On view the morning of Sale, and Catalogues had.

Imported Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, March 18, at half-past 12 o'Clock precisely, a large quantity of seven magnificent distinct unnamed CATTLEYAS; dried flowers of each kind will be shown with the plants. Also several hundreds of Odontoglossum Alexandræ (crispum), O. Pescatorei, Oncidium Kramerianum, and others adapted for growing in cool houses, just received in good condition from New Grenada.

On view the morning of Sale, and Catalogues had.

Established Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, March 18, at half-past 12 o'Clock precisely, a small collection of ESTABLISHED ORCHIDS, including the following:—

Lælia elegans	Cattleya Wagneri
Cattleya Mendelii	,, amethystoglossa
Phalænopsis Schilleriana	Vanda cœrulea
,, grandiflora	Cypripedium pardinum
,, fuscata	,, superbiens
Cirrhopetalum grandiflorum	Odontoglossum sceptrum
&c.,	&c.

On view the morning of Sale, and Catalogues had.

Specimen Stove and Greenhouse Plants.

Formed by the late J. Philpot, Esq., of Stamford Hill, N.

MR. J. C. STEVENS has received instructions from Mr. Wheeler, Gardener, to offer for SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., early in APRIL, the well-known COLLECTION of STOVE and GREENHOUSE PLANTS formed by the late J. Philpot, Esq., at Stamford Hill, N., consisting of specimen Azaleas, Camellias, Ericas, Stephanotis, Clerodendrons, Bougainvilleas, Franciseas, &c.

On view the morning of Sale, and Catalogues had.

Clapham, S.W.

UNRESERVED SALE of NURSERY STOCK, &c.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, without reserve, on the Premises, Muskett's Nursery, Clapham Rise, Clapham, Surrey, S.W., on MONDAY, March 15, at 1 for 12 o'Clock precisely, the whole of the valuable NURSERY STOCK, admirably adapted for Planting in the Suburbs, consisting of Chinese Arbor-Vitæ, Aucubas, 1500 fine Green Hollies, 2 to 4 feet, Common Laurels, Rhododendrons, &c.; also a number of Ornamental Trees, some selected Fruit Trees, and a fine assortment of Standard and Dwarf Roses, together with 25 handsome Specimen Azalea indica in fine variety.

On view the Saturday prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, 98, Gracechurch Street, E.C.

City Auction Rooms, 38 & 39, Gracechurch Street, E.C.

IMPORTANT SALE of a choice collection of CARNATIONS and PICOTEES of the finest growth; 500 handsome Standard and Dwarf ROSES of the best varieties; selected FRUIT TREES; choice Hardy AMERICAN PLANTS; CONIFERÆ SHRUBS, with some fine Double CAMELLIAS, AZALEAS, CYCLAMEN, CINERARIAS, and other Plants in flower; FUCHSIAS, DAHLIAS, choice LILIUMS, GLADIOLI, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION the above on THURSDAY, March 18, at the City Rooms, at half-past 12 o'Clock precisely.

On view the morning of Sale. Catalogues at the Rooms and of the Auctioneers, 98, Gracechurch Street, E.C., and Leytonstone, E.

Sydenham, Kent.

To FLORISTS, BUILDERS, and OTHERS.

MESSRS. PROTHEROE AND MORRIS will INCLUDE in their SALE of PROPERTIES, to take place at the Mart, Tokenhouse Yard, on THURSDAY, March 18, at 1 for 2 o'Clock precisely, a valuable LEASEHOLD ESTATE, known as Kirkdale Nursery, Sydenham, Kent, occupying a capital position in the high road, close to the railway station, comprising a substantial Brick-built Detached Residence and Seed Shop, Erection of Show-house and six Greenhouses, standing on a choice plot of eligible Building Land, having a frontage of 61 feet to high road, by a depth of 207 feet. Lease eighty years, from March 25, 1847, at a low ground rent of £6 5s. per annum.

Particulars may be had of the Auctioneers, 98, Gracechurch Street, City, and Leytonstone, E.

Leatherhead.

IMPORTANT UNRESERVED SALE of VALUABLE NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, The Nurseries, Leatherhead, close to the South-Eastern and London, Brighton, and South Coast Railway Stations, on MONDAY, March 22, at 12 for 1 o'Clock precisely, by order of the Proprietors, without reserve, a large quantity of useful NURSERY STOCK, viz., fine specimen Coniferæ, including Thujas, Cupressus, Arbor-vitæ, &c.; also Spruce Firs, Taxus of sorts, 5000 English Yews, 1½ to 5 feet; 4000 Green and Variegated Box, 5000 Common Laurels, 2 to 5 feet, and many others; 2000 Lilacs, and Deciduous Shrubs in variety, large Ornamental Trees, selected Pyramidal and Dwarf-trained Pears, with a choice assortment of hardy Climbing Plants in pots, &c.

On view the Saturday prior to the Sale. Catalogues had on the Premises, and of the Auctioneers and Valuers, 98, Gracechurch Street, E.C., and Leytonstone, E.

Garston, near Liverpool, within a few minutes' walk of three Railway Stations. A compact and valuable FREEHOLD ESTATE, distinguished as Meredith's Vineyard, universally renowned as the first Vine and Grape producing establishment in the United Kingdom, first-class prizes having been obtained by the present occupier, Mr. Joseph Meredith, at all the leading shows in Europe.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, in one lot, on the Premises, as above, on TUESDAY, March 23, at half-past 1 for 2 o'Clock precisely, the valuable FREEHOLD ESTATE, known as Meredith's Vineyard, situate in Garston, near Liverpool, and comprising 6 acres 1 rood 32 perches of particularly eligible Building Land, with the attractive and substantial brick-built Residence standing thereon; likewise 30 Greenhouses, set in brickwork, and of the best construction, fitted with every modern appliance, and containing about 50,000 feet super of Glass and Woodwork, heated by about three miles of Hot-water Piping on the most approved principles; also several Brick Pits, numerous convenient Outbuildings, together with all the Stock planted out in the Houses, including the entire celebrated Collection of established Vines, at present in the highest state of perfection.

Cards to view, and printed particulars with Plans, may be had of Messrs. MOSER AND SONS, Solicitors, Kendal; of Messrs. GIBSON AND SOLLAND, Accountants, 19, South John Street, Liverpool; of Messrs. WHITLEY AND MADDOCK, Solicitors, Liverpool; and of the Auctioneers and Estate Agents, 98, Gracechurch Street, London, E.C.

Extensive Consignment for Absolute Sale, per s.s. "Fanais," from Yokohama, of thousands of choice LILIUM AURATUM, RUBRO-VITTATUM, CALIFORNICUM, CANADENSE, TIGRINUM, FORTUNEI, and other rare species; also, a large quantity of choice JAPANESE MANUFACTURES and CURIOS, consisting of beautifully inlaid and Lacquered Cabinets, Tables, handsome Porcelain Vases, Garden Seats, Rare Bronzes, &c.; together with 3000 GLADIOLI and Silver-spotted CALLAS.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at the Guildhall Coffee House, Gresham Street, City, E.C., on WEDNESDAY, March 24, at 11 for 12 o'Clock precisely.

Further particulars will shortly appear.

Bruce's Nursery, Kingston, Surrey.

MESSRS. PROTHEROE AND MORRIS respectfully announce that the SALE of this important FREEHOLD ESTATE, advertised to take place on April 15, is POSTPONED TILL a LATER DATE.

SURREY (2005).—In a first-class neighbourhood, close to a station, and twenty-five minutes' ride from Waterloo, a flourishing NURSERYMAN'S and MARKET GARDENER'S BUSINESS to be Disposed of in consequence of the death of the Proprietor.

NORTH ESSEX (1961).—To be Sold, a genuine NURSERYMAN'S BUSINESS, the Owner having taken a farm. Part of purchase money could remain on security.

WEST OF ENGLAND (2006).—An old-established NURSERY and SEED BUSINESS to be Disposed of, on particularly easy Terms. £2000 to £3000 required, part can remain on good security.

Particulars of these three Nurseries, and of several others, will be found in Messrs. PROTHEROE AND MORRIS' HORTICULTURAL REGISTER, to be obtained at their Offices, 98, Gracechurch Street, London, E.C.

County of Limerick, Ireland.

ISLANMORE, within 9 miles of Limerick, and five minutes' walk of Croom Station, on the Great Southern and Western Railway.

MR. M. HARTIGAN is favoured with instructions from the Executors of the late Robert Wanless Kelly, Esq., to offer for SALE by AUCTION, at Islanmore, on THURSDAY, March 18, at 1 o'Clock, this truly MAGNIFICENT ESTATE, containing 511 acres 3 roods 38 poles, statute measure. The Mansion House, which stands in the centre of a beautifully timbered Park, is approached by two avenues with gates and handsome entrance lodges. It is picturesquely situate, overlooking the rivers Maigue and Commogue, which partly run through the estate. The house contains two halls, four reception rooms, study, eight bedrooms, and two dressing-rooms, servants' hall, and ample accommodation for servants, all in first-class order, and ready for immediate occupation. The out-offices are well built and in perfect repair, containing coachman's house with three rooms, stabling for twelve horses (six box stalls), three coach-houses, and a large range of lofts. The Pleasure Grounds are tastefully laid out, the walled-in gardens are well-stocked, and in perfect order, and include Conservatory, Melon pits, and Vineries in full bearing. The demesne is stocked with pheasant and other game, woodcock, and wild fowl in the season. There is good salmon and trout fishing on the Maigue and Commogue, and the kennel of the County Foxhounds is within 2 miles. The Farm Lands are of superior arable and pasturage quality, well drained, thoroughly fenced and watered; they are all in the owner's possession, and in the highest state of cultivation. The Farm Buildings are extensively, newly, and substantially built, and there are also on the farm a limekiln, limestone quarry, sand and gravel pits. Immediate possession can be given to the purchaser.

For all further particulars and Conditions of Sale applications to be made to Messrs. REEVES AND SONS, Solicitors, 17, Merrion Square East, Dublin; or to MICHAEL HARTIGAN, Auctioneer, 46, George Street, Limerick, Ireland, who will give Cards to view the Estate.

Stapleford, Cambridgeshire.

MESSRS. MANN AND RAVEN have received instructions to OFFER for SALE by Public AUCTION, upon the Premises, by direction of Richard Headly, Esq., on FRIDAY, March 19 next, at 12 o'Clock, all his valuable STOVE and GREENHOUSE PLANTS, most excellently grown, and clean and healthy. Among the Hardwooded plants will be found beautiful specimens of Azaleas, Acacias, Camellias, Epacris, Heaths, Rhododendrons, &c. The Soft-wooded plants comprise Cineraria, Calceolarias, Fancy and English Spotted Pelargoniums, Zonal Geraniums, Fuchsias, Chrysanthemums, Carnations, Picotees, Pinks, and Auriculas, &c.

The Auctioneers particularly call attention to the above Sale, as Mr. Headly is well known as a most successful amateur floral exhibitor, and the plants have all been selected with the greatest care and judgment by that gentleman.

Catalogues may be had of the Auctioneers, Messrs. MANN AND RAVEN, Hobson Street, Cambridge.

Isleworth.

In Liquidation.—By order of Trustee.

To MARKET GARDENERS, FARMERS, and OTHERS.

MR. W. PARNELL will SELL by AUCTION, on the Premises, Smallbury Green, on TUESDAY, March 16, at 12 for 1 o'Clock, the STOCK and IMPLEMENTS of a MARKET GARDENER—three powerful Draught Horses, five Market Vans and Carts, Harness, Ladders, Tools, Chaff-cutter, Baskets, Breeding Sow, 150 dozen Plants in pots, Erection of Greenhouse, Pigstye, &c.

Catalogues of Messrs. PARNELL AND BRIGGS, Solicitors, Isleworth; Messrs. ANDREWS AND MASON, Accountants, 7 and 8, Ironmonger Lane, E.C.; and of the Auctioneer, 2, Grosham Buildings, E.C.

TO BE LET, without either Premium or Valuation, or the LEASE to be SOLD, a NURSERY, near the Lewisham Railway Station, containing an area of about 35,000 feet, and comprising Forcing, Camellia, Greenhouses, and Propagating Pits, ten in all, and principally Heated with Boilers and Piping. Apply to

Messrs. C. D. FIELD AND SON, Agents, 13, Borough, S.E.

FOR IMMEDIATE DISPOSAL, in consequence of the ill-health of the Proprietor, an old-established NURSERY, SEED, and FLORIST TRADE, in the Midland counties. For particulars apply to

Mr. R. COOPER, 152, Fleet Street, London, E.C.

To Market Gardeners, Florists, and Fruit Growers.

TO BE SOLD, easy distance from Market, the seventy-nine years' LEASE of 2¼ acres of well-stocked LAND. Peer and other fruit trees of best kinds, newly-erected Packing-house and Store. The whole in a rich state of cultivation and closely cropped. One large area well suited for Glass Erections. Apply to

Mr. J. A. SMITH, Auctioneer, Estate and Land Agent, 58, King Street East, Hammersmith, W.

Victoria Estate, Kansas, U.S.—To Farmers and OTHERS.

FINE STOCK FARMS of 640 Acres and upwards, to be SOLD, Freehold, from 12s. to 50s. per acre. Grass in its natural condition unsurpassed for feeding Sheep and Cattle. For PAMPHLET containing full particulars respecting this Property, apply to

ROBERT W. EDIS, Esq., F.S.A., 14, Fitzroy Square, London, W., Architect to the Estate.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS: also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.

Mr. WEBB, Calcot, Reading.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

The Finest Broccoli in Cultivation.

COOLING'S MATCHLESS.—Every grower of this invaluable vegetable should have it. Per packet, 1s. 6d., post free.

GEORGE COOLING, Seedsman, Bath.

Suttons' Red-skin Flourball Potato.

H. AND F. SHARPE have a surplus stock of the above, which they are prepared to offer at a low figure to effect sales.

Seed Growing Establishment, Wisbech.

A. FAIRALL has to offer about 7000 transplanted common ASH, 3 to 4 feet; WILLOW, for woods, 5 to 7 feet; EVERGREEN and DUTCH HONEYSUCKLE, VIRGINIAN CREEPERS, GUELDER ROSES, by the dozen or 100. For price, &c., apply to

Stanhope Nursery, Westerham Hill, Kent.

GLASGOW and WEST of SCOTLAND HORTICULTURAL SOCIETY.

The EXHIBITIONS for Season 1875:—Spring, March 24; Midsummer, June 16; Autumn, September 8. The Prize money is £422 12s.

In June, open to all, Collection of Stove and Greenhouse Plants, table not to exceed 24 feet by 6; prizes 160s., 120s., 100s. Besides this prize money the Directors' handsome Silver Cup, value £20, to be the property of the winner for two years in succession or three years in all.

Also, open to Amateurs only, Collection of Greenhouse Plants, space not to exceed 8 feet by 6; prizes 60s., 40s., 20s., with amateurs' silver cup, value £5 5s., on same terms as above.

Schedules and tickets of admission may now be had from the Nurseryman in town, Mr. JAMES S. M. WILLIAMSON, Treasurer, 194, West George Street; or

FRANC. GIBB DOUGALL, Secretary,
167, Canning Street, Glasgow.

MANCHESTER BOTANICAL and HORTICULTURAL SOCIETY.

FLORAL and HORTICULTURAL MEETING at the Town Hall, King Street, Manchester, on TUESDAY, March 16 next. For particulars apply to the undersigned.

BRUCE FINDLAY, Secretary.

Botanic Gardens, Manchester.

MANCHESTER BOTANICAL and HORTICULTURAL SOCIETY.

GRAND NATIONAL HORTICULTURAL EXHIBITION, 1875.—ONE THOUSAND POUNDS in PRIZES.—Will open on MAY 14 next. Schedules are now ready, and may be had from the undersigned. BRUCE FINDLAY.

Botanic Gardens, Manchester.

LEEDS HORTICULTURAL SOCIETY.

TWELFTH ANNUAL GREAT SHOW.—June 9, 10, and 11, 1875. Largely increased Prizes. Schedules now ready. Apply to BRUCE BIRBECK, Secretary.

Address—Delph Lane, Woodhouse, Leeds.

THE DUNDEE HORTICULTURAL SOCIETY have agreed to hold an INTERNATIONAL EXHIBITION of POT PLANTS, CUT FLOWERS, FRUITS, ROOTS, and VEGETABLES, in AUGUST, 1876, and intend to offer ONE THOUSAND POUNDS in Prize Money.

The PRIZE SCHEDULE for THIS YEAR is ready for delivery.

51, Reform Street, Dundee. W. R. McKELVIE.

SATURDAY, MARCH 13, 1875.

THE ISLANDS OF FINISTÈRE.

My botanical trips have often taken me to Le Conquet, a small village at the extremity of the Department of Finistère. It was always with pleasure that, after a hearty meal, whose chief attraction lay in a sharp-set appetite, I went and sat on the top of the cliffs at the close of my day's work, to enjoy repose and the splendours of sunset. On my left the ruins of the Abbey of St. Mathieu, remains of the fifth century, contrast by their sombre mass with the white tower of the lighthouse which indicates to navigators the way to the Rade or Roads of Brest; before me stretch to an apparently boundless extent the thousands of rocks and islets which separate Ouessant from the continent; the sun gilds them with his departing rays, and then disappears in the ocean. Soon the stars begin to glitter in the firmament, while the lighthouses gleam over the surface of the waters; the diverse sounds of the day die away into silence, and nothing is heard but the plashing of the waves agitated by the currents rushing through the Chenal du Four, or the voice of some fisherman making his homeward way into port.

On such lovely evenings as these the sea is an unusually seductive tempter. Consequently I was seized with an immoderate desire to visit these islands, which my imagination peopled with an unknown quantity of interesting plants. All who have ever herborised can appreciate the attraction of new localities to investigate; no rest is to be had until one has trodden the fresh soil, which sometimes turns out poor enough, but which has all the charm of mystery enveloping it. Ouessant and the other islands have been very rarely visited by botanists. It was therefore a veritable voyage of discovery which presented itself to my greedy longing.

But I am terribly afraid of sea-sickness, and the fear of shipwreck on that dangerous coast oppresses me with irresistible anxiety. To reach the islands I should have been obliged to go on board one of the numerous small craft which I had so often seen the sport of the winds and the waves; and my passion for botany did not go so far as that. But one lucky day, one of my friends, in command of a ship of war, invited me to accompany him in an official cruise, in which he would have to touch successively at Ouessant, Molène, and the Ile de Seins. Although the season was advanced (Sept. 6), braving the dread of sea-sickness, I boldly answered "Yes," and next morning, with undiminished courage, steamed away from Brest, happy in the thought of the vegetable treasures that were about to become my prey.

Aided by the ebb-tide, we glided rapidly along the north bank of the Goulet de Brest, and I saluted in passing the scene of numerous herborisations. Here grow Trichonema Columnæ, Scilla verna, Daucus gummifer and parviflora; in that turf is hidden the humble Ophioglossum lusitanicum. Soon we reach the only hillside which possesses Erythræa maritima; higher up are to be found a few rare plants of Phelipæa cœrulea, a true treasure-trove in that neighbourhood. Then come the rocks of Toulbroch and of the Bay of Bertheaume, garnished with Statice occidentalis and Dodarti, and with Ulex Galii. In the caverns, Asplenium marinum grows abundantly; on the rocks bathed by the sea Crithmum maritimum and Inula crithmoides are intermingled with Festuca duriuscula and Agropyrum acutum. Elsewhere, Lepigonum rupestre covers the rocks with its pretty pink flowers. At the mouth of rivulets, where they fall into the sea, in some spots are Glaux maritima, Carex extensa, and a few sparse plants of Sonchus maritimus; at others Glycerias conferta and distans and Carex lævigata. But all these treasures glide out of sight in less time than it takes me to enumerate them, and we have entered the Chenal du Four. Once more I behold the Abbey of St. Mathieu, the steeple of Le Conquet, and the cliffs where I used to dream my solitary day-dreams, now at last a reality.

While these pleasant fancies are flitting through my brain, the sky becomes overclouded, a thick fog surrounds the vessel, and we are obliged to slacken speed as much as possible; the men on the look-out announce every minute fresh rocks, close to which we pass. I dare not ask if we are in danger, but observing the serious look of my friend, the captain, I feel my courage oozing out. There seems no escape from shipwreck on one of those terrible rocks, which assume, to my eyes, the aspect of fantastic monsters, while the sea-thongs which hang about them look like multiple arms ready to seize and drown their victims. How I curse my foolish curiosity and my absurd weakness for botany. But the engine stops; I, anxiously ask what is the matter. We take up a pilot, who steers us into the little bay which forms the port of Molène.

All my terrors fly away as if by enchantment. Armed with my box, I jump on shore, forgetting to breakfast; as soon as landed, Urtica pilulifera catches my eye, then black Henbane and Belladonna, and here is that rarest of rarities, Heliotropium europæum, which the botanist finds nowhere else in Finistère. I successively gather Lepidium latifolium, a very rare plant with us; Cynoglossum officinale, Asplenium lanceolatum, Sedum acre, Artemisia Abrotanum, Linaria vulgaris, Anchusa arvensis, Mercurialis annua, Panicum sanguinale, &c. Close by the sea, I find Armeria maritima, Sagina maritima, Galium arenarium, Erodium maritimum, Plantago Coronopus, Chenopodium vulvaria, and many other vulgarities—seventy-six Phanerogams in all.

Molène is about half a mile* in diameter, and rises some 50 feet above the level of the sea. The soil is partly clayey and partly sandy. Five or six hundred inhabitants subsist on the produce of fishing, and principally by the sale of lobsters and crawfish which they take to Brest. They grow a little Wheat, Barley, and Potatos, and gather a large quantity of seaweed to manure their land and to burn for the soda contained in it, which is an important item in their revenue. A singular trade carried on in the island is the fabrication of *terre de Molène*—Molène mould or soil, a compost formed of clay, seaweed in decomposition, and the refuse of fish. This manure is highly esteemed and eagerly purchased by certain occupiers of land fringing the shores of the Rade de Brest.

At noon we left Molène and threaded our way through an interminable series of rocks, out of which nobody but a pilot would be able to get safe back again. The sea was calm, the sun shone brightly, and my fears were dissipated with the mist. I could therefore unreservedly admire, by favour of an exceedingly low tide, the splendid marine vegetation with which the rocks were covered. The grand Laminarias, gently heaved by the light undulations of every billow, were mixed with a crowd of Fucuses and Cystoseiras, whose lower portions were covered with finely divided strips of Plocamium coccineum, whilst their upper fronds bent beneath the burden of large tufts

* The "mile" mentioned in this narrative is the French *mille marin* or nautical mile = 1852 metres = 2024 yards = 1 English land mile 264 yards.

of Rhodymenia palmata. Then there was Alaria esculenta, all torn to shreds and tatters; Nitophyllum Hilliæ, Delesserias alata and sinuosa, which contrasted by their bright red hues with the sombre tints of Gelidium corneum, var. sesquipedale. Out of the rocks at last, we are in the Passage du Fromveur—an exceedingly dangerous strait, on account of the currents, which stir up a nasty chopping sea. We skirt the perils which lie at the extremity of the south-east point of Ouessant, and cast anchor in the Bay of Porspaul.

I had two days to myself to explore an island 4 miles long and 3 miles broad, giving me ample time to do it. Ouessant is formed of two plateaus of unequal size, separated by a marshy valley which traverses nearly the whole of the island. A girdle of rocks and perpendicular cliffs encircle it almost without a break. The soil, mostly shallow, is composed of clay and sand. Manured with seaweed it produces excellent crops—more Wheat than the inhabitants require for their subsistence, Rye, Barley, and Potatos, which, although small, are very good, and in high favour on the continent. There are a few meadows in the valley—not a single tree. People keep themselves warm with fires of turf, cow-dung, and the dried stems of Laminarias. The fields are separated by walls of uncemented stone, which afford a little shelter to the crops and the cattle against the terrible squalls and gusts of wind which sweep over the island: but of this more at another time. *C. T.*

(*To be continued.*)

NOTES FROM A GARDEN IN CORNWALL.

February 1.—Rain continues almost daily, and being accompanied with warm west and south-west winds, stimulates into active growth a vegetation that has had but little winter's rest, which at this early season it is but natural to expect will suffer a serious check.

In no quarter of England do slugs and snails find a more genial home than in Cornwall. The large garden snails, Helix aspersa and Helix hortensis, do take a few weeks' slumber in the shortest days, but the slugs are always active in doing mischief. I do not suppose there is a garden in Great Britain that can outnumber mine in point of species, multitude, and voracity. The best trap I find is a handful of brewers' grains (here called draff), laid down at intervals, and after dusk to go round and pick them off, or with a dredger filled with fresh-slaked lime to sprinkle a little over them. In this case it is necessary to renew the grains each time. The stone-faced fences of the country offer a convenient harbour for such vermin.

My first crop of Potatos is now planted, and I hope to get in the remainder of the early kinds about the end of this month; they are principally Royal Ashleaf and Early Rose, both of which usually come to maturity before the disease is prevalent. The former is the best early kind I have met with, being a fair cropper and of excellent quality. Early Rose bears abundantly with me, and is of medium quality.

Peaches are already opening their blossoms—"better they were not;" although carefully protected with mats, I have but faint hopes of a crop of fruit, and they are the only things in any way protected, as I am of opinion that plants requiring protection in our climate are better under glass. I have a small bed of Hyacinthus orientalis, a single pale porcelain-blue kind that usually flowers about this time; more hardy and early than the varieties usually imported, it does well in the ordinary soil of my garden and increases freely from offsets. In the hands of a caterer for Covent Garden it would be valuable, so delicately pretty is it, besides being delightfully fragrant.

Last spring the moles were very busy in one of the gardens turning up the soil in all directions, sometimes thrusting out of the ground some favourite plants, at other times burying them; but being reluctant to destroy them, knowing that they have some redeeming points, I did not have them molested; and later on in the season I could observe that, although they did not turn up the soil as before, they were still present, evidently hunting in their old runs. This spring I find they are again active, but do not turn up the soil more than to clear away some obstruction; they do no further harm, but I find a real enemy has taken advantage of the mole's labours; it is the common vole or water-rat, which makes use of the subterranean runs to the roots of trees and shrubs, which they eat through, as in Mr. Ellacombe's garden last year, giving no indications of their presence until the plants decay or fall over.

Amongst several plants left out on trial but two have been destroyed by frost; they are the Pepper-tree, Schinus Molli, and Asteriscus maritima. Near to the Pepper-tree is a fine healthy plant of Mimosa sensitiva, which is usually cultivated as a stove plant, but which is evidently quite hardy. It has stood out here two winters, and with Mr. Fox, in his very interesting garden at Pengerrick, for two or three years previously, although occupying a very moist situation.

Broccoli of the early Penzance kind is abundant, and of good quality—a very fortunate circumstance for the enterprising cultivators in the county, who work hard, pay high rents, and have to venture their capital on a chance crop, as it occasionally happens that a severe winter elsewhere, is also sufficiently destructive here to ruin the Broccoli crop, and when equally mild throughout the country the demand is so small as to scarcely pay the cost of labour.

Narcissus orientalis, in many varieties, makes the cottage gardens gay around here, and the varied coloured Primroses that are found growing wild are frequently conveyed home. Sometimes amongst them may be seen the singular forms, here called "Jack-in-the-bush;" and as I never miss an opportunity to secure a strange form, either by begging, buying, or exchange, I have got together quite an interesting collection, some of them very pretty, others more singular than beautiful, and amongst them are forms that would puzzle one to say if they are Primroses, Polyanthus, or what.

I have never before seen Violets flower so freely as they are doing this season, both in the garden and by the wayside. Ficaria grandiflora is a recent addition to my collection, and is worthy of note as being a giant beside its lesser brethren; it is more than twice the size of the common Celandine. The double yellow is in fine flower at this time, but a single white variety, which I found growing wild three or four years ago, is not yet in flower; it is usually ten days or a fortnight later. Cornish lanes are rich in Flora's treasures. I recollect a little girl from the North of England giving expression to her feelings by exclaiming to her companion, "Oh! auntie, there are flower gardens everywhere in Cornwall."

It is true, from this time, beginning with the Primroses, till late in the autumn, when the hedges are decked with fruits, there is always a succession of beauties to admire. I never go out for a drive without taking my spud, and if I go beyond the ordinary highways rarely return without some chance treasure, consequently have now a very interesting collection of what a non-botanical friend calls Roadsidum gatherums.

Feb. 16.—Our nocturnal visitants are here this evening to announce coming dry or fine weather. For several years past a pair or more of barn owls have been in the habit of visiting a small plantation which adjoins our house, disturbing our peace by their non-musical hootings; but, as we have long noticed, they are sure harbingers of a favourable change in the weather. This, and the consolation of departing mice, makes some amends for their noisy greetings.

The male Aucubas are flowering freely, but I see no signs of opening flowers on the females. The same thing happened last year, when the males were two or three weeks in advance of the females; nevertheless, the large and small plants are quite scarlet with berries, although artificial fertilising was not resorted to.

Sempervivum polystachion and ciliare have stood out the winter so far, with but slight injury. Mrs. Pollock, Lady Cullum, and several other tricolor and bicolor Pelargoniums are quite healthy. Abutilon megapotamicum is flowering, also Habrothamnus elegans, Fuchsia microphylla, Ribes speciosum, Leucojum pulchellum, Saxifraga cordifolia (what a grand subject this is for the shrubbery or wild garden), Spiræa prunifolia and prunifolia flore-pleno, also Rubus biflorus, are flowering unusually early.

Feb. 19.—After a couple of hot summer-like days the thermometer has suddenly fallen to freezing point, accompanied with a slight sprinkling of snow.

Feb. 20.—The snow that fell yesterday disappeared during the night. The wind is from the north-east, and bitterly cold, with 6° of frost. I judge it is much more severe in the North, as the redwings and fieldfares are flocking here in great numbers, looking feeble and starved as if from long flight and short fare. To see the starlings at twilight taking their way to the sheltered woods where they roost is something wonderful, and such as I have nowhere else seen. They quite darken the atmosphere while passing over, and with a noise resembling a hurricane.

Feb. 27.—The cold north-east winds still prevail, and the nights are slightly frosty. A decided check has been given to early vegetation, Habrothamnus, Sparmannia, and Fuchsia have had their leaves and young shoots blackened, but hardly a trace of injury is apparent on dwarf perennials and bulbous plants, which I attribute to their being sheltered from the cold winds, and to the two previous sunny days having warmed the ground. Sisyrinchium grandiflorum album, Bulbocodium vernum, Triteleia alliacea, all the early blooming forms of Narcissus and Cyclamen of the Coum, ibericum and Atkinsii section, look fresh and healthy as before the frost; but I notice the foliage of Ixias and Trichonemas is browned, and plants of Cyclamen persicum, which ten days ago were the picture of health and hardiness, now droop their flowers, and look dejected. *J. S. T.*

JOHN EDWARD GRAY.

The announcement of the death of John Edward Gray will be received with universal regret among naturalists. Of late years Dr. Gray has been much better known as a zoologist than as a botanist. Nevertheless he began his career as a botanist, and never entirely abandoned the *amabilis scientia*. He also rendered considerable services to horticulture, on which account some brief references to his career will not be out of place, though naturally we shall make but little allusion to his zoological work, extensive as that has been.

The father of J. E. Gray, and of his scarcely less celebrated brother, G. R. Gray, was known everywhere to the last generation of druggists as the author of a most useful supplement to the *Pharmacopœia*. John Edward was destined for the medical profession, but speedily devoted himself to botanical pursuits; the first overt indication of this was a book published in the father's name, but of which the substance was furnished by the son. This book was worthy of a better fate. It met with a most unworthy reception at the hands of some of the leading botanists of the day, and their opposition was strong enough to mar the success of a book which, had it had fair play, would have constituted really an epoch in the history of botany in this country. As it was, its merits were recognised only after the lapse of time, when much that it contained had been published elsewhere, and when many of the crudities of a young and inexperienced author had necessarily become more apparent by the progress of science in the interval.

At that time (in 1821) the influence of Linnæus was paramount. Sir James Smith, the then leader in the botanical world, was an ardent Linnean, the founder of the Linnean Society, the purchaser of the Linnean library and the Linnean collections, and the compiler of a standard work on British botany arranged according to Linnean principles. When, therefore, a young, and till then unheard-of, naturalist actually dared to bring out a systematic work on English botany, arranged according to the Juissieuan or so-called natural system—a French system, too—we can imagine that the Volscians were fluttered. Had this been the only result, no great harm would have been done; but unluckily, whether their self-love was wounded, or whatever the cause, the botanists of the day subjected Gray to something very like persecution. The facts have never been denied, and so we presume they are substantially true. One result of this persecution was, that when Gray was proposed in 1822 as a Fellow of the Linnean Society, by a number of Fellows, including Haworth and Salisbury, he was unceremoniously rejected.

"If," says Dr. Gray, "the slightest hint had been given to any of my proposers I should have immediately withdrawn, as I could ill afford the subscription. Only a few of the proposers were present, they made so sure of my election, the rejection of a candidate being a very rare event. I only recollect one besides myself. The list of proposers—all persons doing their uttermost to improve zoology and botany—may have frightened the regular 'Linnæans,' of whom Dr. Shaw may be considered the type, and who proposed putting his beel on all shells not in the twelfth edition of the *Systema Naturæ*. 'Things not in Linnæus ought not to exist.' It was, however, too bad to inflict their wrath on the grandson of the Mr. Gray who translated the *Philosophia Botanica* of Linnæus for his friend Mr. Lee (of Hammersmith), whose book first introduced the Swedish botanist's scientific writings to English readers. Mr. Haworth, who was present, was so displeased at what he called an unjust and underhand combination to crush a young naturalist, that he made a codicil to his will desiring that his collection of British Lepidoptera, arranged after and being the types of his *Lepidoptera Britannica*, which he had previously left to the Society, should be sold with his other collections. It stirred up my spirit of resistance, and I determined to leave the medical profession, and devote myself to the study of natural science, and I have no cause to regret the determination or its cause. The cause assigned was that in the *Natural Arrangement of the British Plants*, published under the name of my father (as I was very young, and only occupied on the synoptic part of it), we had quoted the well-known work to which Dr., afterwards Sir J. E. Smith, contributed the text, as Sowerby's *English Botany*, and in so doing had insulted the President, which I may declare was perfectly unconscious and unintentional on my part. The text of the earlier numbers of the *English Botany* was furnished gratuitously by my predecessor—Dr. George Shaw. As Mr. Sowerby foresaw that the work was likely to be

successful, he arranged with Dr. Smith to give him a guinea for the description of each plate. Dr. Smith made a condition that he was to receive the money with the proofs of the descriptions. At the same time Dr. Smith published the botanical articles to Rees' *Encyclopædia*, a kind of *Species Plantarum*, written according to the name of the genus as it occurred in the alphabet. I suppose, considering the price that was paid for the articles in Rees' *Encyclopædia*, and that paid for the text of the *English Botany*, they must be considered as the best paid botanical writings known. Indeed, what with the money Dr. Smith got for these works, the *English Flora* and other scientific works, and the eventual purchase of the Linnean collection by the Linnean Society at his death, the acquiring of that collection must have been an excellent investment. Dr. Smith seems never to have forgiven me, for when engaged on the *Monograph of the Cypræadæ* I wrote to him asking if I might be allowed to see two or three specimens in the Linnean collection. He did not reply to me, but on asking Mr. Sowerby to make the same request for me, he replied that the Linnean shells were not arranged, but any of Mr. Sowerby's friends might see them except Mr. Gray."

These details we quote from an article of Dr. Gray's in the *Journal of Botany*, written many years after the event to which it relates. From another volume of the same Journal we cite the following interesting details relating to the book which caused so much commotion :—

"I always look back," says Dr. Gray, "with pleasure to the time that I spent in collecting plants and in studying and teaching botany, and especially to the period when I was occupied in preparing the systematic part of the *Natural Arrangement of British Plants*, the work that first introduced the natural system of plants to the student of English botany ; for I need make no secret of the fact that I alone am responsible for that part of the work, since, though it was published under my father's name, he wrote the introduction only. Having in his youth studied British plants according to the system of Ray, he never would adopt the Linnean system ; and the only interest that he took in the systematic part of the work was that he considered the *Genera Plantarum* of Jussieu as a revision and modification, according to the increase of knowledge, of the Raylan method, while he regarded the Linnean system as only a dictionary by means of which the names of plants could be most easily discovered. The kind encouragement and assistance which I received during its preparation from M. De Candolle, the father, and M. Dunal, of Geneva (then in England), from Mr. R. A. Salisbury, and from my dear friends, Edward Bennett, the late secretary of the Zoological Society, and J. J. Bennett, now [lately] Keeper of the Botanical Collection in the Museum, and the use that the course of study it necessitated has been to me in after life, fully made up for all the obstructions and difficulties that were thrown in my way by other botanists, which delayed the appearance of the work for nearly a year, and for the ill-will exhibited towards me for many years after. But their opposition was of no avail : the natural system has been established for years ; and though the work was not a success—and, indeed, how could one be that attempted to introduce at once into English botany almost all that had been done on the Continent up to the period of its publication, and thus was so far in advance of the then state of botanical knowledge in England, where the study had been under the incubus of a blind attachment to the Linnean system?—yet it has kept its ground ; and the very opposition was useful to me by causing me to pay more attention to analytical studies, and to carry into zoology the knowledge, accurate terminology, and systematic method of study employed in the sister science, which has led me to believe that the study of botany is the best introduction, even now, for the successful prosecution of the other branches of natural science."

Dr. Gray was a most laborious and active worker in various fields of natural history, over-given to controversy—the result, perhaps, of his early experiences—but a warm friend, and zealous in giving help to younger men. His papers and memoirs must surely considerably outnumber those of any of his colleagues. In the societies and journals with which he was connected there is scarcely a meeting or a number in which Dr. Gray's name does not occur. In other fields than that of natural history his diligence and energy were equally remarkable. Many of the existing scientific societies owe their origin in greater or less part to him. Penny postage, decimal coinage, sanitary questions, education, prison discipline, the opening and utilisation of museums, postage stamps, and we know not what beside, occupied his busy brain.

As a botanist he worked, even in later life, at the seaweeds, and published various memoirs on them.

The International Horticultural Exhibition and Botanical Congress of 1866, which was at first looked rather coldly upon by some of our great naturalists, found a warm advocate and a very liberal supporter in Dr. Gray, who gave up his time, his money, his house to the cause, and who, by bringing persons together beneath his hospitable roof, contributed not slightly to the success of the undertaking as a social gathering of botanists and horticulturists.

Dr. Gray had throughout the active aid and the intelligent sympathy of a wife—herself not unknown to fame—and who knew how to mingle with the energy and sometimes fiery zeal of the man the soft grace and clever tact of the woman.

Dr. Gray some time since resigned his post at the British Museum—a post he filled with so much honour to himself and advantage to the institution since 1824, and was making arrangements to migrate to a new residence, within view of the building he loved so well, when he was bid to cease from his labours and be at rest. Though worn by years and tried by infirmity, he may thus be said to have died in harness, and we feel sure that this is what he himself would have preferred.

HALF-HOURS AT KEW.—II.

Our first visit to Kew was spent in the Tropical Conservatory, where we may profitably pass another half-hour. Palms and Tree Ferns occupied our attention then ; now we may admire the luxuriant vegetation represented by members of the Arum family. The general resemblance of the inflorescence in plants of this group has already been pointed out, and a brief explanation of the nature of what is popularly termed the flower may be acceptable. Briefly, then, we have here, not a single flower, but a collection of small flowers crowded together on a "spadix," usually more or less enclosed within, or subtended by, a leaf, termed a "spathe." In some species the spathe is large, encircling the spadix, as in the white Trumpet Lily of our windows ; in other species it is small in proportion to the size of the spadix, examples of which may be seen in various species of Anthurium around us. The most familiar plants of this family to the majority of our readers probably are the beautiful variegated Caladiums, some of which figure at almost every flower show ; and the brilliant scarlet spathes of Anthurium Scherzerianum will be remembered by all who have once seen them. Here, however, these smaller forms are replaced by gigantic climbing and epiphytical species, exhibiting a variety and exuberant growth of foliage that will enable us to form some idea of the rich vegetation of the virgin forests of tropical America especially, of which they constitute one of the most striking features. The slender columns supporting the roof, and the walls of this conservatory, are clothed with various species of this family, many of which display their native health and vigour. One of the most numerously represented genera is the genus Philodendron. This is a well chosen and appropriate name, being derived from φιλέω (phileo), to love or have an affection for, and δένδρον (dendron), a tree, in reference to the habit of most of the species climbing over trees. P. erubescens is a very conspicuous and luxuriant species, several plants of which may be seen in different parts of the conservatory. Its heart-shaped or arrow-head-shaped leaves are tinged with a copper-red beneath, hence the specific name, which signifies blushing. P. lacerum, which has mounted to the top of two or three of the columns, has larger deeply lobed leaves, and is remarkable for its long, slender, cord-like aërial roots, descending in search of nourishment. These roots appear to increase in length only, not in size, at least not before they have reached the soil, and even then to no appreciable extent. They are exceedingly flexible, and are thus able to glide over any intervening branches that otherwise might obstruct their downward progress. They are given off some of them from the topmost branches, and are from 15 to 20 feet in length ; but in this case it seems almost a waste of energy, for they have a stone floor to encounter instead of a fertile soil. Close by, on one of the side benches, is a plant of Monstera dimidiata, which also developes this faculty to a great degree, and being more favourably situated the aërial roots have pierced the soil, and may serve to convey food by a more direct channel to the upper branches than if it had to traverse all the windings of the main stem. Another species of Philodendron has large pinnate leaves, resembling those of a Cycad ; and P. Schottii, in the left-hand corner, on entering at the east end, has enormous heart-shaped leaves, resembling those of Colocasia esculenta.

Various other species of this genus offer as many different forms of foliage, and several of them are flowering at the present time ; but these are not so brilliant and conspicuous as they are strange in appearance. But perhaps the most striking of this group is Tornelia fragrans, a plant with gigantic leaves, 2 or 3 feet or more in length, and curiously irregularly perforated and lobed. It often bears the names of Monstera deliciosa and Philodendron pertusum, and it is a native of Mexico. With the important exception of the Taro, Colocasia esculenta, whose farinaceous tubers form an important article of diet in the South Sea Islands and other tropical countries, this family yields few economic products ; but the succulent spadix of Tornelia fragrans is edible when perfectly mature, and has a rich luscious flavour. Tornelia is a commemorative name ; the others mentioned will suggest their own meanings. We may mention one or two more Aroids, and then note a few other rare or singular plants before leaving this house. Anthurium digitatum has large palmately divided leaves, after the manner of the Horse Chestnut, but much more closely resembling the foliage of some of the Aralia tribe. Pothos scandens is singular in its jointed leaves ; and Philodendron crassinervium has an enormously thickened midrib to the leaves. Here be it observed that the name Anthurium refers to the peculiar inflorescence of Aroids ; it is from ἄνθος (anthos), a flower, and οὐρὰ (oura), a tail, the form of the spadix.

The Cycadeæ or Cycad family, represented in the fossils of the oolite formation in this country, resemble Palms and Tree Ferns somewhat in habit, in usually having a simple stem and pinnate leaves ; but they differ essentially from both in their organs of fructification. We shall not enter into details here, as we shall have occasion to speak of them in a future paper ; suffice it to say that they have very hard, rigid, coriaceous, often prickly leaves. There are several plants of this family in the house, but a fine specimen of Cycas media in the centre is especially noteworthy. It has a trunk from 8 to 10 feet high, and nearly or quite a foot in diameter. According to the label, this specimen was received from Australia in 1872, and it is now in a flourishing condition. Another trunk, sent at the same time, has not yet developed foliage since its arrival. Who has not heard of Vanilla flavouring? but how few have seen the strange plant that produces it ! A large specimen of it has been placed near the east door, but it does not seem to be quite at home and comfortable in its new quarters. Vanilla is the Spanish name of the plant in tropical America. It belongs to the Orchid family, and is singular in its climbing habit and articulated leaves. The flowers of this genus are not so brilliantly coloured as many of the tribe cultivated in this country.

Many other remarkable plants demand a word, but we can only select a few for notice. The Papaw, Carica Papaya, bears an excellent fruit, and it is extensively cultivated in tropical countries. The fruit varies in shape, resembling a Melon or Vegetable Marrow, and of about the same size. It is cooked unripe as a vegetable, or made into a preserve and variously prepared when ripe. The leaves of this small tree are said to possess the extraordinary property of rendering newly-killed meat tender, if boiled with it or simply wrapped around the meat. By some writers this genus is considered the type of a distinct family, but most modern botanists refer it to the Passifloreæ, several other members of which afford valuable fruits. The Allspice, Pimenta vulgaris, or Eugenia Pimenta, is an inconspicuous, Myrtle-like shrub, which by no means announces its importance. Several other economic plants are scattered about here, but as there is a house specially devoted to them we prefer leaving them out of consideration at present. Such are the Cinnamon, Cocoa, Bread Fruit, Pepper, and others. A small specimen of the singular aquatic plant from Madagascar, called the Lattice-leaf, Ouvirandra fenestralis, deserves notice. An illustration of the "home" of this plant was given at p. 11, vol. ii., 1874. The popular name scarcely conveys an idea of the plant. Skeleton-leaf would be more appropriate, as the leaves are reduced to a framework. The generic name is from Ouvirandrano, the native name, signifying Water-Yam, its roots, according to Mr. Ellis, being a valuable article of food. Napoleona imperialis, a plant of very curious floral structure from tropical Africa, named in honour of Napoleon I., is in this house, where it flowers frequently, though it is not in bloom at the present time. A very handsome tree, flowering now, is the Brownea coccinea, a native of tropical America. This genus was named in honour of Patrick Browne, who wrote a history of Jamaica, and not, as is sometimes supposed, after Robert Brown, the most celebrated of English botanists. The flowers of the few species known are truly gorgeous, and the foliage of some exceedingly effective. B. coccinea has clusters of rich scarlet flowers, but its foliage and crooked branching habit render it less imposing than B. princeps, whose single stem, and pinnate leaves a yard in length, give it a majestic appearance.

In conclusion, we may mention that Carludovica plicata, a plant noticed in our former paper, is now in flower. Our next visit will be to the Winter Garden, or temperate conservatory in the pleasure grounds, as the flowering season of many of its occupants has already set in. *H.*

BRITISH GARDENERS.—XIII.

William Ingram.

The name of Ingram is well and honourably known amongst British gardeners, having been borne by that fine old member of the profession who so long and so worthily presided over the Royal gardens at Frogmore. Of this stock comes the subject of our present notice, Mr William Ingram, gardener to the Duke of Rutland, at Belvoir Castle, and who has won for himself a foremost position amongst his fellow horticulturists. He has earned a reputation also in other branches of science—geology in particular, and has achieved success, among other things, in the development of spring gardening, which has become so deservedly popular in many quarters. Mr. W. Ingram has obligingly sent us the following notes of his horticultural career, to accompany his portrait, which we now publish :—

"I was born at Frogmore in 1820, and spent my early days in that very charming garden attached to Frogmore House. I can only recall recollections that are pleasant to dwell upon of the Royal family of that day, and especially of the Princess Augusta, whose regard for my father, and kindness to his family, lasted while she lived. I believe I was rather distinguished by her notice, as I had to wait upon Her Royal Highness at least once every year, to tell her of the progress I was making in my studies.

"After some practice in the old Maestricht Garden, I was placed in the forcing establishment at Cumberland Lodge, and ultimately took the management of the garden there. The great Vine in that place was an object of my especial care, and certainly did not suffer in my hands. At that time the new Royal garden at Frogmore was commenced, and I very well remember going with my father to stake it out. It was then a Turnip field. Associated with him in the consideration of the various details that attended the progress of this great work, I can recall one incident that occurred shortly after its completion with great satisfaction. It was the official visit made by the Prime Minister, Sir R. Peel, accompanied by Lord Liverpool, the Lord Steward, while I was left in charge, my father being at Balmoral, so that I was called upon to go round and answer all questions. The very careful examination made by Sir Robert, the acuteness of his remarks, and the acquaintance he exhibited with all the practical details, convinced me that the Minister's mastery of great questions did not preclude a just comprehension, or render him indifferent to even the small details of a garden.

"Desiring to extend my practice, and to improve myself in the language, I went to France in 1846, and while in Paris attended the lectures of Milne Edwards and Brongniart at the Jardin des Plantes, and occasionally joined the botanical class of Adrien de Jussieu in excursions to the neighbouring woods. From Paris I went to the Royal garden at Sèvres, which was devoted to the cultivation of decorative plants. Enjoying the privilege of the acquaintance of M. Laffay, the celebrated Rose grower, and the raiser of Madame Laffay, La Reine, and other Roses, I frequently visited his charming gardens at Bellevue, just above Sèvres, and speculated on the future of La Rose with my kind and hospitable friend ; and if his assurance of doubling the size of La Reine was not realised in his time, the variety and perfection of the Roses raised since that date partly justified the hope he expressed in many other respects. The celebrity of the great nursery establishment at Orleans tempted me to visit that ancient and interesting town, and I found in the admirably managed nursery of M. Dauvasse much to learn. The facility with which the art of multiplication was carried on satisfied me that rich soils and fine climates give vigour and vitality to a large class of garden plants that in growth and habit seem rather to languish than grow in many places in England. I shall always remember with gratitude the kindness and consideration shown to me by that truly excellent man, M. Dauvasse, and subsequent visits exchanged cemented the friendship which I treasure as one of the happiest recollections connected with my sojourn in France.

"Returning to England just in time to escape the political explosion that drove Louis Philippe from the throne, I was offered the appointment at Hatfield on the introduction of Dr. Lindley. We grew good Grapes and Strawberries there, and I was glad to cooperate with the good old Marquis in the many projects and experiments which suggested themselves to his very active mind. I remember we fed some Oaks with strong stimulating manures, and I have often wondered if the record remains in a double deposit of woody fibre on those of the ancestral Oaks of that noble park thus operated upon. I planted Conifers wherever possible. The Royal Horticultural Society at that time often sent out travellers, and I learnt something of the grandeur of the Californian Pines—macrocarpa and Sabiniana —from Hartweg, who visited me after his return from South America ; my old companion in Paris, Rauch, joined him, and no one could be thus associated without acquiring a love and admiration for Conifers. My pen was not unfrequently employed for the "Doctor," as we admiringly called Dr. Lindley, and with my old friends Spencer and Frost I often acted as judge at Chiswick in the palmy days of flower shows, when Mrs. Lawrence and Lady Antrobus were rival exhibitors.

"The appointment at Belvoir Castle being offered me, I left Hatfield in 1853, and since that time have been hard at work in all departments of a very extensive establishment. A very large fruit and vegetable garden, situated near a wooded hill, and in the coldest of cold clays, has offered difficulties in the culture of fruits and vegetables, requiring years of patient labour to overcome, of which gardeners more happily situated know nothing ; but difficulties and obstacles are only problems to be industriously worked out, and there is no greater pleasure in horticultural practice than to encounter and overcome such barriers to success. The complete drainage of the garden being effected I have gradually, on Jethro Tull's system, brought up the sub-soil clay to be operated upon by atmospheric agencies, but never more than can be completely reached and pulverised by the weather ; next to this I have followed on with burnt earth and charred vegetable matter, preventing any future cohesion of the tenacious soil. The raking and wheeling away of much of the surface soil with weeds and rubbish, sometimes practised, I avoid as much as possible, taking care that every bit of soil is returned to the

garden in one shape or other ; and so my clay garden has become a bed of loam in which all vegetables thrive ; and pursuing my plan of surface planting Potatos I succeed well with that capricious vegetable. Unfailing crops of Grapes have attended my system of culture ; and I am amply rewarded in the fine and excellent fruits produced by the selection of Pears I have been gradually making. I have attempted to raise improved sorts of Pears and Apricots from seed, but nothing better than we already possess has rewarded me at present. We have a speciality for Strawberries, the crops of which are enormous, and I have great hopes of a seedling raised a few years since. Of Apples I have formed a very considerable collection.

"It has been a cherished object to give interest to the gardens by gathering together all kinds of plants of horticultural value, rather than to depend upon the attraction afforded by the more limited number that brighten our parterres for a short season. I have often lamented the banishment of the fine old herbaceous plants from our borders, and it has been with me a labour of love to reinstate many of them, as well as to multiply a class of plants unsuited for the blaze of a parterre, which yet shed a light of beauty on rocky ledges or shady nooks, where floricultural productions would be out of place.

"The distribution of soils, their varied character, derivation, and influence on vegetation, has been a favourite study of mine, and a paper read at the Congress at Oxford expressed some of my views on that interesting subject. Gardeners, who are so much dependent on weather for the success of many cultural operations, should endeavour to know as much about it as possible ; and feeling this, I have conducted a series of observations for the last quarter of a century, which may some day be of use. Local rainfall is a matter that should always be ascertained, especially as the rainfall varies in cultivated districts from 15 to 50 inches.

"Some years since it was a matter of common regret that our flower-beds were for more than half the year quite bare, and without interest or beauty. I have endeavoured to remove an acknowledged blemish in our gardening practice, by collecting as many hardy shrubs and plants as were suitable, and so filling every bed as soon as the summer flowers are over. Our flower gardens at Belvoir are now green and pleasant to look upon in winter and delightful in early spring, filled as they are with vernal blossoms ; my great difficulty has been to secure the greatest display in March and early in April, and this has been in a great measure overcome and accomplished. For alpine plants I have made extensive rockwork, and, with such opportunities, I hope to gather together many alpine gems.

"I need hardly say that the wishes and interests of the owner of the princely estate of Belvoir has governed me in my arrangements, and to his artistic and refined taste is due the merit that belongs to the disposition of the pleasure grounds ; and it is a source of pride and satisfaction, and my highest reward, to feel that I have in many instances secured his Grace's approbation."

THE WINTER GARDEN OF THE COMTE DE KERCHOVE.

"If Ghent be the city of flowers," said, in 1873, one of the editors of the *Gardeners' Chronicle*, "it is so in the same sense that Manchester is the city of cotton. The casual visitor may be a long while in the Lancashire town without seeing so much as a flock of cotton. In like manner any ordinary traveller, not informed by his guide-book that Ghent was a great horticultural centre, would be a long while before he made the discovery for himself." These words were true and exact when written, and described perfectly the horticultural condition of Ghent in 1873, when, with the exception of the establishments mentioned in Murray's and Bædeker's *Guides*, nothing was seen in the streets or in the shops to suggest to the traveller the great interest which horticulture possesses in the old town of Artevelde, that proud citizen of Ghent who was godfather to a son of a king of England. Nowadays it is different. Horticultural industry has presented itself in a new aspect, and shops with gay fronts are opened in the town itself for the sale of seeds and flowers.

All the *Guides* point out now among the lions of the town the winter garden of the Burgomaster of Ghent, the Comte de Kerchove de Denterghem, entry to which, as to all the museums and other private collections in Belgium, is easily obtained.

Situated in one of the new quarters of the town in the centre of a garden of 3 hectares in extent, the conservatory constructed by M. le Comte de Kerchove is one of the largest on the Continent. Its total length is over 164 feet ; its breadth about 68 feet ; its height, not including the basement, is 42 feet. It has a glazed surface of 2100 square metres. The two smaller houses, built at the sides, have a glazed surface of 282 square metres. It was constructed by the Director of the Industrial School of Ghent, M. Bureau, one of the Professors of the University of Ghent, and has received, from the moment of its inauguration, the favourable verdict of all those familiar with horticultural buildings, and who know how difficult it is to unite and reconcile the exigencies of architecture and horticulture. It is composed, as is shown in the woodcut (fig. 66), of a nave and two aisles. The nave is bounded by twenty-eight columns, which support two galleries. These galleries not only allow the gardeners to regulate the ventilation and shade of the building, but also allow the access of visitors. Vast vaults are constructed beneath a large portion of the building, where are kept the stores of pots, &c., necessary for the daily work of the house ; and, there, also, is the place where the bulbs are wintered—there, also, the numerous composts required by the various plants are made up.

In another part of the basement the boilers which heat the large house as well as the adjoining ones are placed, as may be seen in the plan (fig. 67, p. 339). A powerful hot-water apparatus heats the three houses, the pipes being concealed beneath gratings. Two boilers, each of 1.25 m. in height and 2.05 m. in width, serve to feed the 765 metres of cast-iron pipes, which are 145 mm. in external diameter, and the length of 255 metres of pipes of 175 mm. in diameter. These suffice to maintain, even during the severest cold, a minimum temperature of about 50° Fahr. in the winter garden. The houses at the sides are likewise heated by 90 metres of pipes of 125 mm. diameter, fed by the same boilers, but rendered completely independent of the winter garden by the use of valves suitably placed. In spite of the fears once expressed, in spite of the immense extent of glazing, in spite of

the height to which the nave rises in the middle, and the appearance of great lightness which the edifice presents, it has, up to the present time, well withstood the equinoctial tempests and storms of Flanders. Not a pane has moved, not a square of glass has been broken. Such a result, after three years' trial, does credit to the constructor, who is now one of the most famous architects of Belgium.

The winter garden of the Comte de Kerchove de Denterghem far surpasses the first glasshouse made in Belgium, in 1822. It was one of the fathers of Belgian horticulture, M. Van Geert, who was the first to venture, in spite of the adverse opinions that were then expressed, to build a conservatory, every portion of which was transparent, and thus to allow abundance of light to gain access to the plants. This house was 26 feet high, 24 feet wide, and 120 feet long. If the aristarchs of that time could return, how great would be their astonishment to see a crystal palace which has resisted the most violent storms, and wood and glass almost exclusively employed in the construction of an edifice as bold as it is elegant.

The plan (see figure 67, p. 339) shows the vertical section of the building and the height of its different portions, as also various details, which may here be dispensed with. The ground plan shows the general arrangement of the structure. To obviate the ill effects of "drip" M. Bureau has principally confined himself to the use of wood and glass, only using iron where it could not be dispensed with. In this way the drip that does fall is not tinged with rust of iron, and the leaves are consequently not discoloured or corroded.

The interior of the building is planted in the picturesque "English" style. It would be unjust to overlook the influence of Addison and Pope on the reform instituted by Kent in 1710. Thanks to them stiff formal gardens were replaced by a more natural and picturesque style. Designed in excellent taste by M. Fuchs, the landscape gardener to the Royal gardens, winding paths conduct the visitor from the entrance to a colossal pile of rockwork at the other extremity, and the lines of which harmonise with the plants that surround and cover it. The rocks consist of calcareous stone from the banks of the Ourthe and of the Meuse, a stone pitted with many deep cavities which allow of the culture of many delicate plants in them.

Gentle undulations slope gradually to the edge of a little streamlet stocked with gold fish. Escaping from the foot of the rockwork the streamlet is overhung by a noble plant of Cibotium Schiedei. Over the rocks falls a cascade, and in and among the rocks are planted fine specimens of Alsophila excelsa, A. contaminans, obtusa, radens, Loddigesii, denticulata, Cyathea elegans, and Cocos australis. By the side of the steps leading to the gallery are Balantium antarcticum, between 6 and 7 feet in height; Alsophila australis, A. ferox, 7—9 feet high, and with its stems bristly with spines; a valuable specimen, 6—7 feet high, of Cyathea Cunninghami, a worthy rival of the one at Kew. Half-way up the rockwork is a platform affording a charming view through the foliage of the Ferns, &c.; Platycerium alcicorne, and various Selaginellas cover this part of the rockery. From this point of view the plants which attract the attention most are a very large Corypha australis, 7 metres in diameter; a Latania borbonica, 5½ metres high; Theophrasta australis, Chamædorea sinensis, a Palm deserving to be more extensively grown. It grows rapidly, is very hardy in the conservatory, is elegant in habit, and its trunk is covered with silky yellow hairs. A specimen of Cyathea dealbata with large fronds, white on the under surface, is near the upper stairs, not far from one of C. Smithii; C. princeps, and Rhapis flabelliformis, the latter having about forty stems, are to be seen at the top of the platform at the entrance to the gallery which surrounds the building, and which afford charming views of the plants, especially of the Ferns, which form nests of green foliage delightful to witness. By means of this gallery it is possible to obtain views of noble Ferns and Palms totally different from those which can be obtained on the ground, and which reveal new beauties and unexpected harmonies. Tufts of Selaginella encircle the base of the groups of plants surrounding the Tree Ferns and Palms above-mentioned. One specimen of Musa Ensete stands isolated on the borders of the rivulet, and has attained enormous proportions. Its leaves, more than 9 feet long, give a distinctly tropical appearance to the house. The columns are draped with climbing plants, such as the beautiful Passiflora trifasciata, Tacsonia Van Volxemi, Passiflora Impératrice Eugénie, Cobœa scandens, &c. Caladiums and delicate Adiantums thrive in the depressions and recesses of the rocks, and Asplenium Nidus, with fronds 6 feet in length, surmounts one of the peaks, as if it were the nest of some gigantic condor. A spiral iron staircase allows the visitor to descend from the gallery to the entrance-door without passing again by the rockwork. This staircase is concealed by fine Palms and Tree Ferns, while its base is surrounded by Gymnogrammas of many kinds, Davallia tenuifolia, Alsophila denticulata, and especially Oleandra nodosa. The aspect of this plant amid the other Ferns is singular; it excites remark, and visitors are apt to take it for a Dicotyledon rather than a Fern. Among other large specimens we may mention a Cycas Rumphii, 6—7 feet in height; a Cycas circinalis, with a trunk 4—5 feet in height, surmounted by a crown of seventy-five leaves perfectly symmetrical; and a noble plant of Cyathea medullaris, which was originally in the possession of the late M. Van den Hecke de Lembeke, and which gained great attention at the Quinquennial Exhibition of Ghent in 1867. It has much increased in size since then, and is now 13—14 feet high, while its crown has a diameter of at least 6 metres. So much for the assertions of those who maintain that Ferns have a slow rate of growth.

Among the most attractive of Ferns are Todea superba and its allies. These are grown in a glass case on a stage surrounded by young Palms. Different varieties of Lomaria, as well as specimens of Dicksonia squarrosa, Balantium Sellowianum, Seaforthia robusta, and Chamærops Ghiesbreghtii, are scattered here and there amid the groups.

Camellias, Azaleas, Datura arborea, Sparmannia africana, Imantophyllum miniatum, serve to light up by their flowers the varied green of the foliage. The Azaleas are all trained into a globular form, the pyramidal style adopted in England not being practised in Belgium. The culture also differs. In Belgium they are not esteemed unless the heads, grafted on a stem of 0.40 m. in height, are well-formed and round. The leaves, therefore, are completely concealed at the time of flowering.

In summer time the stove Palms are brought into the conservatory, such as Ceroxylon niveum, Areca Verschaffeltii, Cocos Weddelliana, Oreodoxa Sanchona, &c. Large numbers of Agaves, Bonapartea, Dracænas, &c., are also introduced, and make a pleasing contrast amid the Ferns. Among the Agaves may be mentioned A. Milleri, univittata, dealbata, applanata, filifera, Jacobiana, Verschaffeltii, &c., Bonapartea gracilis, stricta, Yuccas, &c.

On the side stages a large number of young Ferns and Palms are waiting their turn to be massed out. Most of these are home-grown seedlings. The seeds are sown in pans, and the young plants pricked out

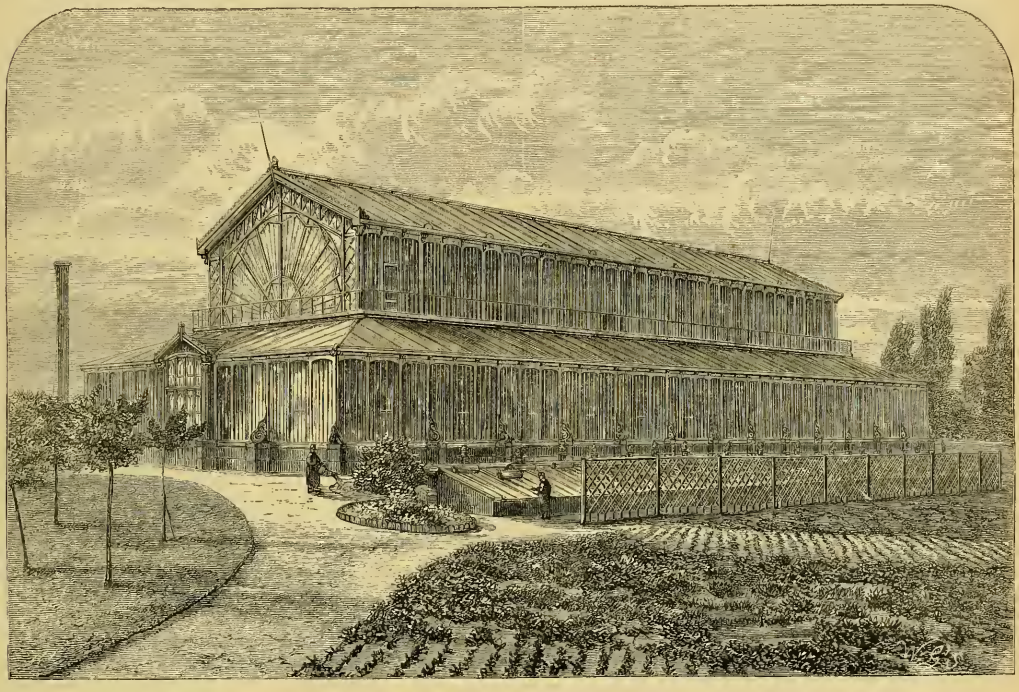


Fig. 66.—Count Kerchove's winter garden at Ghent.

into very small pots, plunged in tan in the case of Palms, in ashes in that of Ferns.

In another house are the Orchids, especially a complete collection of Cypripedium, Cœlogyne cristata, various Vandas, Dendrobes, Sophronitis, Oncidium, Lycaste, Phalænopsis, &c. This collection is of recent origin, and serves to form floral groups in the midst of a turf of Selaginella in the large house. In this case the pots are concealed by fragments of cork or of rock.

A fine specimen of Astrocaryum mexicanum is placed in the centre of a group of Polypodium appendiculatum and sporodocarpum; while, concealed beneath the huge leaves of Corypha umbraculifera and cerifera are specimens of Marattia macrophylla, Verschaffeltiana and sorbifolia, Angiopteris evecta, pruinosa, &c. The fronds of the Marattia and Angiopteris form a severe contrast with the more delicately cut foliage of other Ferns.

Further on an Arenga saccharifera forms, together with Cocos spectabilis, a raised arch, under which may be seen various other Palms, such as Thrinax barbadensis, Pritchardia Gaudichaudi, and pacifica, Kentia rubricaulis, Phœnix dactylifera, Brahea dulcis, Blechnum brasiliense and corcovadense, Cibotium Cumingii, Alsophila gibbosa, &c.

The effect produced by some old varieties of Begonias which stud the rocks is also worthy of comment, as is that yielded by the charming Nertera depressa. Adiantums abound, from A. concinnum to A. flabellatum, from the A. peruvianum and chrysophyllum to A. farleyense.

During the summer some of the plants are removed from the conservatory, such as certain Ferns, and especially Chamærops stauracantha and C. humilis. Many similar plants do not develope fully if they are not placed in the open air in summer.

It may be stated in conclusion that the great conservatory was inaugurated in 1873 by a visit from the Royal family of Belgium, including the Princess Louise, who made her first appearance on a state occasion at that time, and with such success that the Princess Louise shared in the popularity enjoyed by the beloved chiefs of the Belgian dynasty. *Oswald de Kerchove de Denterghem.*

THE ORCHIDS AT BROOMFIELD, CHELMSFORD.

The display of Odontoglots at Mr. Warner's is at present magnificent. I have seen most of the best collections of these plants, but never one to equal this: it is worth going a long distance to see. As you enter the Odontoglossum-house, which is about 40 feet long, the effect is wonderful. There are two banks the whole length of the house, formed of double rows, which include fine plants of Odontoglossum Alexandræ and Bluntii, some having branching spikes, on which are very large blossoms, some pure white, others beautifully tinged and spotted, and of thick substance; also some fine racemes of O. Pescatorei with forty-five pure white blossoms spotted on the upper part of the lip. There are many plants of this in bloom, and most of them different varieties, either in size or colour; some of the Alexandræ spikes are 2 feet long. Intermixed with these are the showy O. triumphans, with its orange and scarlet flowers; also O. luteo purpureum, and the charming variety called hystrix, with its long spikes; and the showy O. Insleayi pardinum, which produce a good effect among the light-coloured kinds. One of the most lovely I noticed is O. Warneri, with its white and spotted flowers; there is also a fine specimen of Reichenbachii, but it is going off flower—it is a charming and rare species, and produced 100 flowers of a purple-brown colour. The showy Oncidium macranthum was also in bloom, and, introduced in this bank of flower, produced a good effect. The bright-coloured Anthurium Scherzerianum also had a place in this house. There were many other Orchids in bloom, such as Cattleya Trianæ, &c.

In the East India-house there is another grand display. About forty Phalænopsids are in bloom, their charming and graceful spikes overhanging a good collection of Aerides, Saccolabiums, &c.; these have good healthy foliage, and produce a fine effect. Amongst the mauve and white colours of the Phalænopsids there are some good varieties of P. amabilis, the flowers being of a large size and of perfect shape, well spotted, and the upper part of the lip of a good colour; the flowers of P. grandiflora were also well shaped and large, the orange centre of the lip contrasting well with the white. There are some very fine plants of P. Schilleriana, of a rich mauve colour; these enliven the white kinds wonderfully. The Vanda-house is at this time of the year very gay with bloom. There are some fine varieties of V. tricolor and V. suavis; I have never seen any bloomed better than these are. Some think these plants do not flower until they attain a large size; but it is a mistake, because here they commence when quite small, and continue year after year until they are large-sized specimens.

Mr. Warner excels in flowering Orchids. Any class he takes in hand he succeeds well with. In the Cattleya house there are hundreds of sheaths which will make a grand display in their proper season. *B. S. W.*

Home Correspondence.

Eccentricity of Growth.—In an old Spruce Fir which was lately blown down here I have found a remarkable instance of the "eccentricity of growth" commented on by "H. R." in the *Gardeners' Chronicle* of February 27, p. 279. In a section of a branch, an oval 15 × 7 inches, the pith is 1 inch from the upper side, and 14 from the lower. The annual rings, which may be easily counted on that side, are about 100. Your correspondent is quite correct, as far as I have observed, as to the growth being greatest on that side of a tree where the branches and foliage are the most abundant. I have had several sections cut off, and shall be glad to give specimens to any public museum where they might be desirable, if the curators will apply to me, either directly or through your paper. *W. C. Trevelyan, Wallington, Northumberland.*

Myosotis dissitiflora.—In several of your recent numbers the subject of Myosotis dissitiflora has been under discussion. One of your writers says "it does not take kindly to pots." Now, as I have had a quantity of it in full bloom in pots for the last three weeks, and some now in seed, perhaps a line or two on my process of cultivation may be acceptable. I take seedlings, not old plants, out of the border in the months of April or May, before the great heat has injured them, and plant them behind a north wall. By October or November they have become spreading plants with every shoot well rooted, these I break off and put in in threes or fours in 6-inch pots, and place anywhere, well exposed to wind, rain, or frost. About Christmas I bring them into a greenhouse, and with little or no heat they bloom freely. Thus grown for market they would doubtless be very profitable. *B. Piffard, Hill House, Hemel Hempstead.*

The True Oxlip (Primula elatior, of Jacquin).—In a notice of this very distinct plant at p. 239 you mention a number of points, "without enumerating the botanical characters," in which it differs from the false Oxlips, whether hybrids or simply developed Primroses. There is, however, one off-hand feature which you have not referred to, with which, as having grown the plant in my garden for the last forty years, I have always been struck, especially at this season of the year. I allude to the "rosette" of young leaves, which it shows through the winter and in early spring. On examining any number of the true Oxlip growing amongst Primroses, Cowslips, or false Oxlips, it is readily distinguished by the rudimentary leaves, which are at first little more than scales or broad membranous bracts, the true figure of the leaf being scarcely perceptible. The inner rows of leaves show a little more of the true leaf, and as the spring advances the bract character of the leaf diminishes while the leaf proper expands. I have several plants at the present time, but it was more conspicuous a fortnight ago, when the young plants looked more like a Pinguicula than a Primula, so broad was the leaf-stalk, and so impalpable the leaf. This distinctive character disappears altogether as the year advances, and therefore is one not likely to be noted by any but the cultivator. The other distinguishing botanical characters are admirably given by Babington, in his *Manual of British Botany.* I would, however, remark that the numerous seedlings which have come up from time to time in my garden, although they all present the specific characters mentioned by Babington, and also exhibit the leaf-development I have referred to, vary a good deal in the form of the corollas, the subdivisions of which in some are nearly square at the end and linear on the side, and many of the seedlings are, moreover very dwarf in size and feeble in growth. *W. Marshall, Ely, March 7.*

Grapes.—Your correspondent, T. Martin (p. 312), writes for information respecting certain Grapes which he is thinking of grafting on his Frontignans (a very delicate and bad stock). My first acquaintance with Duke of Buccleuch was as a judge at the international show held at Glasgow in the autumn of 1872, and although we had been tasting Grapes for two hours previously, yet this noble Grape pleased me very much, the flavour, to my mind, was perfection, and the appearance was everything to be desired. It did not take long for us to give it a First-class Certificate. Madresfield Court is a good mid-season Grape; with me it does not keep. Waltham Cross I hear good accounts of, but I have not fruited it yet. Venn's Black Muscat I know nothing about, but of Mrs. Pince's Black Muscat I do. This truly fine Grape I have stood up for ever since I saw it the first day it was staged in London, when there unfortunately was hardly a member of the Pomological Society present to judge it. A curious fact, Mrs. Pince's keeps better in this locality than Lady Downe's. The Muscat Hamburgh is quite turned out of the field by Mrs. Pince's, and let those interested in late Grapes not forget Alicante—it is a fine kind. *J. Rust, Eridge Castle, Tunbridge Wells.*

The Wild Daffodil.—*À propos* of your article on Daffodils will you allow me to draw attention to an interesting circumstance in the history of the common wild Daffodil, namely that, if transplanted to the soil of a garden it becomes double in two or three years, and, conversely, that the common double garden variety if transplanted to a meadow, unless the soil is very rich and strong, soon returns to the wild type of Narcissus Pseudo-Narcissus. This may not be generally known, but will probably account for more elegant single flowers not being seen more frequently in gardens. Those who question this statement must be careful not to confuse a smaller species of single dwarf Daffodil, common to gardens, in which the calyx is of the same deep yellow as the corolla, whereas in N. Pseudo-Narcissus it is much lighter, in fact nearly white. *C. W. D.*

Rating Nurserymen's Greenhouses.—Seeing in the *Gardeners' Chronicle* several letters on the above subject, and being myself one of the unfortunate victims, I am glad to see that there is some probability of steps being taken to get a settlement of the question, for it is time something was done to resist these unjust assessments of nurserymen's greenhouses, which in certain local parishes they rate in a most excessive manner. In my own case, I really think they must have valued my profits as well as the glass. I have five small span-roofed glass-houses, of the average length of 48 feet by 10 feet wide, which last year the parish authorities assessed at £60 and rated them at £40 (the land upon which they stand, with the dwelling-house and sheds, are rated separately). I appealed against the rate, and got it reduced to £27, which I consider most excessive even if they are rateable. There being little or no trade done at home, I have to take my goods to the London markets, a distance of 12 miles. I am glad to see that the case is being taken up by Messrs. Protheroe & Morris, and as soon as a committee is formed I will forward my subscription. *C. Greening, Florist, East Wickham, Kent.*

Eucalyptus amygdalinus.—I fear few of the species of Eucalyptus will be found sufficiently hardy to withstand the severity of our winters, except in the southern and more favoured localities. For many years past experiments have been made here with numerous species, not a few of which appeared to thrive for a few years, some of which grew rapidly; but all, with one exception, succumbed when a severe winter set in. I enclose a twig, the name of the species I do not know. [Eucalyptus amygdalinus. Eds.] This variety was planted out upwards of twenty years ago, in a shrubbery in a very exposed situation, and now stands 8 or 10 feet above the largest shrubs, uninjured by wind or frost, notwithstanding the late unusually severe winter. *Arch. Fowler, Castle Kennedy.*

Salad for Winter and Spring.—Most gardeners find it an easy matter to produce first-class salad during the summer and autumn months; but when the demand has been large and continuous for three or four months before Christmas, or when a very severe winter occurs, and glass accommodation is scanty, many, I believe, find a difficulty in keeping up a regular supply from this time until spring-sown Lettuce, Radish, &c., come in. Some of your readers may be glad to know that Lettuce sown thickly in pans or boxes (or, where a large quantity is required, in a frame or pit), like Mustard and Cress, and grown in a high temperature, will quickly produce some excellent stuff to cut from. For dressed salad this forced Lettuce is much to be preferred to a hardy Cabbage Lettuce from the open ground at this time of the year, being almost white, and very tender. In France this mode of Lettuce forcing is carried on extensively. I was told that they had a variety over there which forced better than any we possessed in England. My employer got me some seed from France, from which I grew on some plants, and had them planted out, intending to have saved the seed; but they turned out to be nothing but the old Drumhead Cabbage Lettuce, or a variety very similar to it. Seed of any summer variety of Lettuce will answer the purpose well. Where Chervil is in request for salad, this may be forced freely, if scarcity should arise out-of-doors. *Owen Thomas, Drayton Manor Gardens.*

Mistleto.—It may interest some of your readers to know that in the pretty village of Bishopstoke, midway between Winchester and Southampton, are

three very large Black Italian Poplar trees, growing on a gentleman's lawn by the side of the River Itchen, covered with Mistleto, and producing during the winter season a weird and singular appearance. On one of the trees I counted more than sixty large bunches, and on each of the other two nearly as many. In the same village a quantity of Mistleto is growing on a large Medlar tree. In the next village of Swaithling, between Bishopstoke and Southampton, is a group of large Lime trees with quantities of Mistleto, even to the topmost branches, proving that it is propagated by birds (the Missel Thrush in particular, hence the name—"Turdus viscivorous") eating the viscid berries, and afterwards rubbing any stray seeds from their beaks, or, as some suppose, by voiding them, which, adhering to the branches, germinate the following summer. In fact, any means taken to fix the seeds of this parasite, either on or in the bark of its favourite trees, will generally prove successful. In my own kitchen garden I have several Apple trees and a standard Peach tree bearing several branches of Mistleto, from seed I inserted in the bark a few years since. *W. H. Rogers, Southampton.*

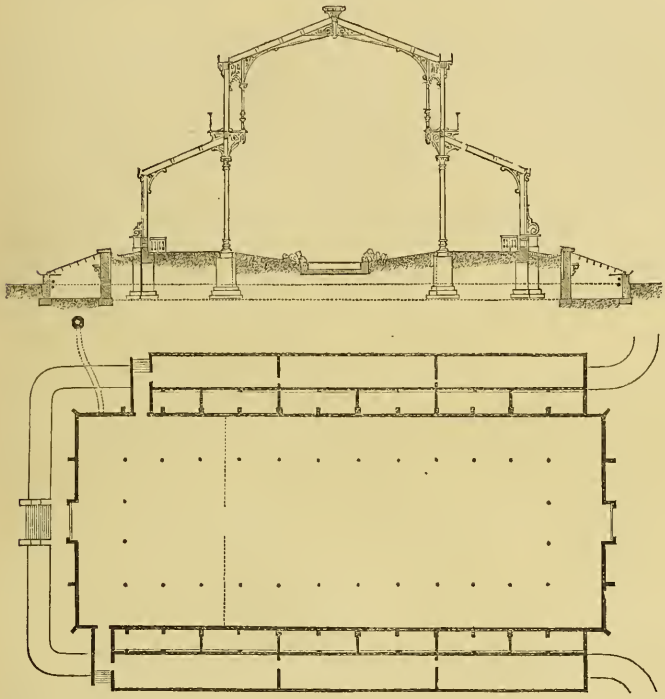


Fig. 67.—Section and ground plan of the Comte de Kerchove's winter garden at Ghent.

Forestry.

The cutting down of most kinds of wood and timber should now be proceeded with and finished as expeditiously as possible, except Oak, Larch, and Alder, which may be required to stand till the sap rises, or rather liquifies, that they may be flayed or peeled for the sake of the bark for tanning purposes.

With certain descriptions of trees it is of no vital importance at what season of the year they are cut, while with others it is a matter of the first importance. Old and mature trees of whatever species may, without depreciating the value of the timber, be cut at any season, as the duramen or heartwood is in no way influenced either by the sap, which only flows in the vessels of the sapwood, or by the temperature of the atmosphere, which greatly influences the state and condition of the alburnum. A tree may be deprived of all its heartwood, as is often seen in old and decayed ones, without suffering in its growth. I have seen trees in excellent health and vigorous growth externally which, on being cut down, showed that only the outer surface or shell was sound, and that not exceeding an inch or so in thickness. Examples of this are quite common, both amongst Pines and hard woods of all sorts. The heartwood of trees during its formation undergoes such important chemical changes as to constitute it an almost totally different substance from what it was in the condition of sapwood. The perfect or heartwood is scarcely if at all influenced by frost, at least in the Pines and Firs, neither does it sustain injury by being cut when the trees are full of sap, or become discoloured through humidity or high temperature, which latter are among the greatest evils that befal saplings and sapwood generally when cut during the summer season. Ash is more extensively used for tool handles than any other species of tree, possessing the fourfold merit, as the workmen say, of being soft and easy for the hands, elastic, and durable. That Ash-wood may be rendered all the more valuable for the various purposes for which it is applicable it should be cut during the winter season, or at least between the fall of the leaf and the opening of the bud. Ash for tool handle-wood (which implies comparatively young trees) after being cut should be allowed to lie with the bark on six or eight months before sawing up, and when manufactured it should be stored in a dry place and excluded from the direct rays of the sun.

The smooth, glossy bark of the Ash indicates its suitability for purposes of strength and elasticity, while the rough, corticated, and fissured bark shows that toughness has given place to brittleness, and that the tree is either matured by age, or unfavourably affected by soil, climate, or other influence. Ash for handle-wood, if properly prepared, is at its best about two years from the time it is cut, after which it gradually loses elasticity, till it ultimately becomes quite brittle and worthless.

While many cogent reasons may be assigned for cutting both timber trees and underwood before the flow of the sap, I take exception to one of those commonly urged—namely, that the growth of the copse is better when the stools are cleared before the sap rises. Examples of this I have repeatedly seen in cutting over old hedges to renew them. When cut over in the winter season, or even in spring, before the buds expand, the shoots not only are few and weak, but the stools in many cases die outright. On the other hand, I have seen hedges and hard-wood trees of all sorts cut when in full leaf, without any injury accruing to the stools or without inducing feebleness of growth in the shoots. The best and safest time for cutting over all such trees, shrubs, hedges, &c, as are doubtful, from old age, of producing a succeeding crop, is after the sap is flowing and the leaves are considerably expanded. On one occasion I had a Thorn hedge cut over in the second week of June, and, contrary to expectation, it made shoots the same season over 3 feet long and matured them equally as well as those on the other hedges which were not cut over.

It is a very general belief that the sapwood of Oak is impaired by cutting the timber when the sap is up, as it is termed. The sapwood, I am inclined to think, is more impaired by taking off the bark, and thereby exposing it to the elements, than by any effects the sap has upon it. If trees are cut in winter the bark adheres to the stem for many years, which, if in the form of a gate or paling-post, it protects and preserves better than paint or any other appliance; but if cut in summer, the cambium is in such an imperfect state as to cause the bark and the wood very soon to separate. *C. V. Michie.*

Notices of Books.

Synopsis Filicum; *or, Synopsis of all Known Ferns.* By the late Sir W. J. Hooker and J. G. Baker. Second edition. Hardwicke. London.

The first edition of this work appeared in 1868, and was noticed in the columns of this journal. There is no alteration in the form or arrangement of the contents, and although of the utmost value to all students of pteridology, it is not exactly a gardener's book. In the first place, forms sufficiently distinct for horticultural purposes, and for which gardeners must have names, are not only referred in innumerable instances to the same species, but they are rarely noticed. Thus all the forms of Angiopteris are united under A. evecta. But it is not from a horticultural point of view that we may criticise it, as its object is to give an account of all the types of Ferns without going into too much subdivision. Many writers would carry division one step further, making (in many instances), genera of species, and so on; but there can be little doubt which is the better plan for a work of this nature, especially as the work is well done up to the point to which it is carried. Notwithstanding the broad view taken of species in this work, there are about 400 additional ones admitted, and the defective index of the first edition has been remedied. Unfortunately the first edition was stereotyped, and the additional species had to be given in an appendix, except in cases where more complete specimens has led to the reduction of others. This necessitates reference to both parts of the work. The new species belong chiefly to the genera Asplenium, Nephrodium, and Polypodium, as defined in the works of the late Sir W. J. Hooker. There is also a considerable number of new Tree Ferns described in this edition. Only one new genus, Diplora, is given. It is closely allied to Asplenium, and at present comprises a single species from the Solomon Isles.

We may mention that the complete index to the second edition has been reprinted, and is sold in a separate form. It will be very useful for purpose of exchange as a catalogue of all the species admitted, with some of their more important synonyms and varieties. The authorities for the names are unfortunately not given, so that in cases where the same name—as has often happened in Ferns—has been applied to different plants by different writers, it is not possible to tell without referring to the book which has been retained.

For many reasons beyond the new species it contains, botanists will be glad of the appearance of a second edition of the *Synopsis Filicum.* It is a pity that it does not contain more detailed information.

—— The third part of *Dr. Hooker's Flora of British India*, completing the first volume, has just been issued (Reeve & Co.). The orders monographed are Balsaminaceæ, Rutaceæ, Chailletiaceæ, Ilicineæ, by Dr. Hooker; Simarubeæ, Ochnaceæ, Burseraceæ, by Mr. A. W. Bennett; Meliaceæ and Sapindaceæ, by Mr. W. P. Hiern; Olacineæ, Icacineæ, by Dr. Masters; Celastrineæ, Rhamneæ, and Ampelideæ, by Prof. Lawson. The magnitude and intricacy of the work may be gleaned from the enormous mass of synonyms to be hunted down and verified. In one case (Allophylus Cobbe) half a page of solid type is occupied with synonyms only. No wonder, then, that the index alone occupies forty pages of three columns each. Three years have been occupied with one volume; when, then, are we likely to see the end of this work, condensed and concise in type and matter though it be?

—— A new and thoroughly revised edition of *The Cottager's Calendar of Garden Operations*, originally compiled by the late Sir Joseph Paxton, M.P., will shortly be ready.

HORTICULTURAL EXHIBITIONS, 1875.

March.

24.—Glasgow and West of Scotland Horticultural Society. Spring Exhibition. Sec., F. G. Dougall, 167, Canning Street, Glasgow.

27 to April 3, inclusive.—Royal Horticultural Society, South Kensington. Mr. William Paul's Special Show of Hyacinths, Tulips, Roses, and other spring flowers.

31.—Royal Botanic Society, Regent's Park. Spring Show. Sec., W. Sowerby.

April.

4.—Special Exhibition of the Royal Horticultural Society of Antwerp.

7.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.

THE

Gardeners' Chronicle.

SATURDAY, MARCH 13, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

Monday,	Mar. 15	Meeting of the Entomological Society, at 7 P.M. Sale at Muskett's Nursery, Clapham Rise, S.W., by Protheroe & Morris.
Tuesday,	Mar. 16	Sale of 10,000 Lilium auratum from Japan, at Stevens' Rooms. Manchester Botanical and Horticultural Society's Floral Meeting in the Town Hall. Sale of Poultry and Pigeons, a quantity of Wire Hurdles, Netting, &c., at Stevens' Rooms.
Wednesday,	Mar. 17	Royal Horticultural Society: Meeting of Fruit and Floral Committees, at 11 A.M.; Scientific Committee, at 1 P.M.; General Meeting, at 3 P.M. (Hyacinth Show.) Sale of Roses, Fruit Trees, Shrubs, Gladioli, &c., at Stevens' Rooms.
Thursday,	Mar. 18	Meeting of the Linnean Society, at 8 P.M. Sale of the Kirkdale Nursery, Sydenham, by Protheroe & Morris, at Tokenhouse Yard.
Saturday,	Mar. 20	Sale of Rhododendrons, Conifers, Fruit Trees, Roses, Hardy Climbing Plants, &c., at Stevens' Rooms.

THE annual meeting of the Royal Horticultural Society has come and gone, but the situation remains unchanged, and therefore we can only reiterate our former arguments as to what is or what ought to be done. The legality of the present Council has been admitted by Her Majesty's Commissioners—that is one difficulty removed. The Council has carried its report in the face of a motion for adjournment; it is not so clear that this removes another difficulty from the Society's path, for in truth it either indicates a tendency on the part of the Council to trust to "concerted action" rather than to arrange workable terms with Her Majesty's Commissioners, or leads to the suspicion of another leap in the dark, as in the case of the skating rink.

Assuredly the proposal to let the report stand over until the Council could inform the Fellows what terms Her Majesty's Commissioners would agree to, was most reasonable; but its reluctance to do this, when it is patent to every onlooker that herein lies the salvation of the Society, if it is to be preserved at all, is, as we fear, an evil omen. The holding of the garden is, however, the crucial point. The horticulturists don't want it, except as a meeting ground, so that it is an utter fallacy to suppose they will continue to be taxed, even as they now are, for the mere benefit of the local Fellows. The local Fellows, it seems, won't pay the increased subscriptions which they certainly ought to pay for its maintenance, since it is they who derive the chief benefit from its being kept up. So the bankrupt condition of the Society is to be perpetuated, and the Council will retain its supremacy over—a pile of debts and a heap of ruins.

Thus, as we have said, the situation remains unchanged, and we must hold to our former recommendations. The Society is bankrupt, and apparently will not, perhaps cannot, help itself. Its only hope of surviving the present shock is to make NEW TERMS with the Commissioners. They, we are told, do not want the gardens in their own hands—a consummation of which the local residents profess to be afraid; and they will, so we have been told, make a new and workable bargain with the Society, as a society of horticulturists—not otherwise. We have told the Council this already. The meeting, both that of February 9 and that of March 9, impressed these facts upon it, although in modifying its report for the latter it paid no heed to the sentiments so freely expressed on the negotiation question at the former of these meetings. We repeat the same advice and warning now, and we shall again and again reiterate it—"*Go to the Commissioners, make the best terms that can be made with them in the interests of horticulture; we do not refuse to help maintain the gardens as a fashionable resort, but we do refuse to sacrifice horticulture to fashion. Go! and go at once, before the opportunity is lost.*" No other scheme can possibly remove the millstone from about the Society's neck. No amount of increased subscriptions which can be expected to be forthcoming can do more than stave off the final crash. No other course will prevent the rapid exodus of horticulturists from a horticultural society in which Horticulture itself is made a secondary consideration, and horticulturists the tools of a more united and powerful body.

Of the goodwill of Her Majesty's Commissioners we have never entertained any serious doubt, and none can possibly remain after the authorised assurances of their representatives. If, therefore, our own Council will not take the obvious steps to save the Royal Horticultural Society as a horticultural society, that is to say, primarily and before all things for the advancement of horticulture, LET IT GO. Her Majesty's Commissioners, with the son of the good Prince who planned the present scheme, and intended, had he been spared, to have made it work well, at their head, can scarcely, in the public interest, suffer the grand conception to fail; and they would doubtless cause to rise up on the ruins of the old a new Royal Horticultural Society, purified from the dross which clogs the progress of that which seems rushing onwards to its fate.

—— We are requested to state that in consequence of the representations made by several of their regular exhibitors (particularly of florist's flowers), the Council of the Royal Horticultural Society have determined to hold all the exhibitions as originally advertised in the schedule for 1875; but that to carry out the reduction of expenditure suggested in their advertisement in the gardening papers of February 18 and 20 last—by striking off the list the exhibitions of March 17, April 21, September 1, and November 10—50 per cent. of all the several prizes offered in the schedule must be deducted, leaving the values of the "medals" as they were.

—— To-morrow is the Sunday generally known in the North of England as CARLING SUNDAY. Carlings are small grey peas, which, having been steeped in water the night previous, are fried in butter upon Passion Sunday, and eaten usually at the evening meal. This custom has prevailed for a very long period, and is still in vogue at the present day. The day is also known as Care, Carle, or Careing Sunday, and the custom prevails in Lancashire as well as in the more northern counties, and extends into Scotland. In Yorkshire it is the practice to spend on this day at the public-houses what is called the carling-groat, that sum being laid out in drink; the carlings are provided by the landlord, and the partaking of them is supposed to ensure luck for the ensuing year. At Newark a fair was formerly held on the Friday before this day, which was called Careing Fair; and the couplet—

> "Care Sunday, care away,
> Palm Sunday, and Easter Day,"

is still in use in Nottinghamshire. It is difficult to ascertain the origin of this custom. Dried peas seem to have been commonly used as food during Lent in pre-Reformation times; thus the Lady CLARE, a granddaughter of EDWARD I., bequeathed, in 1355, 61 qr. of Beans, Peas, and Vetches, for the season of Lent; and PALSGRAVE speaks of parching peas "as folkes use in Lent." Possibly, as the more solemn ceremonies of the Lenten season commenced on Passion Sunday, the use of Peas on that day was intended to indicate the necessity of more severe mortification. A correspondent of the *Gentleman's Magazine* for 1786 quotes "an old author" as having said that the custom took its rise "from the disciples plucking the ears of corn and rubbing them in their hands;" but its origin may probably be traced to Pagan times. HONE incidentally alludes to the custom when giving an account of a robbery by two footpads in 1785; he says that Carling Sunday is "so called because it is the custom of the lower orders in the North of England to eat immense quantities of small peas, called carlings, fried in butter, pepper, and salt, on the second Sunday before Easter."

—— The first exhibition of the season of the COVENTRY AND WARWICKSHIRE FLORAL AND HORTICULTURAL SOCIETY will be held on May 31.

—— The flowering of bulbs in glasses is now so common as to excite no remark, but it was not until 1729 that this method of WINDOW GARDENING was discovered. A Swede named TRIEWALD made the discovery, which he at once communicated to the Royal Society; and the following year experiments of this method were tried by PHILIP MILLER, at the Chelsea Botanic Garden, upon "a Hyacinth, commonly known by the name of Pulchra," Tulips, Narcissus, &c. The result of these experiments will be found in the *Philosophical Transactions* for 1731-2, where the glasses originally employed by TRIEWALD are figured. They differ very little from the Hyacinth glasses at present in use, but are somewhat broader at the base.

—— An instance of the CLOSING OF FLOWERS, which is of importance in connection with "bedding-out" (see p. 310), may be found in the beautiful, if occasionally troublesome, Oxalis corniculata rubra (or O. tropæoloides, as it is also called). Some three or four years since the beds on the slope below the Round Tower at Windsor were thickly bordered with this plant. The effect at mid-day, when the bronze-coloured foliage was relieved by hundreds of little golden stars, was beautiful in the extreme; and the different appearance presented by the border later in the day, when the blossoms had closed, was very remarkable. In addition to the Orchids cited as possessing their fragrance only at certain times of the day, may be mentioned Epidendrum vulnerum, which M. ANDRÉ says has an odour of Carnations in the morning, but is scentless at night; Cattleya chocoensis, C. quadricolor, various Lycastes, Lælia anceps, Maxillaria nigrescens, and several Odontoglots, all of which are fragrant only in the morning; while Cattleya Eldorado, Odontoglossum cristatum, Schomburghkia gloriosa, and others, are fragrant only in the evening.

—— The DUNDEE HORTICULTURAL SOCIETY'S grand floral fête will be held in the High School Grounds, Euclid Crescent, Dundee, on August 26, 27, and 28.

—— In connection with the very interesting paper upon the CARNIVOROUS HABITS OF UTRICULARIA CLANDESTINA, which we printed in our last issue, it may be well to note that the insect-trapping peculiarity of the bladders of our common U. vulgaris had been already recorded. Mr. ROBERT HOLLAND, in the *Quarterly Magazine of the High Wycombe Natural History Society* for July, 1868, has the following observations upon this point:—"It is probable that the bladders also have another and very different duty to perform, not less important, perhaps, than that of floating the plant in the water, namely, the capturing of insects which are destined for the plants to feed upon. Certain it is that very small insects are often found imprisoned in the bladders—the opening allowing them to enter, but, from its construction, preventing their escape. The Utricularia, it has been seen, cannot obtain mineral matter from the soil, having no roots; nor gaseous food from the air, having no stomata; and the animal food thus obtained may supply certain elements which it could not derive from the water; and the Utricularia may be added to the list of the highly interesting carnivorous plants."

—— In the *Revue de l'Horticulture Belge* M. BUCHETET gives a TEST for ascertaining the QUALITY OF A PEAR. If, says he, you can write on it easily with pen and ink, it is a good Pear. Other Pears, whose rind does not take the ink so well, are inferior in flavour. We presume that as there are no rules without exceptions, so some may be found here. Some of our correspondents who are in the habit of writing the names of their Pears on them, will, perhaps, give us their experience.

—— A correspondent brought under our notice the other day an exceedingly beautiful spike of MILTONIA WARSCEWICZII, which had been grown in the garden of G. COPELAND CAPPER, Esq., Leyton. It was 6 inches long, and 5 inches broad at the base of the triangle; had three branches with four flowers on each, one branch with three flowers, and five single flowers, making in all twenty fully expanded blossoms. The lip measured about three-quarters of an inch square, one-third being pure white, and the remainder of a brownish plum colour, the sepals and petals being brown, with decided chrome-coloured tips. The plant is quite a modern introduction, and is known in gardens under the names of Oncidium Weltoni,

Fig. 68.—View in the interior of the Comte de Kerchove's winter garden at Ghent.

Odontoglossum Weltoni, and Oncidium fuscatum. It was described in our volume for 1869, pp. 277, 1067, and figured in 1871, p. 1258; and there is a good figure in the *Botanical Magazine*, t. 5843.

—— We have just received a communication, dated Hong Kong, December 31, 1874, from Mr. Moseley, the naturalist on board the *Challenger*, which, though containing nothing absolutely new, may be interesting to many of our readers. When at a Chinese dinner at Hong Kong he found on his plate three very questionable looking bodies, but which were evidently some Sphæria, growing on a caterpillar. It is, in fact, Cordiceps sinensis, Berk., now referred by Tulasne to his genus Torrubia, of which there is a figure in Lindley's *Vegetable Kingdom*, p. 39. He does not say of what particular meat it was the condiment, but it is a well-known fact that it is often served as an invigorating drug in the form of a stuffing to a duck. It is also considered good for consumption. Little bundles of it are sold in the shops, at a high price, one of which accompanies this communication. It comes from the northern provinces, and bears the name of Jung-tsung-tso, or the winter worm-grass, and is imported from Shanghai. It is probably called the winter grass because the caterpillar buries itself in the autumn. The Chinese know that it is a plant growing out of a worm like a silkworm, as one of Mr. Moseley's notes explained the matter, who said that it was considered a very powerful medicine; and we, therefore, recommend the subject to the homœopathists. The Chinese also use a larger species, of which we have not seen specimens, but not impossibly it is the Torrubia Robertsii, Berk., which is so common in New Zealand. *M. J. B.* [The fungus in question was shown at the last meeting of the Scientific Committee by Mr. Berkeley, and a woodcut in illustration of it was given in our report (p. 314). Eds.]

—— We understand that the Royal Botanic Gardens at the Cape of Good Hope are to be embellished with a new conservatory, which is at present being constructed by Messrs. James Boyd & Sons, at their works in Macdowall Street, Paisley. In shape the conservatory is cruciform, and consists of a centre house, 40 feet long 24 feet wide, and 26 feet high; with wings on either side of it, 33 feet in length, 20 feet wide, and 18 feet high. The conservatory is built entirely of Teak wood, which will stand the climate much better than any other wood, and the roof is a span, formed of curved astragals, which are made of malleable iron. Particular care has been paid to proper ventilation, which has been secured by an ornamental lantern light along the roof of each house, while the sashes on each side are hung on pivots, and each set of sashes can be opened at one time by means of Messrs. Boyd's improved gearing.

—— The next meeting of the Institution of Surveyors will be held on Monday evening, March 15, when the paper by Mr. E. Ryde, entitled "The Rating of Country Mansions," will be discussed, after which (should time permit) the adjourned Discussion on the Home Secretary's Bill for Facilitating the Improvement of the Dwellings of the Working Classes in Large Towns will be resumed.

—— A cause which has much good in it, even though it is not all good, may be seriously injured by injudicious advocates. Most of us would advocate the increased Culture and use as food of Vegetables and Fruit in this country. Most of us would agree that the quantity of animal food consumed by individuals in this country is greater than it need be, still few of us would be inclined to assert that the partaking of animal food was such a mistake as the ultra vegetarians do. "More light" is undoubtedly wanted in this matter, but it is clear we must not look to "Sister L." for it. This lady says, in the *Dietetic Reformer* for March, that a good time is coming, or will come, "when the Cow-tree, Humboldt's *Palo de vaca*, shall grow wild in England, and vegetable cream and butter be fresh gathered every morning." The Cow-tree is scientifically known as Brosimum Galactodendron, and is one of the Bread-tree family (Artocarpaceæ), inhabiting Venezuela. We fear we shall have to wait a very long while ere "Sister L.'s" hopes are realised; meanwhile will "Sister L." stir up the bakers and get them to give us good wholesome bread in variety, which shall not weary us by its unpalatableness, and choke up our *fauces* in the attempt to swallow it?

—— The Dundee Horticultural Society has decided upon holding an International Exhibition of pot plants, cut flowers, fruits, roots, and vegetables, in August, 1876.

—— Mr. Serjeant Cox, in a recently published tract,* endeavours to show that many of the difficulties connected with the subject of Inheritance by the offspring of the qualities of one or both of its parents, may be removed by supposing the original germ to be in itself of duplex nature. In a plant, for instance, the embryo would result, not from some unexplained action consequent on the contact of the pollen tube with the embryo sac or the germinal vesicle within it; not, as Schleiden supposed, from the pollen itself—the embryo sac merely providing, as it were, a cradle for it; not from either of these, but from the junction of two germs, one contributed by each parent. Among the Algæ some such fusion is evident in the process of conjugation, where the contents of two originally separate cells become blended into one mass. The same thing happens in the case of the zygospores of some fungi, though in others, as in Peronospora, contact not fusion seems, as far as we know at present, to be the course followed in the development of the spore. The fertilisation of the ova of the Amphibia, as originally observed by Mr. Newport, is another case in point. At any rate there are some grounds for supposing that what Mr. Sergeant Cox puts forth as a "mere suggestion" may prove to be a fact of general occurrence. If so, then it is easy to see how certain phenomena, such as the bi-lateral symmetry of the organism (though this may perhaps be explained without any such assumption), the duality of the mind, and the inheritance by the child of the mental and bodily characteristics of both parents, may be explained, Hybridism and "sporting," or bud-variation, both receive much illustration from this notion. A "sport" is undoubtedly very often merely the result of the separation of the characters possessed by the parents of more remote ancestors, and heretofore blended in the seedling. Naudin showed how the same dissociation of characters might occur in crossed or hybridised seedlings. Seedling or bud must each contain dual elements. The blending may be more recent and more direct in the case of the seedling than in the bud, but it must exist in both nevertheless. Although the theory propounded by Mr. Cox requires, of course, further evidence in its support, it is, however, very plausible, and would serve to account for many phenomena not readily explained at present save by Darwin's hypothesis of Pangenesis, which deals too largely in assumptions to maintain itself in the future without modification. Mr. Cox's theory is, indeed, so plausible that we shall not be surprised to find that others have lit upon the same explanation previously—an impression which we have not at the moment the opportunity of verifying.

* *Heredity and Hybridism.* By E. W. Cox, S.L. Longmans.

—— An exhibition of plants and flowers will be held in the Kibble Conservatory and Royal Botanic Garden, Glasgow, on May 7 and 8, when upwards of £150 will be offered in prizes, including four handsome silver cups, offered for competition by Mr. William Bull.

—— The approaching sale of the Garston Vineries near Liverpool, by Messrs. Protheroe & Morris is an event of sufficient magnitude to justify us in calling special attention to it. Horticulturists familiar with the triumphs won by Mr. Meredith will regret the disintegration of so extensive and complete an establishment, and it is to be hoped that some one may be found with spirit and means enough to carry on what was really creditable to the nation.

—— Mr. R. S. Dunbar, of the Thames Bank Iron Company, wishes us to state that he is in no way connected with Messrs. Dunbar & Co., of 91, London Wall, E.C.

—— Under the title *Sieboldia*, a weekly horticultural journal has been established at Leyden, under the editorship of M. Witte. We learn also from the *Belgique Horticole* that a committee has been established in Vienna to erect a monument to Philip von Siebold, who introduced so many fine plants from Japan. Professors Fenzl and Reichart, M. Schirnhofer, Secretary of the Horticultural Society; and MM. Abel and Hooibrenk, constitute the committee.

—— The new edition of Gordon's Pinetum has just been issued (Bohn). We shall take an early opportunity of examining its contents and reporting thereon.

PESCATOREA DAYANA CANDIDULA.

This interesting and distinct variety of Pescatorea Dayana (fig. 69), which was introduced both by Messrs. Veitch & Sons and Mr. Bull from New Grenada, was described by Professor Reichenbach at p. 756 of our first volume for 1874. The plant appears to afford considerable variety, four different kinds being mentioned by Reichenbach in the paragraph referred to. In the present instance the sepals and petals are of a pure white, while the lip is tinted with purplish crimson. The typical form has green tips to the sepals; the var. rhodacra has the sepals and petals tipped with purplish rose, while the var. splendens has the tips of these organs of a deep violet. Hence it will appear that the variety now under notice is more especially distinguished by the absence of the coloration at the tips of the sepals and petals, which are uniformly white. *T. M.*

Reports of Societies.

Royal Horticultural: *March* 9.—The adjourned annual general meeting was held in the Council-room, South Kensington, the President (Viscount Bury) in the chair.

Mr. W. A. Lindsay, the Secretary, read from the *Times* the advertisement convening the meeting.

Distributed through the Council-room were copies of the following amended

Report of the Council to the Adjourned Annual General Meeting.

1. The Council are happy to inform the Fellows of the Royal Horticultural Society that, since issuing their report to the Society, the position of affairs has materially changed.

The speech made on behalf of Her Majesty's Commissioners at the meeting of February 9 was so friendly in character, and conveyed assurances so satisfactory to the Society, that the Council feel it incumbent upon them to omit from their report any passages which might present even the appearance of disunion between themselves and the Royal Commissioners.

2. The Council have great pleasure in again commenting upon the magnificent displays of fruits, flowers, foliage and other plants at the Society's exhibitions during the year 1874, and especially at the concluding exhibition of the season, when the collections of fruit and Chrysanthemums surpassed almost all similar collections of former years.

3. The amendments introduced into the schedule, together with the reduction in the number of the exhibitions, have all contributed to this gratifying result.

4. The more purely scientific work of the Society has been ably performed, and the meetings of the Fruit and Floral Committees have been well attended.

To encourage still further the discussion of horticultural subjects, the Council have established, as an experiment, evening meetings, which those Fellows who are interested in horticulture are specially invited to attend. The experiments made at Chiswick form, as usual, the subject of a supplementary report.

5. In the course of last summer the Council received a very advantageous offer from Messrs. Prince, for the privilege of constructing a skating rink in the Society's gardens.

6. Messrs. Prince proposed to pay, by way of rent, a sum equal on an average to £1100 a year, to erect the rink and necessary approaches entirely at their own expense, and to conform to such conditions and regulations as might be approved by the Council. The Council considered it their duty to accept this offer, believing that it would be agreeable both to Her Majesty's Commissioners and to the Society. The monies accruing from this source would assist the Society to meet punctually their engagements not only with their landlords, but with their debenture holders and other creditors, and by relieving the Society from the pressure of pecuniary embarrassment, would enable them to devote more time, attention, and funds to the improvement of horticulture in all its branches.

The rink might thus be said to come within the terms of our lease, by contributing materially, though indirectly, to the interests of horticulture.

7. Her Majesty's Commissioners, however, did not consider it expedient to become parties to this arrangement; and as, under the charter of the Society, Her Majesty's Commissioners have the power to prohibit any proceeding of the Society which is not directly of a horticultural nature, and the Society have, moreover, no power to assign, underlet, or part with the premises demised to them, without the consent in writing of Her Majesty's Commissioners first obtained, the Council felt it right to proceed no further with the arrangement with Messrs. Prince, although no direct prohibition had been sent to them by Her Majesty's Commissioners.

The Council beg to express a hope, based upon friendly communications recently made to them by Her Majesty's Commissioners, that all difficulties in the way of a satisfactory understanding between Her Majesty's Commissioners and the Society may soon be removed.

8. The Council have now to call the earnest attention of the Fellows to the financial position of the Society.

During the past year it has been impossible to make any great impression upon the amount of the debts due by the Society referred to in the last report. The Council are, however, happy to inform the Fellows that they have succeeded in compromising for a cash payment of £600 a debt due to the executors of Sir Trayton Drake of £1000 (with interest since 1864), which was advanced to the Society prior to 1860; and which, until the accession to office of the present Council, had been ignored in the published accounts of the Society, and they have also settled a claim of Mr. Cooper's amounting to £105 for work done in the year 1862.

It has become evident to the Council, and, indeed, must be apparent to the Fellows, that the ordinary revenue of the Society cannot support its present expenditure; and to prevent any increase of the Society's liabilities during the year 1875, the Council have been compelled to make several, in their opinion, most undesirable reductions in the expenditure.

The attention of the Fellows is specially called to the

fact that unless the rent of £2400 is paid to Her Majesty's Commissioners next year, the lease of the South Kensington Gardens may be forfeited, and to prevent this contingency an increased revenue must be obtained.

This increased revenue the Council suggest may be obtained by concerted action on the part of the Fellows, whether resident in the neighbourhood or not, and by increasing the number of Fellows. The Council are prepared to invite a general meeting of the Fellows to discuss this question in detail. A definite scheme will then be submitted for consideration.

In conclusion, the Council beg to express their unanimous opinion that it is the bounden duty of the Society to do its utmost to retain the gardens in its possession as "a suitable area in which they may exhibit and display the progress of horticulture," and also to enable them to fulfil the Society's obligations to their life Fellows and their debenture holders; and in such a course the Council feel sure they will have the hearty and cordial co-operation of every Fellow of the Society.

The noble Chairman rose, and, addressing the Fellows, said:—Gentlemen, it now devolves upon me to submit to you the report of the Council. No doubt you will recollect the circumstances under which the former report was withdrawn. The Council and the Society generally had been long desirous of coming into amicable and friendly relations with Her Majesty's Horticultural Society. This fact I will place beyond any doubt before I proceed farther. We have received a despatch from Her Majesty's Commissioners, dated only yesterday, March 8, and which is in the following terms:—

"I am directed by Her Majesty's Commissioners of the Exhibition of 1851 to inform you that since the annual general meeting of the Royal Horticultural Society, held on February 9 last, they have taken the opinion of counsel on the effect which the proceedings of the meeting on February 9 had on the legal position of the present governing body of the Society, and that they have been advised there has been sufficient acceptance of the resignation of members of Council which took place in April, 1873, and a sufficient confirmation of the election of the existing members of Council to render the *status* of the Council free from objection. Under these circumstances I am to inform you that the Commissioners will have pleasure in resuming official relations with the Council of the Society."

Now, gentlemen, I doubt not that that despatch will be as satisfactory to you as it has been to the Council. We are now in the position we have so long desired to be in, viz., in immediate relations with Her Majesty's Commissioners, and it has smoothed the way for an amicable and equitable discussion of the basis on which the affairs of this Society are to be administered. And we think, with these amicable relations existing between us and the Commissioners, nothing need stand between us and financial success, and the success of the Society in a horticultural point of view.

Passing from that, I shall touch upon the position of the Society with regard to horticulture; and here, perhaps, you may allow me to say a preliminary word with respect to my own position in that regard. I know it has been thought and expressed in some of the horticultural journals that I am one of those outside Fellows—indeed I believe they are called local Fellows—who are not altogether acceptable to horticulturists, pure and simple. Well, gentlemen, I beg to say for myself that I am the President of the Horticultural Society; and as such I am neither a local Fellow nor a horticultural Fellow, and I may say that in all the meetings I have attended I have never tried to further the interests of the local Fellows over the horticultural Fellows, one above the other. I have considered it my duty, placed by your favour in the position of chief of this Society, to maintain an entirely neutral position, and I trust all those who sit around me will support me when I say that such a position I have always assumed. Therefore, gentlemen, I request you to take an honest expression of my opinion, as independent an opinion as it is possible for me to form. I distinctly say I should oppose any action on the part of the local Fellows which I thought injurious to the well-being of the Society, and I should equally, if necessary, oppose any action by that section called horticultural, if I thought it would be injurious to the Society; and in acting in this way I should be loyal to both parties, because I should be loyal to the Society to which both belong. Under these circumstances I have been exceedingly sorry to hear it was the intention of the purely horticultural section of this Society to oppose the adoption of our report to-day. I trust that opposition is only the opposition of a very few members of the Society. You must remember that in your Council at the present moment there is an actual majority of what are called horticultural Fellows. I am sorry there should be that distinction between horticultural and local Fellows, for I believe it is injurious to the best interests of the Society; and unless you can get out of this distinction your Society will go altogether to the wall. I can assure you that at the Council board upstairs the division is not felt, and that in our discussions and deliberations the interests of the Society have been invariably brought to the front. We are not at that board regulated merely by a number of votes as divided between horticultural and local Fellows, but by the independent opinion of members given for the best interests of the Society. When such is the case in the Council you have called upon to represent you, such should certainly be the case outside these walls; and I think if the Society will reflect upon the position in which we now stand they will find that all horticultural Fellows and local Fellows are equally willing to support the Council on this occasion.

Fig. 69.—Pescatorea dayana var. candidula.

Commissioners. Well, gentlemen, a gleam of light dawned upon us not very long ago, and at the time I speak of the report of the Council had been communicated to the Fellows.

It was found that certain passages in the report stood between us and the consummation of our wishes, and that the Commissioners felt somewhat annoyed at the terms in which they were mentioned in the report. We felt that, as your representatives, nothing ought to stand between us and the fulfilment of your wishes, and, I may say, the fulfilment of our own wishes, to enter into relations of the most cordial amity with the Commissioners.

We had not, gentlemen, intended any disrespect to Her Majesty's Commissioners, and the Council merely intended to state in their report certain facts that they were in possession of. They felt, however, that it was perfectly essential that even the appearance of disunion should be avoided by them, and hence they consented most cheerfully to take back the report which they had placed before the Fellows. The result of that has been the drawing up of an amended report, which is now lying on the table for your consideration. We hope that the circumstances which have since occurred are such as will fully justify the course we have adopted. I may tell you, gentlemen, that we have several satisfactory announcements to make on the present occasion; one of these is the complete restoration of good offices and good understanding between Her Majesty's Commissioners and the Royal

It is true that we have been in, I may say, a state of great financial embarrassment—we are still in great financial embarrassment; but our ultimate escape from it is not to be obtained by throwing up the game in despair, but by putting our shoulders to the wheel and working together. We see now that we are in amity with Her Majesty's Commissioners, an opportunity of landing you in smooth water; and this is not the time, surely, to propose to surrender the gardens, held under an agreement, into the hands of Her Majesty's Commissioners. I think we may fairly say that such a suggestion is un-English and cowardly. I will further say that, through personal communication with Her Majesty's Commissioners, I am satisfied they are not desirous of possessing these gardens; and I go still further and say, they would feel a certain embarrassment in the possession of these gardens, of which we, as being partners with and well-wishers of the Society, should relieve them. Therefore it is that I think if any horticultural Fellow proposes to throw the report upon our

hands, which has been so carefully remodelled, he will commit a mistake in the interests of the Society.

It has been said that the present Council have not sufficiently devoted themselves to the interests of horticulture pure and simple, and one objection raised is, that the schedule proposed for 1875 has not been adhered to, as four shows have been withdrawn. Now, when the matter was brought before the Council the question was gone into on its merits, and we found that our funds did not admit of paying the large sum which was set down for prizes, and we were therefore bound to make a reduction in that respect. What we proposed to do was, to withdraw four of the shows advertised; and when we were told that it would not be acceptable to the horticultural interest generally we appointed a committee, and gave them instructions to investigate the whole matter, in order to see if they could retain all the shows advertised in the original schedule. The report of this committee has been presented to us, and I have the satisfaction to tell you that all the shows advertised to be held in 1875 will now be held. But of course, as we have not money to pay all the prizes to the full extent, we must diminish the amount of prizes. We have taken the opinion of many of the smaller exhibitors, who would have been shut out from the exhibitions by the non-holding of these four shows, and also the opinion of the larger exhibitors, who are very much concerned in the matter. The latter have very handsomely said they would exhibit, whatever the amount of prizes was, and as I hope the primary object of our horticultural exhibitions is not simply the money value of the prizes, but the distinction gained by those who win the prizes—I hope, I say, that will be taken as an evidence of the strong desire on the part of the Council to meet the views of the horticultural members of the Society as far as it is consistent with their funds to do.

There is one point, gentlemen, which at one time I thought must have produced some discussion at this meeting, and that is, that since the commencement of the meeting in February, of which this is an adjournment, two of the members of our Council have found it necessary to withdraw from our Council board. The gentlemen so resigning were members who had always taken a most active part in our Society, and who brought to bear upon their work the exceedingly valuable qualities of industry and ability. The Council regret their absence, and I am sure the Society will also regret their absence, because they were very strong props of the Horticultural Society. It was thought at one time that their vacancies would come before this meeting to be filled up. It was as well, therefore, for the Council to be clearly aware of what their legal position was in the matter before they met the Fellows at this meeting. The Council have obtained the joint opinion of two learned Queen's Counsel—Mr. Cole and Mr. Lindley—the names of gentlemen which will command the assent of all, because we all know their high legal standing, and their solid and intimate acquaintance with the affairs of the Society. We are informed by these gentlemen that under the bye-law, the validity of which is not impugned, the resignations of Sir Alfred Slade and Mr. Chetwynd must be filled up by the Council, and not by the Fellows generally. The resignations, therefore, will come in the ordinary course before the Council, and will not be submitted to the Fellows of the Society.

I think, gentlemen, I have now touched upon the principal items which it is my duty to notice. I am glad to say that our relations with Her Majesty's Commissioners are now of a perfectly amicable character, and that if any body of men can thoroughly carry out to their desired consummation the affairs of the society, the Council which have now the honour of addressing you have as good a chance as anybody else. There is one point which it is perhaps advisable for me for a moment to advert to, because I have heard that upon it some of the Fellows found an objection to our report. It is the last two clauses of the report, in which we speak of an increased revenue being obtained. Now, gentlemen, I have heard it said that there is a wish on the part of some Fellows to send back the report to us—in other words to again adjourn the meeting until we can tell them exactly what our proposal is. Now I say distinctly that that clause was worded in that way deliberately and advisedly. The first object before us at the meeting of Feb. 9, of which this is an adjournment, and the only object we have in point of view before us, was to obtain such a recognition from Her Majesty's Commissioners as would enable us to enter into friendly and equable relations with them. We heard from them from time to time that when we made ourselves a legal Council they would—and I enter not now into the question whether we were a legal Council or not—be prepared to treat with us on an equal basis. I have now read to you the despatch of the Commissioners that the action taken on the 9th of February has made us a legal Council, and that they are prepared to deal with us upon an equal basis. The one object, therefore, which we had to discuss at the last meeting of the Society has been fulfilled, as far as the Council are concerned. We felt, gentlemen, that we were bound not to divert the attention of the Fellows from the one main object which will be attained as soon as the report is adopted, by trailing a red herring across your path. Of course, in human affairs you cannot find a large body of men to be of one mind without discussion. If we had submitted any proposals to you in the report, the chances are your attention would be diverted to the details of those proposals—that you would have had discussion on them, instead of pursuing the main object for which we have met. When you have passed this report, gentlemen, you will be in smooth water, as far as the Commissioners are concerned. Without doing that you cannot be in smooth water, and you will be going headlong to ruin. Pass this report, which commits you to nothing. It was purposely drawn so that you could vote for the main object we have in view, viz., to land this Society, as regards the Royal Commissioners, in a position of legality, which it has not heretofore assumed. I hope, gentlemen, I have made this point clear to you, and I conclude by placing before you, for your consideration, the report upon the table.

Dr. Masters: Will you kindly say by whom the letter of the Commissioners is signed?

The Chairman: By "Henry Scott, Major-General." Is there any objection in the body of the hall to the adoption of the report?

Mr. Dolman observing that Her Majesty's Commissioners were not disinclined to come to terms, or to a satisfactory understanding, said he should like to know in what particular way that was about to be arrived at.

The Chairman: It would be premature for us to express any opinion on that point. There are members of the Royal Commission here present who can speak on that point if it is thought advisable to do so. As we shall not meet the Commissioners until the report is adopted, I am not in a position to answer the question.

Mr. Andrew Murray: Why should you not meet the Commissioners before the report is adopted?

The Chairman: This meeting is incomplete until the adoption of the report. We are not now in the position of absolute legality which we shall be in when the report is adopted.

Mr. Murray: I thought the report was received.

The Chairman: The meeting is not yet over, and the report has not been yet adopted.

Mr. Dolman: What about the skating rink? Has it been assented to by the Commissioners?

The Chairman: We have only had a private correspondence on the subject.

A Fellow: We ought to have some definite assurance whether the proposition as to the skating rink is to be carried out or not.

The Chairman: We have no definite assurance to give you on that point.

Mr. Guedella had no wish to throw the apple of discord into the meeting, but wished to express his opinion that there had been an extraordinary change of opinion amongst all parties to these transactions. In the first place, the opinion of the Commissioners appeared to have changed very much after they got the opinion of counsel, which they could have obtained long ago. Then, what change was it that had come over the gentlemen sitting at the board? With the exception of two gentlemen, who had manfully stuck to principles, and sent in their resignations, the Board had adopted a peaceable line of action; and he should like to know some of the circumstances which induced these gentlemen to come down at the eleventh hour with a change of policy. Then came the question whether the members of the Council were the gentlemen who could conclude the best arrangement with Her Majesty's Commissioners—whether they were the proper people to carry out the arrangements for the benefit of the Society. He certainly thought the present Council should have exercised more spirit since they came into office. There was one of the finest conservatories in the world on their premises, and if they had a ball in it they could have made £2,500 by it. He thought the skating rink was one of the most advantageous speculations that could be made. His object was to rouse the Council from their state of inaction. He regretted the resignation of the two members of the Council, and should like to know what were the reasons for them—whether it was a firm adherence to policy and principle that prevented them remaining in the Council?

The Rev. C. P. Peach said he had been asked to propose the following resolution, or amendment:—"That the Chairman be requested further to adjourn the annual general meeting so that the Council may be able to present to the adjourned meeting, with their report, any scheme they may be able to enter into with Her Majesty's Commissioners." The rev. gentleman went on to say it was quite necessary the meeting should be adjourned in order to see what agreement could be entered into between the Council and Her Majesty's Commissioners. The Chairman had said that the legality of the Council was admitted by the Commissioners, and immediately afterwards had tried to force the Fellows to accept the report by saying that unless they did so the legality of the Council would not be obtained. He could not see how the legality of the Council could be recognised by Her Majesty's Commissioners when an attempt was thus made to force the Fellows to accept the report. There was another question which had not been brought before them, and that was the question of the provincial shows. Nothing in the report showed there was any attempt being made to get up provincial shows in the interest of horticulture. Their President said he was neither a local nor a horticultural Fellow. This was a horticultural Society, and surely horticulture ought to be considered first by the Society in all its bearings. He appealed to all horticulturists present whether it would not be of advantage to adjourn the meeting, in order to come to some definite arrangement, and see where they stood. At present they were, financially speaking, in a condition bordering on bankruptcy. He did not want to reject the report in any way, but he wished the meeting to be adjourned to see what arrangement could be come to.

Mr. Liggins remarked that the report had not been seconded.

The Chairman: No, and for this reason—our bye-laws say that after the report has been read, the consideration of other business may be proceeded with. A legal question arises whether it means the proposal of the report for adoption. Technically it does not. Practically, we hold to our report, and any amendment carried against it we should consider as a vote of want of confidence.

Mr. Liggins: Precisely so.

The Chairman: We are bound by our bye-laws, so that I move that the report be considered.

Mr. Quilter would second the amendment, which he considered a most reasonable one. When he saw the onslaught that had been made two years ago on the then existing Council, so much so as to cause them to resign. (Mr. Liggins: "They were turned out.") Well, he believed they would have helped the Society out of its difficulties. After having refused all reasonable propositions from Her Majesty's Commissioners, the Council had done nothing from that day forwards but consider everything that was adverse to horticulture instead of what would encourage it. The statements of the Council would prove it. First of all they gave up the provincial shows, which produced a good annual income; and next they curtailed the privileges of the members. The shows were also curtailed, and the result of all this was that the Society's funds were far worse now than they were then; indeed, the funds were something like £1500 worse now than they were two years ago. Under these circumstances, before they passed the report they ought to have something like a scheme before them to show them the way out of the difficulties in which they were placed. The Chairman told them that if they passed the report they would be landed in smooth water, but he could not speak with any certainty, and so they might be in worse water than they were before. The exhibitors had not been paid last year's prizes, which ought to have been paid out of last year's revenue. He supposed the Council had been waiting to receive as much of the Fellows' money as they could before doing so. At the last meeting they heard in that room that the Commissioners were willing to meet the Fellows on fair terms, and certainly the Fellows had a right to know what those terms were to be. If the meeting did not insist upon the information, and passed the report, they would leave the matter in the hands of the same gentlemen who had landed the Society in its present position. The proposition he made was not an unreasonable one; it would not stultify the Council in any way, but, on the contrary, strengthen their hands. There was amongst the Fellows a vast difference of opinion as to whether it was advantageous to the Society to keep these gardens in their possession. The Chairman told them he did not think the Commissioners wished to have the gardens. Who did wish to have them under existing circumstances? He, for one, did not want to see the gardens done away with, and he felt sure there were means to be adopted by which the Society might be relieved from that necessity and the gardens kept on as well as ever. A Fellow had asked him the expense of keeping up the band. Well, they were told the band was to be discontinued for three months—September, October, and November, the time when no one wanted a band, but they really ought not to have a band at all unless they had got money to pay it. He begged and entreated the Fellows to vote—not for the rejection of the report—and even if it were rejected it would not amount to a vote of censure, but let them ask the Council to submit the scheme to them and let them see what was going to be done. That would not reflect upon the Council at all, or place them in such a position that they must resign their posts. He hoped the Fellows would adopt some means of making the Society in reality what it was in name. If they did not do so they should very soon have to get another name. Let them do everything they could to relieve themselves from the superabund-

ance of debt with which they were surrounded. The report should go back to the Council—let there be an interview obtained with the Commissioners as speedily as possible. If that were done the matter might be brought to a successful issue, and the Society placed on a sure and certain basis.

The Chairman: There is now a motion before the meeting, moved by Mr. Peach and seconded by Mr. Quilter. It is right the meeting should be accurately in possession of what they are voting about, and therefore it will possibly save time if I say, on the part of the Council, that the Fellows are now about to vote upon a question which the Council consider a vote of confidence. At any rate the Society will feel we adopt the most manly course in stating at once the way in which we view any amendment to the report which we now have the honour to present for your consideration.

A Fellow pressed upon the Council the necessity of adjourning the question, to see what arrangement could be come to with the Royal Commissioners.

Mr. Liggins said he was surprised at the last two speeches they had heard, because it was obvious to all men of business that if such an amendment was passed it would cast a stigma upon the Council which no men of honour could stand. The rule of all societies, from the House of Commons downwards, was that when such a resolution as the present was passed, it amounted to a vote of want of confidence. They had no right to express opinion as to amity existing between the Council and the Commissioners without supporting that expression by their votes. He asked them to oppose the obnoxious amendment, which had been brought forward in a manner which had astonished him. What, after all, was this report? It was coupled with the accounts of the Royal Horticultural Society for the past year. It was more a record of what had been done than a programme of what was to come. It was of no use to say "No," because the report was really an account of what the Council had done. If these accounts were insufficient the Fellows must have expected them to be so, because they knew the Council had to struggle against the deficit left them by the gross mismanagement of the gentlemen in office before them. Was there any wisdom in the expenditure or £500 for a statue?

Mr. Barr: What statue?

Mr. Liggins: Well, a statue, but I never knew the name of it. The statue was the work of the late Mr. Foley. He contended that whilst they were in debt that was an expenditure of £500 unnecessary in the interests of horticulture. There was a legacy of debt equally unnecessary left upon the shoulders of these gentlemen. He begged to say the gentleman was wrong who said the late Council resigned. The fact was they were turned out. The Fellows, honestly and like Englishmen, turned them out, having lost confidence in their management. What had the present Council done? They had done everything to reduce expenditure, and make the gardens pay. It was painful for them to have to reduce the prizes and the shows, but it must be remembered that the last Council had been spending vast sums of money they had no right to spend. It was all very well to say, "Reduce the number of bands," but if they did not make the gardens attractive their local Kensingtonians would fall off, and their two guineas and four guineas would melt away, and they would have no money at all for prizes. They should remember the gardens were not of an altogether horticultural nature; but having got them, they ought to do the best they could to retain them, and not let their landlords get them back, for whether they did or did not desire to possess the gardens, there would be no difficulty in their disposing of them at a profitable rate. But it was the duty of the Society in the interests of the horticultural world, to retain these gardens, because they encouraged horticulture. Although he was a Kensingtonian, his connection with the Society arose from his love of horticulture. If they passed such a resolution as that now before the meeting, they would commit a great absurdity, because they ought to put the Council in the position the Commissioners believed they would be in. Did they suppose that if the meeting was adjourned for a month the International Commissioners would take any action during that month? Most certainly not. They would say, "Oh, you are in hot water with your Fellows—you have passed no accounts—they will have nothing to do with you, and until they are passed we can do nothing." Mr. Liggins concluded by earnestly asking the Fellows to support their Council.

Mr. Pinches remarked that the report was simply a retrospective account of what had been done by the Society, and he could not see on what grounds the meeting could refuse to receive it. They had decided on expunging from the report the statements considered to be offensive to the Commissioners, and now that they were not in the report he could not see any grounds for postponing the reception of it. He thought they were treating the Council in a very shabby manner indeed. As a pretty close observer of the doings of the Society he must candidly say he was utterly at a loss to know on what reasonable grounds they wanted to find fault with what the Council had done. If they displaced the Council they would incur, justly or rather unjustly, the enmity of the Commissioners; and by the fact of doing so they put the Council out of a position in which they could communicate with the Commissioners. After a careful investigation of the accounts of the Society in the report, and those which went before it, he was bound to say these gentlemen had really done good work, and had succeeded in paying off a considerable accumulation of debt. One of their primary objects was the reduction of their debt. Every one knew they could not reduce their debt and increase their expenditure at the same time. Surely the best thing the Council could have done was to maintain the chief feature of the Society. There had never been any shows so good as those of last year; and for his part he should sooner see three good shows than thirty indifferent ones. The Council had, he thought, exercised a sound discretion in determining to reduce the number of shows and increase their brilliancy. He asked the meeting to pass the report of the Council. Nothing could be more insulting to a body of men than to reject their report after, at the request of the Fellows, they had expunged from it certain phrases considered to be objectionable. It would be most ungentlemanly behaviour to do so, and he did not believe any body of gentlemen would lend themselves to such a proceeding. Now, as to the panaceas which had been suggested. One gentleman thought they had only to get up a ball or a *fête* in order to clear off the debt of the Society. Well, when he was invited to come to an evening meeting there, and found just twelve ladies and gentlemen in the room, he asked them could anything be more disheartening than such a state of things? What they had to do now was to pass the report, which was simply a record of the past history of the Society for the year. He quite understood the remarks of the Chairman as to the council being legally constituted if the report was passed, and he hoped the meeting would not hesitate to adopt the report.

Mr. Edgar Bowring, C.B., was understood to say he should support the Council's report. With respect to the 500 guineas expended on a statue, as the person most concerned in the matter was no longer alive, he would tell the exact circumstances. At the time this occurred the late lamented Prince Consort was President of the Society and of the Royal Commissioners. His Royal Highness, the late Prince Consort, thought much might be done for the progress of science and of the fine arts, particularly of painting and sculpture, in connection with the Society; and it occurred to him that sculpture and horticulture might be combined in the gardens. He brought up a plan whereby, out of the profits of the Society, a sum of 500 guineas should be annually set apart for the purpose of inviting competitions so that a sculpture gallery might be established in the gardens. That plan was brought before the Expenses Committee of the Royal Commission, of which he (Mr. Bowring) was then a member. As the Commissioners received half the profits of the gardens it was quite clear their consent to the suggestion should be obtained. It was under that arrangement that the beautiful piece of sculpture, "Boy at the Stream," was ordered from Mr. Foley. The Commissioners were willing to run the risk, and give half the sum towards the sculpture. The Society had the idea that if this could be carried out, it would be a great advantage, not only to horticulture, but would do much to promote the cultivation of the fine arts in this country.

Mr. Cornelius Walford regretted that he made the speech he had made at the last meeting, not exactly as to what he had then said, because that had grown upon him day by day, but because he had discovered a very great dissatisfaction existing amongst the members of the Society as to its future prospects. He had no personal object to serve. He did not want to serve on Council or Committees, or to take any part in the management, but he did want to see the opportunity for doing something, and doing it quickly, not lost. As far as the amended report went, the objectionable clauses had been withdrawn. That was all right, but there were certain paragraphs in the report which required very careful consideration. The third last paragraph said—

"The attention of the Fellows is specially called to the fact that unless the rent of £2400 is paid to Her Majesty's Commissioners next year the lease of the South Kensington Gardens may be forfeited, and to prevent this contingency an increased revenue must be obtained."

Then the report went on to state that it was proposed to call a special meeting to consider the question of raising the revenue of the Society. That seemed to be all very right and proper, but supposing it should happen that the scheme of the Commissioners was not approved, the opportunity they had now, would be lost by adjourning the meeting. He had no wish to say a disrespectful word of the Council. He had a word to say about them at the last meeting and he was sorry for it, but the cause for his remarks was no longer on the Council side of the table. But he should like to know how that change had taken place. It was known to them all that the time had now arrived when the Commissioners were prepared to discuss with the Council that which they were not prepared to discuss before. Was it wrong to say to the Council, "Don't shut us out from participation in any benefits which may arise—adjourn the meeting to any day suitable to yourselves—discuss the question with the Commissioners, and come to us and tell us what you propose to do." Were not these business propositions? The Society accepted the report, but deferred the adoption of it until they had a settlement on the scheme adverted to. It was all very well to say "No, no," but he only asked what was right and proper. There was no reason why these negotiations should not be made within the next month or six weeks, and it would be unwise of them to adopt the report until they had a statement before them of what was actually going to be done.

Mr. Mackenzie said he rose to ask the proposer and seconder of the amendment to withdraw it, and not to drive the Fellows to a division. He was surprised that Mr. Walford should not consider it possible that the gentlemen who formed the Royal Commission would very well decline to negotiate with 3000 Fellows, while they would not decline to negotiate with the Council. He had not heard any speaker let fall a word denying that they all had the utmost confidence in the Council. He appealed to all the independent Fellows to receive this report, and to leave it entirely to the Council to enter into negotiations with the Commissioners, whether under the bye-laws or under the charter. It had been suggested that a certain number of Fellows had a right to call a meeting of the Society. With respect to that, he thought the paragraph at the end of the report was a highly honourable paragraph on the part of the Council, and would allow them time to meet the Commissioners, and lay before the Fellows the result of their communication. He could not help putting it to the Fellows that it did not do for them to ride too high a horse with the Commissioners, because they were to a certain extent under the control of the Commissioners. But the latter were exercising their powers very much in the interests of the Fellows. He would, under all the circumstances, earnestly appeal to the proposer and seconder of the amendment to withdraw it. As to the question of horticulture, he was sorry to have read in Saturday's *Morning Post* a letter from a gentleman calling attention to a clique in connection with the Society. Now he had mixed up with many public societies, and he earnestly entreated all who wished the affairs of the Society to proceed in a right direction to do the best to have all cliques abolished. Let them all join together and keep the Society on the basis on which it was originally designed. Of one thing he was quite certain, that the Council had done the best they could for the Society.

The Chairman: Gentlemen, in a meeting like this it is well you should understand that the Council are willing to conciliate every one consistent with their dignity, and I will say at once that we are quite willing to give a day for the discussion of those questions. You will be then just as able to discuss the question—I mean the question of the arrangements we are to make with the Royal Commissioners—and you will be then just as able to put a veto on any of our proceedings as you are now; besides that, you will have the advantage that you will not have lost valuable time in dealing with the Royal Commissioners. I may say for myself and the Council we only wish in the interests of the Society that you will pass this report at the present moment.

Mr. Haughton wished to know whether the Council would consent to the report being adopted, and that the meeting should be then adjourned for the purpose of discussing the question.

Mr. Mackenzie earnestly entreated the Council, if they had brains, or sense, or judgment, which he believed they all had, to enter into negotiations with the Commissioners in a perfectly untrammelled way.

Mr. Smee: There could be no doubt but that they would be treated fairly by the Commissioners. He believed the Commissioners wished well to the Society, and would do all in their power to promote its interests. He was quite satisfied that the Society would gain such a position as that it would be able to rival any other Society of the same sort in Europe if they only put their shoulders to the wheel. It had been said there was no difference between the Horticultural Society and the Commissioners. He denied that, for one cultivated the study of the laws which governed horticulture, the other body might be said to govern what might be called a fancy fair.

Mr. Haughton again rose, amid loud cries of "Divide," and considerable interruption. He said one objection was taken by Mr. Walford, that if a further meeting was called to consider any arrangement which the Council were prepared to lay before them, they might find themselves in the difficulty which they were in after the passing of the bye-law of 1873. If the Council would then resign in consequence of

an adverse decision, the new Council to be elected might be on the same footing of illegality which unfortunately the present Council has been in up to the present moment. It was beyond doubt Her Majesty's Commissioners had decided that the Council were legally constituted. He was glad the decision had been come to, and he did not wish to embarrass the Council, but he believed the Society ought to retain the power it had at its annual meeting, that of being able to consider any statement to be submitted. He did not consider any reflection was cast upon the Council by asking them to adjourn the meeting. (Cries of "Spoke," and some uproar.) Let them pass the report, and adjourn the meeting. He begged to move that the report be adopted, and the meeting be adjourned to this day six weeks to consider the statement the Council may make. He had no wish to see the hands of the Council tied in any way, and he believed his proposition would put much strength in their hands.

Dr. Masters: I rise for the purpose of seconding the amendment proposed by Mr. Haughton.

The Chairman: There is no amendment before the meeting. I wish to say that, as there appears to be some misapprehension as to the legality of the Council, that the bye-law of 1873 will give a general meeting dealing with resignations full power to deal with the question.

Dr. Masters again rose amid cries of "Divide."

The Chairman: Are you going to speak to the resolution or the amendment?

Dr. Masters: To the amendment.

Mr. Peach: I can withdraw the first one if I like?

The Chairman: Do you wish to withdraw it?

Mr. Peach: Certainly. I have no wish to say anything against the report but I think that the Fellows ought to have an opportunity of discussing any further arrangements made, and if you promise that there is to be a general meeting at which this will be matter for discussion, I am very willing to withdraw the amendment.

The Chairman: Is it then your pleasure, gentlemen, that the amendment be withdrawn?

It appeared to be the unanimous wish of the meeting that the amendment should be withdrawn.

The Chairman: There is no other amendment before the meeting, and now the subject falls to the ground.

Mr. Pinches moved that the report of the Council be adopted.

Mr. Liggins begged to second the motion.

Mr. Haughton said he was now in order in moving his amendment. This he accordingly did, in the terms stated above.

Dr. Masters seconded the amendment.

The Chairman put the amendment, and there appeared for it twenty-six, and a considerable majority against it.

The amendment was therefore lost, and the motion for the adoption of the report was carried unanimously.

On the motion of Mr. Pinches, a vote of thanks was given to the noble Chairman, and the proceedings terminated.

March 10.—*Evening Lecture.*—W. Burnley Hume, Esq., in the chair. The subject of the lecture, which was the last of the series, was the "History of the Society," and the lecturer, W. A. Lindsay, Esq., commenced by stating that it was originally intended that Dr. Hogg should address the meeting on some branch of pomology, but at the last moment he found it impossible to do so, owing to the pressure of his private affairs, and he, Mr. Lindsay, rather than there should be no lecture at all, thought it would be of great advantage at the present time to consider the history of the Society. In doing so he would, he said, rather than attempt an oratorical display, give the history pure and simple, as he found it in the prefaces to the volumes of the Society's *Transactions*, and in subsequent reports of the Council. It had been well said by Mr. Andrew Murray, in his *History of the Horticultural Society*, that it would be impossible to give a popular history of the Society without at the same time showing the imperfect knowledge of horticulture which existed in this country at the time the Society was established. Previous to the year 1737 but few hardy plants had been introduced into this country, and the Rhododendron and Azalea were practically unknown in English gardens. In the middle of the last century the Royal Botanic Gardens at Kew were established and the importation of new plants began, to the great benefit of horticultural science, and of the country.

It was at such a moment that the idea of founding a society for the development of horticulture occurred to Mr. Thomas Andrew Knight, a gentleman of the highest attainments in the study of natural history, who, as a country gentleman, had ocular demonstration of the injury being done to orchards in the cider country by the ignorance of the cultivators, and who had, as a Fellow of the Royal Society, constituted himself one of the highest authorities on the subject then living.

The idea was communicated by Mr. Knight to Sir J. Banks, who warmly received it, and it was resolved, on the suggestion of Mr. John Wedgwood, to hold a meeting for the purpose of considering it. On March 7, 1804, this meeting took place, the other persons present being Mr. Richard Salisbury, afterwards secretary; Mr. Charles Greville, Mr. Acton, Mr. Forsyth, and Mr. Dickson. The meeting was held at Messrs. Hatchard's book shop in Piccadilly, and it resulted in the formation of the Horticultural Society. It was interesting to recall for a moment the circumstances amid which occurred the birth of the Society. At this time the greatest anxiety existed respecting the King's health—His Majesty suffering at that time under the dreadful malady which from time to time affected him, and which has become matter of history. On the very day to which we allude, the House of Commons was investigating the causes of the disaffection in Ireland, or rather debating a motion for that purpose which was thrown out by the Ministry of Addington, Mr. Pitt being in *quasi* opposition. General Wellesley was just made a Knight of the Bath at the conclusion of the Indian campaign terminating with the storming of Gauil Ghur and the treaties with the Rajah of Berar, and Scindia, the representative of the Mahratta princes. At this time Napoleon was First Consul of France, and was murdering the Duc d'Enghien. All Europe lay, so to speak, at the feet of France, just about to make its First Consul Emperor. We were in a state of enmity with France.

Amid such universal disquiet was our peaceful Society formed, destined to bear a part in a weightier development than that with which even emperors and kings, states and wars had then to do—destined to be one of the bearers of the lamp of natural science, and so gradually influence the theology, the philosophy, and even the daily life of the world.

But the part the Society was to take in this movement was to be a practical one, as was shown by Mr. Knight's introductory remarks in vol. i. of the Society's *Transactions*, relative to the objects which the Horticultural Society had in view. It was interesting to note the great importance of the papers read before the Society during the first twenty years of its existence. In the first volume was a paper read by Sir J. Banks on the Introduction of the Potato; and here the lecturer remarked that the history of our knowledge of the vegetable, and the disease which affects it, is to be found within the history of the Horticultural Society. Among the very many interesting papers read in the first years of the Society is one on the Revival of an Obsolete Mode of Managing Strawberries, by Sir Joseph Banks, in which he advocates the use of straw, and points to the derivation of the name. Mr. Knight's paper on grafting Walnut trees, &c., is particularly interesting.

On April 4, 1809, a paper was read by Sir Joseph Banks, the first paragraph of which alluded to the great usefulness of the Society's work. On April 17, 1809, is dated the Royal Charter incorporating the Society. By this instrument Lord Dartmouth was created President, Mr. Charles Greville Treasurer, Mr. Salisbury Secretary, and the following members of Council:—Lord Powis, the Lord Bishop of Winchester, Lord Selsey, Sir Joseph Banks, Messrs. Acton, Elliot, Knight, Miller, Trevelyan, Dickson, Hoy, Smith. The charter is very similar to that under which we now exist, but one of the differences is that it specially prohibits the removal of Councils in the manner which is lawful at present.

In 1810 was published the first volume of the *Transactions*, which extended to ten volumes, and the cost of which must have exceeded £30,000. At this time the Society appears to have occupied rooms in the house of the Linnean Society in Gerrard Street, Soho, at the rent of £26 5s. a year.

In the year 1811, Lord Dartmouth having died, Mr. Knight became President of the Society. He retained this post for twenty-seven years, and very much of the Society's work is bound up with his memory. But now the mighty war which followed the disturbed state of the world, already hinted at, was raging over all Europe. Elections of new members were few; but a careful Council kept the expenditure within the income, and there was at the end of each year a small balance to the Society's credit, and in 1815 the balance rose to £258, so that the return of peace after Waterloo found the Society in a position to take advantage of the English prosperity. In May, 1806, the Society had £1000 in the Three per Cents. In 1817 the income was £1791 and the expenditure £1719, the funded property £1400 and the floating property £3000, beyond all debts. In 1818 an experimental garden was established at Kensington, with a nursery at Ealing, and in 1820 a house in Regent Street was bought for £4200. The subscription was raised from two guineas to three guineas. The new members poured in to the extent of 200 or 300 a-year; while on February 6, 1820, the entrance fee was raised to five guineas.

Among the papers brought forward during these years should be specified the extraordinary one read on January 6, February 4, and March 3, 1812, on the Cultivation of Rare Plants, by Mr. Salisbury, an extract from which was read by the lecturer. The remarks quoted were followed by an account of a great number of plants, and the paper was probably as valuable a one, for the purpose of illustrating the history of our science, as any we possessed. A quotation was then given from the preface to the second volume of the *Transactions*, in order to show what the historians of the Society thought of its work, but he (the lecturer) would not weary them with any mention of the valuable papers which followed.

After 1815 the practice of collecting seeds from foreign countries was commenced, and in 1818 a distribution took place. Mr. John Reeves sent over plants from China, and with the assistance of the East India Company the Society introduced into England many varieties of Camellias, Indian Azaleas, Chinese Pæonies, Chrysanthemums, &c. The first living plant of the Glycine sinensis, sent by Mr. Reeves, arrived in 1818, and he believed was still growing at Chiswick. The Lords of the Treasury at that time treated the Society most liberally, and directed that all plants, seeds, &c., sent to the Society should be free of custom duty.

The progress between 1823 and 1830 was rapid. In 1823, 1200 kinds of Roses existed in the garden at Chiswick, which was acquired in the previous year from the Duke of Devonshire, with a perpetual power of renewal, upon a fine of £450. Most unfortunately at a later date the Society relinquished this power—a proceeding very short-sighted, considering the enormous value gradually accruing to property near London. The gardens at Kensington and Ealing were also given up.

In 1822 Sir Joseph Banks, the first great protector of the Society, died. About his time other collectors were sent out, the first being G. Don, who was followed by Forbes, who went to the west coast of Africa; and subsequently by Mr. John Fox, who went out only to die. Mr. Parker was the next, and he was followed by David Douglas, who was recommended by Dr., afterwards Sir William, Hooker. He was to have gone to Chili, but went instead to North America, whence he sent home some valuable Conifers, &c.

In 1822 the subscription was raised from three to four guineas, and the entrance fee from five to six, while a sum of £7275 was voluntarily subscribed for the new garden works.

In 1825 the daily meteorological observations were commenced, long continued by Robert Thompson, which forms now the longest and most trustworthy journal of meteorology of the climate of London.

But the first period of adversity was setting in. The anniversary dinner was exchanged for the breakfasts, which were of little use for keeping the Fellows together, and introduced a policy of sacrificing horticulture to fashion, which developed afterwards to an unsatisfactory extent. The last of these breakfasts took place in 1831, and produced a favourable balance of £115, and at this date they were abandoned, to be succeeded by garden exhibitions, which have ever since been the special delight of the Society, and which owed their origin to the happy suggestion of Dr. Lindley. But now the financial position of the Society became more and more serious. A committee of inquiry was appointed, which reported that the Society's debts were £20,243, and its property £16,500. The gardens had cost £29,000 more than had been subscribed for them. Altogether the management was condemned, and in consequence Mr. Sabine, who had been secretary since 1815, or thereabouts, resigned.

The zeal in promoting horticulture was, however, applauded, and in point of fact very large sums of money had been spent on this object. Mr. Bentham now became secretary, with Dr. Lindley as his assistant, who had been assistant-secretary since 1822.

The exhibitions were now held in the gardens instead of Regent Street, and were in every way successful. A prosperous era now again set in, but the Council did not think it desirable to devote all their means to the payment of debt. Accordingly, between 1830 and 1855 £11,000 more was spent on the garden and £7000 on foreign importations.

In 1838 Mr. Knight died—the chief mover, says Mr. Murray, in all the scientific work of the Society from its origin. He was succeeded by the Duke of Devonshire in the office of President. In 1842 the Society sent out Mr. Fortune, then the superintendent of the hothouse department at Chiswick, to China, for the purpose of collecting. Mr. Fortune's labours are well known to the Fellows. He introduced a very valuable collection of plants, and published some well-known books. But there is more to be laid to the credit of the Society and Mr. Fortune. Having acquired a considerable knowledge of the cultivation and manufacture of Tea, Mr. Fortune was employed afterwards by the East India Company to establish that industry in India. By this course, therefore, the Society became the means of doing great service to the country. During all this period the Society was

hampered by the non-payment of subscriptions. This evil, which constitutes the chief difficulty with which all societies have to contend, began in its infancy and grew with its growth. Between 1824 and 1855, £12,879 was abandoned as irrecoverable from this source. Nevertheless, up to 1851 a steady reduction of debt continued to take place.

The Chiswick *fêtes* did good by helping to bring the Society before the world, and also had much to recommend them from a horticultural point of view. The Duke of Devonshire materially helped them by throwing open his grounds to the visitors, but ultimately, owing to bad weather, they fell into disrepute. The Council now looked about for some show place nearer London, and in 1854 Her Majesty's Commissioners most obligingly placed Gore House and grounds at their disposal.

But not yet did the course of events improve. The debt was increased this year by £1200, and it seemed that this magnificent Society, with a history almost unequalled for splendour and work, would cease to exist. A circular was issued to the Fellows proposing to give up exhibition, and revert to the condition of 1827. Meetings were held at which the question of abandoning the Chiswick garden was discussed. In the end, however, a subscription to avoid this result took place, and £3267 was subscribed by 181 persons. The culture of stove plants was, however, abandoned. The last collector, who had been sent to Mexico, was recalled, and the herbaria were sold.

Two shows were held, one of flowers at Chiswick, and one of fruit in London, but both were unsuccessful, and by the close of 1858 the £3000 was all swallowed up. The total number of Fellows was but 985, and the debt £10,000. Many patriotic members lent money. The house in Regent Street was at last sold, and the glorious library—the collection of forty years—was dispersed by the auctioneer's hammer.

In January, 1858, the Duke of Devonshire died, and on March 2 his place was filled by one destined to transcend even his distinction as President of the Society—H.R.H. the Prince Consort. One of the first acts of the Council under their new President was to lay down the principle that if a garden more favourably placed than Chiswick could be found, the prosperity of the Society would be higher than ever.

It happened that Her Majesty's Commissioners had determined to lay out the central part of their ground at South Kensington as a garden, and, as we all know, it was at last arranged that this ground should form the garden of the Horticultural Society. It was agreed than each party should lay out £50,000 on the ground, that a large conservatory should be built, and that the garden should be ornamented with statuary. We all know that this arrangement was carried out. In two years 1500 new members joined the Society. The garden was opened by H.R.H. the Prince Consort on June 5, 1861, and an extract was read from his speech in reply to an address read by Dr. Lindley. The prospect of success seemed most brilliant, but the death on December 14 of the new President cast a gloom over all. It was on that occasion, so melancholy a one in the history of the Society, that the Queen caused a most gracious letter to be communicated to the Society.

So great was Her Majesty's interest in the Society, that, until advised to the contrary, she had an idea of becoming President of the Society, but ultimately nominated the Duke of Buccleuch. In 1862 the receipts, working with the International Exhibition, were £30,000, but of this a small balance only was saved, the principal sum being spent on improvements in the gardens.

It is at this point that Mr. Murray's history closes, and we must turn to the Reports for our authorities. But it is not necessary to do this. We all know that on the death of the Prince Consort the whole fabric sustained a gradual but sure decline. At last, in 1873, proposals were made which were held by the Fellows to amount to a surrender of the garden, and the results you all know.

In conclusion, Mr. Lindsay hoped that every one who had the welfare of horticulture at heart would seriously consider the fact—that, excepting the Royal Society, theirs had an unexampled history. It had introduced two-thirds of the plants which had been imported into this country; it had published *Transactions* which have not been outrivalled by any other society; and it had, at its own expense, sent out collectors to all parts of the world. The *Transactions* had come to a close, and the Society had no collectors, but he looked forward to these things being restored. They must look forward to a better and more useful future. They must hope to revive the magnificent foreign correspondence, which had ceased to flow to the Society; they must hope to resume the reading of papers of which these lectures he hoped were the commencement; and, whether he was to bear a part in the work or not, he hoped that ere long all this will again be done—because horticultural science has now achieved an importance not felt in the past, and is, in fact, an essential part of the general study of the entire life of creation.

The Chairman proposed a vote of thanks to the lecturer, which he hoped would be most cordially given. Mr. Lindsay must have laboured hard to get together the facts for such an interesting lecture as they had heard; and to make the vote he asked them to pass more than a merely formal one, he had the pleasure of presenting to Lady Harriet Lindsay, on his own behalf and in their name, a basket of choice Orchids.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, MARCH 10, 1875.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Mean of 18 Years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 60 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
Mar	In.	In.	°	°	°	°	°	°			In.
4	29.82	−0.07	41.0	31.1	9.9	35.4	− 5.1	32.3	89	E.S.E.	0.00
5	29.79	−0.12	46.7	28.6	18.1	36.4	− 4.1	33.5	90	S.S.E.	0.00
6	29.56	−0.37	48.9	35.7	13.2	40.7	+ 0.2	40.3	98	S.S.E.	0.12
7	29.72	−0.22	57.0	45.2	11.8	50.2	+ 9.7	48.8	95	S.S.W. : S.	0.32
8	29.88	−0.06	56.8	51.2	5.6	53.0	+12.5	50.8	92	WSW	0.02
9	29.80	−0.14	55.7	40.5	15.2	48.8	+ 8.3	38.2	66	WSW : W : WNW	0.00
10	30.24	+ 0.31	53.1	33.8	19.3	42.5	+ 1.9	35.4	77	E.S.E. : E : E.N.E.	0.00

Mar. 4.—Overcast, dull, and cold in morning. Fine, bright, and clear sky in afternoon and evening.
— 5.—Fine, bright, and partially cloudy throughout. Hoar-frost, and slight fog in morning.
— 6.—Overcast, dull, and mild in morning and afternoon, but clear at night. Rain fell in early morning.
— 7.—Overcast, dull, and very mild throughout, though bright at intervals in morning. Rain fell all afternoon and evening.
— 8.—Overcast, dull, mild, and strong wind, though bright at intervals throughout the day.
— 9.—Fine, mild, and partially cloudy throughout. A gale of wind.
— 10.—A fine, bright, and cloudless day. Hoar-frost in early morning. Lowest temperature of vegetation, 29°.6.

—— In the suburbs of London the reading of the barometer at the level of the sea increased from 29.71 inches at the beginning of the week to 29.78 inches by the early morning hours of February 28, decreased to 29.73 inches by the morning of March 1, again increased to 30.02 inches by about noon on the 4th, and decreased to 29.69 inches by the end of the week. The readings were all below their averages, that for the 6th being 0.37 inch in defect. The mean reading for the week was 29.84 inches, being 0.12 inch higher than that of the preceding week.

The highest temperature of the air at 4 feet above the ground ranged between 49° on the 6th and 33° on the 1st, the mean value for the week being 39°. The lowest temperatures of the air varied from 35¾° on the 6th to 28½° on the 5th, the mean for the week being 31°. The mean daily range of temperature in the week was 8°, ranging from 18° on the 5th to 2¾° on the 1st. The mean daily temperatures of the air and the departures from their respective averages were as follows:—Feb. 28, 31°.2, − 8°.9; March 1, 31°.4, − 8°.9; 2d, 31°.3, −9°.1; 3d, 33°.5, − 7°; 4th, 35°.4, − 5°.1; 5th, 36°.4, − 4°.1; and 6th, 40°.7, + 0°.2. The mean temperature for the week was 34°.3, being 6°.1 below the average of sixty years' observations.

The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in the sun's rays, were 62¾° and 95° on the 4th and 5th, but on the 2d, 38½° was the highest reading recorded by this thermometer. The lowest readings of a thermometer on grass, with its bulb fully exposed to the sky, were 28½° and 17½° on the 2d and 5th, but on the 6th, 31½° was the lowest reading. The mean for the seven low readings was about 27½°.

The weather during the week was dull and cold, with the exception of Friday, which was somewhat fine and mild. Slight snow fell on February 28, March 1 and 2.

The direction of the wind was N.E., and its strength brisk.

Rain or snow fell on three days during the week; the amount of rain and melted snow together was 0.20 inch.

In England, the extreme high day temperatures ranged from 52° at Sunderland to 40° at Bradford, Hull, and Newcastle-on-Tyne, the general average over the whole country being 45¾°. The extreme low night temperatures varied from 31° at Leeds to 22½° at Portsmouth, the general average being 28¾°. The extreme range of temperature in the week ranged between 22° at Sunderland and 9¾° at Bradford; the mean for the week was 17°. The mean high temperatures observed by day ranged between 43¾° at Sunderland and 35½° at Bradford, with an average value of 38°. The mean low temperatures observed by night varied from 32½° at Liverpool and Sunderland to 28¼° at Portsmouth, with a general average over the country of 31°. The mean daily range of temperature in the week was 7°, varying from 11½° at Sunderland to 4¼° at Bradford and Leeds. The mean temperature for the week was 33¾°, being 9° lower than the value of corresponding week in 1874; the highest happened at Sunderland, 37¼°, and the lowest at Wolverhampton, Norwich, and Sheffield, 32½° respectively. Rain or melted snow was measured at each of the above stations, varying in amount from sixtenths of an inch at Portsmouth, Sheffield, and Hull, to five-hundredths of an inch at Norwich; the average fall over the country was three-tenths of an inch.

The weather during the week was dull, cold, and the sky generally overcast, with the exception of Friday, March 5, which was fine and mild. Slight snow fell generally over the country on February 28, March 1 and 2.

In Scotland the highest temperatures by day varied between 48° at Greenock and 40¾° at Leith; the lowest temperatures by night ranged from 33° at Aberdeen to 24° at Paisley, their respective averages being 43½° and 28¾°. The mean range of temperature in the week was 14½°. The mean temperature for the week was 35½°, being 8½° lower than the value of the corresponding week in 1874, the highest occurred at Aberdeen, 36¾°, and the lowest at Glasgow, 34¾°. Rain and melted snow was measured at Dundee to the amount of three-tenths of an inch, but at Leith two-hundredths of an inch only was recorded; the average fall over the country was one-tenth of an inch.

At Dublin the highest temperature was 54°, the lowest 32°, the mean 38¾°, and the amount of rain or melted snow three-quarters of an inch.

JAMES GLAISHER.

Garden Operations.

(FOR THE ENSUING FORTNIGHT.)

PLANT HOUSES.

GREENHOUSE HARD-WOODED PLANTS.—Proceed with the potting of *Chorozemas*, *Aphelexis*, *Dracophyllum gracile*, *Eriostemons*, *Acrophyllum venosum*, *Tremandras*, *Adenandras*, *Statices*, and all other plants of similar character. All spring potting in this department had better be completed as soon as possible, as the drier condition of the atmosphere, consequent upon the sun's increased power later on, renders it somewhat difficult to manage newly potted plants. The temperature under glass during the coldest winds, accompanied by bright sunshine, is such as to necessitate the admission of more air than is good for plants that have been recently potted; it is better when such weather occurs to let the temperature get up higher than it ought to be than to admit side air, which during this month is most injurious in its effects. Every day look carefully over the whole stock, to see that nothing wants for water; particular attention in this matter is specially necessary for plants that have been a few weeks potted. It is quite time to see about the removal to the north, or retarding house, of any hard-wooded greenhouse plants that it may be desirable to keep back either for successional, conservatory decoration, or exhibition purposes; it is far the best plan to retard early, as by so doing the plants can, in the later stages of the flowers' expansion, be removed to a warmer more growing temperature. Independent of the beneficial effect this treatment has on the bloom, it is likewise much better for the plants than retarding them later on. See that whilst in the north house they are not overcrowded: they will require less water here. Any plants of *Epacris*, *Cytisus*, and *Acacia* that have done blooming should, if they need it, have their shoots shortened back sufficiently to keep them in shape and of reasonable size; place them in a night temperature of about 48°; they will by this means make and mature an early growth, and so will be easily brought into bloom without much forcing next season. Syringe slightly every afternoon, and when they have got fairly into growth pot all that want it. The present is a good time to look over the stock of hard-wooded plants grown for winter blooming, and where necessary more should at once be procured of such things as *Epacrises* and *Acacias*, *Cytisus*, *Monochætums*, &c.; if got now they will soon be in nice condition for repotting. They might with advantage be kept for a fortnight or so in a little closer atmosphere than the rest of the stock; by so doing, root-action, which should always precede the operation of potting, would be encouraged. *Pimeleas* should be closely examined, to see if there is any red-spider on them, as they are especially liable to the attacks of this insect; should any of its eggs have existed on the plants through the winter, they will at the present season quickly come to life, and often do much injury before they are even supposed to exist. The best

remedy is an application of the syringe once or twice a week, being careful to get well to the underside of the leaves; they are moisture-loving plants, and to grow them well want more at the root, as also in the atmosphere, through the growing season than most hard-wooded subjects. The different varieties of *Statice* and *Pleroma elegans* do not, more especially at this season, well bear the direct action of the sun—the latter plant in particular is sometimes disfigured by it in a short time; means should therefore be taken to prevent this, either by shading the plants individually, or by placing them where they will not be exposed to its action. *T. Baines.*

Enquiries.

He that questioneth much shall learn much.—Bacon.

42. Garcinia Livingstoni.—Does Garcinia Livingstoni demand a constant or humid heat, or would it content itself with a greenhouse, or indoor culture, during the winter? *H. W. C.*

Answers to Correspondents.

Asters: *G. R. F.* Sow these as well as Stocks about the middle of April, on very gentle heat, and prick out the young plants on prepared beds of rich soil. You need not start the Gladioli in pots, but plant them at once in the beds, placing a little clear sharp sand around each corm.

Books: *H. J. B.* We should certainly give the preference to Thompson's *Gardeners' Assistant*, of which there is a new edition in hand. The termination "ii" is pronounced "ei."

Bougainvilleas: *B. Martin.* Any of the Bougainvilleas will grow well in good fibrous loam, with sufficient sand to keep it open. B. glabra, far the best for pot culture and for general use, is a manure-loving plant, and will do well with one-fifth of well rotted dung added to the loam. There is no better soil for Camellias than good turfy loam such as you describe. The fibre should not be too far decomposed, and to it add sand, more or less, according to the nature of the loam.

Garden Syringe: *E. K. S.* Read's syringes are very efficient and durable, and have long borne this reputation. Have you tried them?

Herbaceous Plants: *Clover.* Many hardy perennials have a tendency to push themselves out of the ground, and therefore require placing deeper in the earth when transplanted, but, in a general way, it is not advisable to bury the young shoots to the depth of 2 or 3 inches. It would not harm them to place them rather deeper than before.

Lily of the Valley: *X. V. Z.* We have seen a variety with flowers of a rosy tint, but it is very scarce, and we cannot tell you where it could be obtained.

Local Taxation: *Camjee.* You will obtain the information you require by addressing Captain Craigie, at 21, Arundel Street, Strand, London, W.C.

Names of Fruits: *G. G. N.* Large Pear is Catillac; small, Sussette de Bavay.—*J. A., Hatfield.* 4, Beauty of Wilts; 5, Dutch Mignonne; others unknown.

Names of Plants: *M. J.* 1 and 2, we decline to name without seeing the fruit; 3, Juniperus recurva; 4, Sequoia sempervirens; 5, Picea grandis. *A. M.*—*J. Morse.* 1 Hardenbergia Comptoniana.—*L.* 1, Leucopogon Richei; 2, Epacris exserta; 3, Dracæna fragrans.—*M. J.* Leucothoe axillaris, the flower-spikes immature.—*A. E. R., Egbaston.* Your Nepenthes appears to be N. ampullaria, or N. tentaculata, but we should be glad of an entire and fresh leaf before deciding, for the latter species is, we believe, new to cultivation, although the specimen sent is more like it than N. ampullaria. We should be glad to have a description of the Holly.

Pilewort: *W. A.* We have no faith in the remedy, and would recommend you not to take any trouble in the matter. It would be very dangerous to take as a medicine in the way you suggest, being, in fact, poisonous.

Poinciana regia: *An Old Subscriber.* There is a plant bearing this name, but it is a native of Madagascar, and not of Australia. It is a handsome tree, with orange or yellowish flowers, belonging to the sub-order Cæsalpinia, of the genus Leguminosæ.

Rockwork: *Fern.* Mr. Pulham, of Broxbourne, or Mr. Blake, of Fulham.

Royal Horticultural Society.—We have received letters from Mr. William Paul, Mr. William Bull, and others on the affairs of this Society, but, owing to the great length of our report, we must defer their publication until next week.

Zonal Pelargoniums: *J. S. W.* Ten-inch pots are sufficiently large for all purposes, and it will be better to feed the plants with manure-water so far as they require it. The length of time that should elapse between Fuchsias being stopped and being exhibited, is altogether dependent upon the after-treatment they receive at the hands of the grower. One principal thing to be observed is the immediate removal as soon as they are formed of all flowers that are too early for the required time; if the extreme points are then nipped out eight weeks before the exhibition, at that advanced time in the summer you may calculate upon their being in; but this latter could only be decided on by seeing the condition the plants were in about that length of time previous to the exhibition.

Communications Received.—G. G. N.—W. R. Fryer—A. B.—W. P.—W. B.—N. E. B.—W. E.—W. T. P.—W. H. G.—J. S.

Markets.

COVENT GARDEN, March 11.

The only alteration worth notice is the advance of price in Grapes of good quality, of which there are some good specimens of Lady Downes among the dealers. Rough goods are sufficient for the trade, and there are rather large consignments of late Apples placed on the market. *Thos. Taylor, Wholesale Apple Market.*

—— The choicest descriptions of fruit in the retail markets may be quoted as follows:—Strawberries, 2s. 6d. per oz.; Grapes, English black, 15s. to 20s. per lb.; Pines, 6s. to 8s. per lb.; Malta Blood Oranges, 3s. per doz.; Shaddocks and Pomeloes, 1s., 2s., and 3s. each.

Fruit.

	s. d.	s. d.		s. d.	s. d.
Apples, per ½-sieve	2 0–	3 0	Nuts, Cob, p. lb.	1 6–	2 0
Chestnuts, per bush.	10 0–	20 0	Oranges, p. 100	8 0–	12 0
Grapes, English, p. lb.	10 0–	15 0	Pears, p. doz.	4 0–	12 0
Lemons, per 100	8 0–	12 0	Pine-apples, p. lb.	3 0–	6 0
Medlars, per doz.	....		Walnuts, p. bush.	16 0–	..

Vegetables.

	s. d.	s. d.		s. d.	s. d.
Artichokes, Fr., doz.	4 0–	..	Horse Radish, p. bun.	3 0–	5 0
Asparagus, English, per bundle	8 0–	12 0	Leeks, per bunch	0 2–	0 4
— French, p. bund.	2 0–	..	Lettuces, per doz.	1 6–	..
Beans, French, p. 100	6 0–	..	Mushrooms, per pott.	1 0–	2 0
Beet, per doz.	1 0–	2 0	Onions, young, bun.	0 4–	0 6
Broccoli, p. bundle	0 9–	1 6	Parsley, per bunch	0 9–	1 0
Brus. Sprts., p. bush.	9 0–	..	Parsnips, p. doz.	0 9–	1 0
Cabbages, per doz.	1 0–	2 0	Peas, per quart	8 0–	..
Carrots, p. bundle	0 6–	0 9	Radishes, per bunch.	0 2–	0 4
Cauliflowers, per doz.	2 0–	6 0	— black, Turnip, do.	.. –	0 6
Celery, per bundle	1 6–	2 0	Seakale, per bundle	2 0–	3 0
Cucumbers, each	2 0–	4 0	Shallots, per lb.	0 3–	..
Endive, per doz.	1 0–	2 0	Salsify, per bundle	1 6–	..
Herbs, per bunch	0 2–	0 4	Turnips, per bundle.	0 6–	0 0

Potatos:—Early Shaws, 110s.; Early Myatt's 140s. · Early Regents, 120s.; and Early Dons, 120s per ton.

Cut Flowers.

	s. d.	s. d.		s. d.	s. d.
Azaleas, p. 12 sprays	6–	1 6	Lily-of-the-Valley, 12 sprays	2 0–	6 0
Camellias, 12 blooms	1 0–	6 0	Mignonette, 12 bun.	4 0–	6 0
Carnations, 12 blooms	2 0–	4 0	Narcissus, per doz.	1 0–	3 0
Cineraria, p. bunch	0 9–	1 6	Pelargoniums, 12 spr.	1 0–	2 0
Cyclamen, 12 blooms	0 3–	0 6	— Zonal, do.	0 9–	1 6
Deutzia, per bunch	0 6–	1 0	Primula, dbl., p. bun.	0 9–	1 6
Epiphyllums, 12 bl.	1 0–	2 0	— single, do.	0 4–	0 9
Eucharis, per doz.	6 0–	12 0	Roses, indoor, p. doz.	2 0–	6 0
Euphorbia, 12 sprays	1 6–	6 0	— French, do.	1 0–	2 6
French Lilac, p. bun.	2 0–	5 0	Snowdrops, 12 bun.	1 6–	4 0
Heliotropes, 12 sprays	0 6–	1 0	Spiræa, 12 sprays	2 0–	4 0
Hyacinths, per spike	0 3–	0 6	Stephanotis, 12 sprays	9 0–	15 0
— Roman, per 12 spikes	1 0–	4 0	Violets, per 12 bun.	1 0–	3 0

Plants in Pots.

	s. d.	s. d.		s. d.	s. d.
Azaleas, per dozen	24 0–	50 0	Heaths, in var., doz.	12 0–	30 0
Begonias, do.	6 0–	12 0	Hyacinths, per doz.	4 0–	12 0
Bouvardias, do.	9 0–	18 0	Lily of the Valley, 12 sprays	3 0–	9 0
Cineraria, do.	6 0–	15 0	Mignonette, do.	4 0–	6 0
Cyperus, do.	6 0–	12 0	Myrtles do.	3 0–	9 0
Deutzias, do.	8 0–	18 0	Pelargoniums, dble., per doz.	6 0–	12 0
Dracæna terminalis	12 0–	30 0	— Scarlet, do.	6 0–	9 0
— viridis, per doz.	12 0–	24 0	Primula sinensis, do.	4 0–	8 0
Epiphyllums, each	1 6–	3 6	Solanums, do.	6 0–	18 0
Ficus elastica	1 6–	7 6			
Fuchsia, per doz.	6 0–	12 0			

SEEDS.

London: *March* 10.—We have to report a good seasonable demand now prevailing for most kinds of farm seeds, the mild open weather at the beginning of the week having naturally caused increased activity in the trade. A good quantity of red Clover seed, chiefly of the finer qualities, has within the last few days been sold into the country. For old and yearling parcels there is at present less demand. Alsikes and white Clovers are without alteration. Trefoil continues in brisk request at full rates. For foreign Italian holders on the other side ask 1s. per bale more money. Ryegrasses are steady at last week's currencies. More inquiry is shown for white Mustard and sowing Rape seed. Spring Tares steadily maintain late rates: stocks in London are now reduced to narrow compass. Sanfoin and Lucerne seeds meet with more attention. Canary seed is drooping in value. White Millet and Hemp keep firm. There is a good inquiry for English Linseed. *John Shaw & Sons, Seed Merchants*, 37, *Mark Lane, E.C.*

POTATOS.

From King's Cross we have a report that there has been a good demand for best samples at extreme rates; but the trade for inferior dull. York and Lincoln Victorias, 100s. to 130s.; ditto Flukes, 100s. to 140s.; York Regents, 100s. to 130s.; Lincoln Regents, 80s. to 120s.; East Lothian Regents, 80s. to 120s.; Perth and Fife Regents, 60s. to 80s.; ditto Rocks, 60s. to 65s.; French, 50s. to 55s.; ditto seedlings, 60s. to 65s.; Belgian Kidneys, 65s. to 70s.; Kent and Essex Regents, 100s. to 120s.; ditto Rocks, 60s. to 70s. per ton.—The Borough and Spitalfields markets reports are to the effect that moderate supplies are on sale, and the trade firm on rather higher terms. Regents, 70s. to 120s.; Victorias, 100s. to 130s.; Flukes, 110s. to 140s.; Rocks, 60s. to 70s. per ton.—Last week's imports into London amounted to 168 sacks from Boulogne; 597 tons and 741 sacks from Dunkirk; 170 tons from St. Valery; 2550 bags from Antwerp; 57 barrels from New York; and 15 barrels from Malta.

RICHARDSONS' PATENT PORTABLE HORTICULTURAL BUILDINGS have the most PERFECT SYSTEM of VENTILATION combined with COMPLETE PROTECTION from the WEATHER. They are forwarded, ready glazed and painted, carriage paid and safe, to any part of the United Kingdom.

Apply for particulars, enclosing stamp, to W. RICHARDSON AND CO., Horticultural Builders and Hot-water Engineers, DARLINGTON.

The Most Perfect Hot-water Pipe in the World.

MESSENGER'S PATENT FLEXIBLE-JOINTED HOT-WATER PIPES are as cheap when fixed as the common pipes, and are much superior; may be rapidly put together, and, by a handy Labourer, can be easily unjointed and refixed at any time.

4-inch Pipe, per yard .. .. .. 3s. 4½d.
3-inch Pipe, per yard .. .. .. 2s. 8½d.
2-inch Pipe, per yard .. .. .. 1s. 8d.

Connections at proportionate prices.

Illustrated Price List free on application to MESSENGER AND COMPANY, Hot-water Engineers, Loughborough.

BELGIAN GLASS for GREENHOUSES, &c.,

Can be obtained in all sizes and qualities, of

BETHAM & SON,

9, LOWER THAMES STREET, LONDON, E.C.

B. & S. have always a large Stock in London of 20-in. by 12-in., 20-in. by 14-in., 20-in. by 16-in., in 16 oz. and 21-oz.

PRUSSIAN WOOD GARDEN STICKS and TALLIES, commended by the Royal Horticultural Society. The above can be had, of all sizes, wholesale, of CHARLES J. BLACKITH AND CO., Cox's Quay, Lower Thames Street, London, E.C. Retail of the principal Seedsmen. Prices on application.

Indestructible Terra-Cotta Plant Markers.

MAW AND CO.'S PATENT.—Prices, Printed Patterns, and Specimens, sent post free on application; also Patterns of Ornamental Tile Pavements for Conservatories, Entrance Halls, &c.

MAW AND CO., Benthall Works, Broseley.

Labels—Labels.

PARCHMENT or CLOTH LABELS, TREE or PLANT LABELS. Punched Parchment, 4 inches long, 3s. 6d. per 1000, or 30s. per 10,000; if eyeleted, 4s. per 1000. Vellum Cartridge, 4 inches long, 3s. per 1000 for 10,000. Sample Labels sent on receipt of Postage Stamp. Orders delivered free in London.

JOHN FISHER AND CO., Label Works, Boston.

Under the Patronage of the Queen.

J. SMITH'S IMPROVED METALLIC LABELS.

The above Labels—which have just been adopted for the Royal Gardens at Windsor—are made of a White Metal, with RAISED BLACK-FACED LETTERS, and are of various shapes and sizes. Samples and Price List free.

Sole Manufacturer: J. SMITH, The Royal Label Factory, Stratford-on-Avon.

AGRICULTURAL LOCOMOTIVES,

STEAM PLOUGHING MACHINERY,

ROAD LOCOMOTIVES, TRAMWAY LOCOMOTIVES, STEAM ROAD ROLLERS.

For Prices, Description, and Reports of Working, apply to the Manufacturers,

AVELING & PORTER,

ROCHESTER, KENT; 72, CANNON STREET, LONDON, E.C.; and 9, AVENUE MONTAIGNE, PARIS.

AVELING & PORTER'S ENGINES have gained the highest Prizes at every important International Exhibition. The Two Medals for Progress and Merit were awarded them at Vienna for their STEAM ROLLERS and ROAD LOCOMOTIVES; and at the last trials of the Royal Agricultural Society of England their AGRICULTURAL LOCOMOTIVES gained the First Prize after exhaustive trials, when one of their 10-horse power Engines, fitted with single slide and ordinary link-motion, indicated 35-horse power with a consumption of *three and one-fifth pounds of coal* per horse-power per hour.

W. H. LASCELLES, HORTICULTURAL BUILDER, Finsbury Steam Joinery Works, 121, Bunhill Row, London, E.C.

Estimates given on application for GREENHOUSES and CONSERVATORIES of all kinds, and to any design.

J. WATTS (F.R.H.S.) AND CO., HOTHOUSE BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, 353, Old Kent Road, London, S.E.

200 CUCUMBER and MELON BOXES and LIGHTS, all sizes, Glazed and Painted complete, ready for immediate use, packed and sent to all parts of the Kingdom.

PIT LIGHTS, all sizes, in stock, glazed and unglazed. Strong shifting top zinc HAND-GLASSES.

References to the Nobility, Gentry, and Trade in most of the Counties in England.

Government Emigration.

SYDNEY, NEW SOUTH WALES.—Assisted Passages are provided for Married Couples not exceeding forty years of age, with or without children, and Single Men and Women not exceeding thirty-five years of age, being FARMERS, MECHANICS, MINERS, LABOURERS, and FEMALE DOMESTIC SERVANTS, on payment of the following rates:—Twelve years and not exceeding forty, £5 10s.; one year and under twelve, £2 15s.

For further information apply to the Office of the Agent-General, 3, Westminster Chambers, Victoria Street, S.W.

Rosher's Garden Edging Tiles.

THE above and many other PATTERNS are made in materials of great durability. The plainer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.

F. ROSHER AND CO., Manufacturers, Upper Ground Street, Blackfriars, S.E.; King's Road, Chelsea, S.W.; Kingsland Road, E.

Agents for LOOKER'S PATENT "ACME FRAMES," PLANT COVERS and PROPAGATING BOXES; also for FOXLEY'S PATENT BEADED GARDEN WALL BRICKS.

Illustrated Price Lists free by post. The Trade supplied.

ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c., from 3s. per square yard upwards. Pattern Sheets, of plain or more elaborate designs, with prices, sent for selection.

WHITE GLAZED TILES; for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds, Roofing Tiles in great variety, Slates, Cements, &c.

F. ROSHER AND CO., Brick and Tile Merchants.

See addresses above.

SILVER SAND, fine or coarse grain as desired. Prices by Post per Ton or Truck Load, on Wharf in London, or delivered direct from Pits to any Railway Station. Samples of Sand free by post.

FLINTS and BRICK BURRS for Rockeries or Ferneries. KENT PEATS or LOAM supplied at lowest rates in any quantities.

F. ROSHER AND CO.—Addresses see above.

N.B.—Orders promptly executed by Rail or to Wharves. A liberal Discount to the Trade.

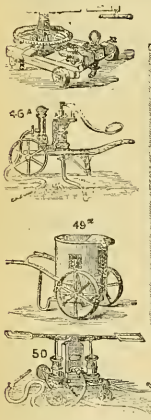
Reduced Prices.

THE CELEBRATED GRANITIC PAINT. Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company.

For Price Lists, Testimonials, and Patterns of Colours, apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.

THE SILICATE ZOPISSA COMPOSITION. To CURE DAMP in WALLS, and PRESERVE STONE, &c., from DECAY, at a very trifling cost. Manufactured Solely and Only by the Silicate Zopissa Composition and Granitic Paint Company, Colourless, and in all Colours.

For particulars and Testimonials, apply to THOMAS CHILD, Manager, 39A, King William Street, London, E.C.



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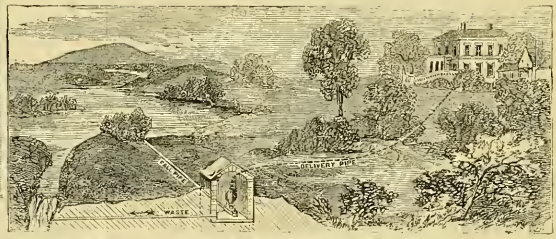
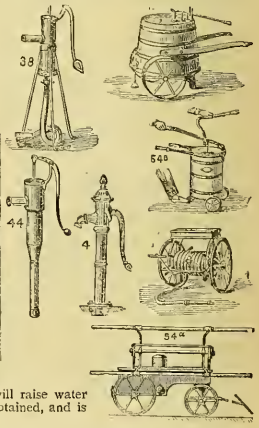
HYDRAULIC ENGINEERS,

WHITEFRIARS STREET, LONDON, E.C.





THE IMPROVED SELF-ACTING HYDRAULIC RAM.

This useful Self-acting Apparatus, which works day and night without needing attention, will raise water to any height or distance, without cost for labour or motive power, where a few feet fall can be obtained, and is suited for supplying Public or Private Establishments, Farm Buildings, Railway Stations, &c.

No. 37. DEEP WELL PUMPS for Horse, Hand, Steam, or other Power.
No. 63. PORTABLE IRRIGATORS, with Double or Treble Barrels for Horse or Steam Power.
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No. 49a. GALVANISED SWING WATER CARRIERS, for Garden use.
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No. 39b. IMPROVED HOSE REELS for Coiling up Long Lengths of Hose for Garden use.

S. OWENS AND CO. Manufacture and Erect every description of Hydraulic and General Engineers' Work for Mansions, Farms, &c., comprising PUMPS, TURBINES, WATER WHEELS, WARMING APPARATUS, BATHS, DRYING CLOSETS, GAS WORKS, Apparatus for LIQUID MANURE distribution, FIRE MAINS, HYDRANTS, HOSE PIPES, &c., &c. *Particulars taken in any part of the Country. Plans and Estimates furnished.*

ILLUSTRATED CATALOGUES CAN BE HAD ON APPLICATION.

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Northgate Works, BATH, and 280, Oxford Street, LONDON,

PATENTEE AND MANUFACTURER OF EVERY DESCRIPTION OF

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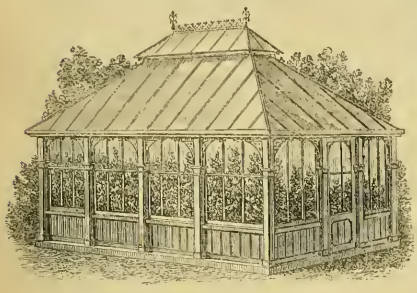
Glazed without Putty on Channelled Rafters, securing almost entire immunity from Breakage of Glass, extreme Facility for Repairs, and absolute Freedom from Drip.

Specimen Houses and Water-colour Drawings of important Works which have been executed may be seen at the above Addresses.

Illustrated **CATALOGUES** and **PRICE LISTS** for Four Stamps.



PORTABLE LAWN CONSERVATORY.

With W. P.'s Patent System of Glazing, panelled wood sides in place of Brickwork, open-jointed floor and lattice staging; Cast Iron moulded rain-gutter, down-pipes, Finials and Cresting; opening Lights on each side and top Ventilators under glazed super-roof. It is removable by a Tenant-at-will.

PRICE, with 21-oz. Glass, 18 feet by 12 feet, by 7 feet at eaves, £70.
" with 21-oz. Glass, 24 feet by 14 feet, by 7 feet at eaves, £94.

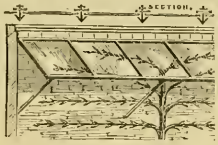
GALVANIZED WALL WIRING AND ESPALIERS.

Holdfasts. 2s. per dozen.

Raidisseurs. 4s. per dozen.

Eyes. 6d. per dozen.

No. 13 Wire. 2s. 6d. per 100 yards.



A Certain Crop of Fruit, in spite of Frost, is secured by

PARHAM'S

PATENT GLASS COPING

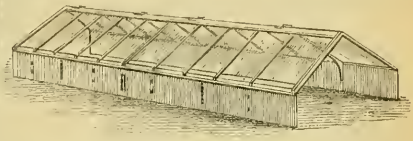
For Sheltering Fruit Trees.

The Patentee has sent out many miles of it during the past three seasons, and additional orders have each year been received from those who have tried it.

PRICE—Per foot run, with 21-oz. glass.
With the iron framework painted, 2 feet, 2s. 6d.; 3 feet wide, 3s. 9d.
With the iron framework galvanised, 2 feet, 3s. 3d.; 3 feet wide, 4s. 9d.

From Mr. F. SAUNDERS, *Gardener to* Sir Wm. Miles, Bart., *Leigh Court, Bristol, October* 23, 1874.

"Sir,—I have much pleasure in saying the Wall Coping you erected here in April, 1872, has given the greatest satisfaction. Many of the Peach trees, at that time apparently worthless, are now in full vigour, and have borne extraordinary crops this season, the fruit being unusually fine, and of excellent flavour. I have recommended it to several gentlemen, who, I believe, will give it a trial."

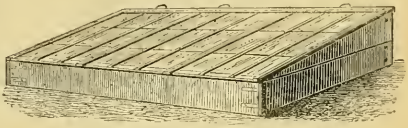


PATENT PORTABLE PLANT PRESERVER.

Glazed with 21-oz. glass (under W. Parham's Patent) without putty, on channelled wood rafters.

PRICE—Including two wood ends to each length.

Long.	Wide.		Long.	Wide.	
6 feet by 2 feet	..	.. £1 10 0	12 feet by 3 feet	..	.. £1 12 0
12 feet by 2 feet	..	.. 2 15 0	6 feet by 4 feet	..	.. 2 14 0
6 feet by 3 feet	..	.. 2 2 0	12 feet by 4 feet	..	.. 4 12 6



CUCUMBER OR MELON FRAMES.

Glazed with 21 oz. glass (under W. Parham's Patent) without putty.

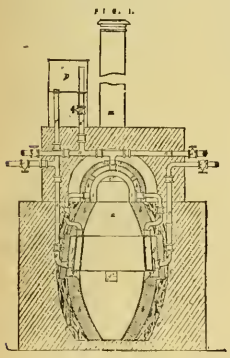
PRICE—Complete with 1½-inch red deal sides, and 2-inch lights.

Long.	Wide.		Long.	Wide.	
4 feet by 6 feet, 1 light	..	£1 17 6	16 feet by 6 feet, 4 lights	..	£6 7 6
8 feet by 6 feet, 2 lights	..	3 5 0	20 feet by 6 feet, 5 lights	..	7 17 0
12 feet by 6 feet, 3 lights	..	4 17 6			

COWAN'S COMPENSATING SYSTEM OF HEATING.

WAUCHOPE & COWAN'S NEW AND ECONOMICAL SYSTEM OF MAKING GAS.

THE COWAN COMPENSATING HEATING COMPANY, LIMITED, having recently been offered a valuable Patent for the Manufacture of Gas, to be worked in combination with their Patents for Heating Horticultural and other Buildings, have found it necessary, so as to acquire and work such Patent, to form a new Company with larger powers; the old Company having been incorporated for the purpose of dealing with the Heating Patents only.



THE COWAN COMPENSATING HEATING COMPANY, LIMITED, will, therefore, be wound up and dissolved, and a new Company, called "THE COWAN PATENTS COMPANY, LIMITED," has been formed, and has taken over the entire business of the old Company. From this date the new Company will carry on the business of the old Company, with the addition of the New System of Making Gas—full particulars of which, with Illustrations, can be had on application.

Contracts entered into by the old Company will be carried out by the new one, and all its responsibilities fulfilled.

The Directors of the new Company have thought it advisable to change the Offices from Lothbury to 21, WHITEHALL PLACE, WESTMINSTER, S.W., where all communications should in future be addressed, and where full information concerning their Patent Systems of Heating and Gas Making can be obtained.

SPECIAL MEDALS WERE AWARDED AT MANCHESTER, 1873; BELFAST, 1874; BIRMINGHAM, 1874.

ILLUSTRATED PAMPHLETS SENT FREE ON APPLICATION.

All Communications in future to be addressed—

21, WHITEHALL PLACE, WESTMINSTER, S.W.

WANTED, two steady and industrious LADS, from 14 to 18 years of age. Must have some knowledge of Rose Budding and Tying. Comfortable lodgings found.—Apply, by letter, stating wages required, to HENRY BENNETT, Manor Farm Nursery, Stapleford, Salisbury.

JOHN CARTER, Nursery, Keighley, is in WANT of ONE or TWO good JOBBING MEN. Constant work, at wages according to ability. J. C. can also find Temporary Employment for TWO or THREE GARDENERS (with satisfactory characters) waiting for situations.

To Gardeners and Florists.

WANTED, active young MEN and LADS in the Furnishing, Jobbing, and Shop Departments; also, FEMALE ASSISTANTS and LEARNERS in the Bouquet and Table Decoration Department, at ROBERT GREEN'S Floral Establishment, Crawford Street, Bryanston Square, W. Apply any day before 12 o'Clock.

WANTED, in a Gentleman's Family, a married COUPLE, without incumbrance—the man to look after an Alderney Herd and Farmyard, the Wife to Manage Poultry. Wages £1 per week and cottage.—Apply, by letter only, stating age, to K. T., Post Office, Foot's Cray, Kent.

WANTED, a strong active LAD, to Milk Four Cows and to fill up his time in the Garden. Wages 12s. per week, to be increased according to merit. Also, a young MAN for the Garden, at 16s. per week.—Mr. SEWELL, Gardener's Cottage, Isleworth House, Isleworth, Middlesex.

WANT PLACES.

To Gardeners in Want of Situations,
WHOSE CHARACTERS WILL BEAR STRICT INVESTIGATION.

THE PINE-APPLE NURSERY COMPANY devote special attention to this important matter—proper Men to suitable Situations. For a GARDENER, or for a SITUATION, please send full particulars to Mr. JOHN BESTER, the Pine-Apple Nursery Company, Maida Vale, London, W.

B. S. WILLIAMS, having at the present time several very excellent GARDENERS upon his Register, is desirous of placing them in Situations where great experience and trust are required. B. S. W. would at the same time beg to intimate that when a Gardener is applied for that the filling of the situation should be left with him, as that would prevent unnecessary correspondence and delay.—Victoria and Paradise Nurseries, Upper Holloway, London, N.

Head Gardeners.

JOHN LAING can at present recommend with every confidence several energetic and practical Men, of tested ability and first-rate character. Ladies and Gentlemen in WANT of GARDENERS and BAILIFFS, or GARDENERS for First-rate Establishments or Single-hand situations, can be suited, and have full particulars by applying at Stanstead Park and Rutland Park Nurseries, Forest Hill, London, S.E.

GARDENER (HEAD), where one or two others are kept.—Age 30, married, two children. Testimonials extending over fourteen years in good establishments—upwards of three years in late situation.—H. H., Mrs. Laurie, Osborne Road, Wellington Road, Hounslow, W.

GARDENER (HEAD), where one or more are kept.—Age 28; thoroughly understands his profession in all branches. Four years' good character.—E. WATSON, The Gardens, Ealing Park, Ealing.

GARDENER (HEAD).—Age 30, single; thoroughly practical in all branches. No single-handed place accepted.—M. M., 81, Sunnyside Road, Hornsey Rise, N.

GARDENER (HEAD).—Married, two children (ages five and three years); has a practical knowledge of the profession. Nearly four years' character as Head Gardener.—T. WOOD, The Gardens, Normandy House, Alton, Hants.

GARDENER (HEAD).—Age 35, married, one child (age six years); thoroughly understands Vines, Pines, Peaches, Cucumbers, Flowers, Vegetables, and Early and Late Forcing. Seven years' good character.—R. T., Mr. Chard, Clarendon Park, Salisbury, Wilts.

GARDENER (HEAD).—Age 39, married; no incumbrance; 25 years' experience in every branch of the Profession, Forcing all kinds of Fruits, Flowers, and Vegetables; is an excellent Grape Grower, also good Kitchen and Flower Gardener.—D., 13, Church Road, Hammersmith, W.

GARDENER (HEAD).—Age 39, married; thoroughly understands the Profession in all its branches. Left last situation through death and change of hands. Good character; seven years in last place.—A. B., Post Office, Grays, Essex.

GARDENER (HEAD).—The Dowager Lady SONDES will be very glad to highly recommend WILLIAM SMYTHE as a thorough good practical Gardener in every department. He has lived with her nineteen years, and is leaving owing to the death of the late Lord Sondes.—WM. SMYTHE, Elmham Hall, East Dereham.

GARDENER (HEAD).—Age 43, married, no family; good knowledge of the profession. Proper help must be allowed, according to the wants of the family; also the necessary convenience for carrying out the same. Near London preferred. Good character.—A. C., 2, Spring Grove Villas, Kingston-on-Thames.

GARDENER (HEAD), age 38, married.—J. SPAVEN, four years and a half at the Royal Kitchen Garden, Hampton Court, S.W., offers his services to any Nobleman or Gentleman requiring a trustworthy and efficient servant. Highest references from last and previous employers.—8, Queen's Road, Teddington, S.W.

GARDENER (HEAD), married.—GEORGE COOKE, upwards of four years Head Gardener to W. W. E. Wynne, Esq., Peniarth, Towyn, seeks a re-engagement with any Lady or Gentleman in want of a good practical Man. First-class character.—The Gardens, Peniarth, Towyn, North Wales.

GARDENER (HEAD), age 29, married.—A GENTLEMAN can highly recommend his late Gardener, who has a thorough knowledge of the profession in every branch. Has had fourteen years' experience in extensive Establishments under first-class practical Men. Excellent references from previous employers.—N. GERMAN, 70, Duke Street, Whitehaven.

GARDENER (HEAD).—Age 33, married, without family. Eighteen years' sound practical experience in some of the best establishments in England. Thoroughly competent in every branch. Testimonials from late and previous employers as to abilities and moral character.—J. W., Mr. Henderson, Sion Nursery, Thornton Heath, Croydon.

GARDENER (HEAD), married, with family.—GEORGE BOOTHROYD, twelve years Head Gardener at Woodville Hall, near Dover, who will shortly be disengaged, in consequence of the death of his employer, offers his services to any Lady and Gentleman in want of a thoroughly practical, trustworthy Man. Is capable of undertaking the Management of a large Garden Establishment. Highest testimonials as to character and abilities.—The Gardens, Woodville Hall, Dover.

GARDENER (HEAD), to any Nobleman or Gentleman requiring a Man of the highest character for trustworthiness and practical knowledge of the profession. Age 30, married. Seven years Head Gardener in a large place, and has had sixteen years' close practice in the Forcing of good Grapes, Peaches, &c., and Growth of Orchids, Ferns, Stove and Greenhouse Plants, Flower and Kitchen Garden, and Pleasure-grounds.—A. Z., Mr. B. Watson, Church Terrace, Church Road, Tottenham, N.

GARDENER (HEAD, WORKING).—Age 41, married; understands the profession in all its branches. Good character.—A. B., Post Office, Havering, Romford, Essex.

GARDENER, (HEAD, WORKING).—Age 29, married; good practical knowledge of the profession in all its branches.—J. G., Messrs. Hugh Low & Co., Nurseries, Upper Clapton, London, E.

GARDENER, (HEAD, WORKING).—Age 32, married, two children; thoroughly experienced in all branches of the profession. Good character from last and previous employers.—J. HANKINS, 1, Wilton Cottages, Grove Road, Acton, W.

GARDENER (HEAD, WORKING).—Age 24, no incumbrance; experienced in Growing all kinds of Flowers, Fruits, and Vegetables. Good character from last situation.—W. H., The Seed Stores, Station Road, Sutton, Surrey.

GARDENER, age 37, married.—A GENTLEMAN wishes to recommend his Gardener, who is a very industrious man, having a thorough knowledge of the profession in all its branches.—W. MASON, Warren Park, Hever, near Edenbridge, Kent.

GARDENER,—Experienced; has had the Management of Greenhouse, Conservatory, Forcing-pits, Frames, and Flower and Kitchen Gardens, and has served five years as Head Gardener where three Men were kept. Six years in last place.—E. R., Post Office, West Malling, Kent.

To Florists.

FOREMAN, or MANAGER.—Age 28; well up in Furnishing, &c., also thoroughly understands Markets. Has had several years' experience in a first-class West-end Firm.—J. B., 29, Queen Street, Bryanston Square, W.

FOREMAN, or good SECOND GARDENER, in a Gentleman's Garden.—Age 24; thoroughly understands the Houses and Kitchen Garden. Nine years' good practical experience.—A. HOARE, T. Rogers, Frimley Park, Surrey.

FOREMAN and PROPAGATOR.—Twenty years' experience in Growing Plants and Cut Blooms for Covent Garden Market; likewise Grape and Cucumber Grower, if required.—A. B., 43, Alpha Road, Surbiton, Surrey.

FOREMAN, in the London FURNISHING TRADE, or similar situation in a Florist Establishment; where trust and experience are required. Unexceptionable character.—J. BROMWICH, Seedsman and Florist, 25, Buckingham Gate, S.W.

GARDENER (SECOND) in a Nobleman's or Gentleman's Garden.—Age 27. First-class references.—M. A. P., 13, Elizabeth Place, Roehampton.

GARDENER (SECOND), in a Nobleman's or Gentleman's Garden.—Age 22; well up in Forcing Fruits, Flowers, and Vegetables. Highest references can be given. State wages.—C. CROCKETT, Copped Hall, Totteridge.

GARDENER (SECOND), in a Nobleman's or Gentleman's Garden. Age 21, respectable. Two years' good character from present situation.—Address, stating wages, W. K., 6, Finsbury Cottages, Nightingale Road, Wood Green, London, N.

GARDENER (SECOND), in a Nobleman's or Gentleman's Establishment.—Age 26, married, no family; eleven years' experience. Can have a good character from present employer.—E. GEEVES, Albert Road, Belvidere, London, S.E.

GARDENER (SECOND ASSISTANT).—Age 20, Swiss. Six years' experience (five on the Continent, one in England). Good references.—E. V., 33, Richmond Crescent, Richmond Road, Barnsbury, N.

GARDENER (SECOND), in the Houses; where Pines are Grown preferred.—Age 22. Seven years' experience.—State wages, with full particulars, H. V., Rushton Park, Robertsbridge.

GARDENER (SECOND).—Age 25, single; eleven years' experience in Growing Plates, Vines, Peaches, Stove and Greenhouse Plants, Melons and Cucumbers and General Gardening. Good character.—A. B., 41, Adelphi Road, Epsom, Surrey.

GARDENER (UNDER), in the Houses.—Age 22. Good reference.—G. A., 2, Westbourne Place, Harrow Road, W.

GARDENER (UNDER).—Age 22, respectable; accustomed to the Houses and general Garden Work. Three years' good character.—J. O., Post Office, Epsom, Surrey.

GARDENER (UNDER), in a good Establishment.—Age 20. Good reference.—H. P. F., Bishop's Wood, near Ross, Herefordshire.

GARDENER (UNDER), in a Nobleman's or Gentleman's Garden, where he may gain more experience in House-work. Highest references.—H. L., Post Office, Dorking, Surrey.

GARDENER (UNDER), in a Nobleman's or Gentleman's Family.—Age 20. Good references.—J. GILES, Cross Roads, Croydon Common, Croydon.

GARDENER (UNDER), in a Gentleman's Establishment, where he could further improve himself in the Houses.—Age 23. Four years' character from present employer.—R. H. F., North Luffenham Hall, Stamford.

GARDENER (UNDER) in a large place.—Age 20; has had experience in five good places, and can be well recommended.—G. C., The Gardens, Syston Park, Grantham.

PROPAGATOR (GENERAL).—Age 34, married; 21 years experience in the leading Nurseries—four years' in present situation. Satisfactory references.—W. E., North Road House, Hertford.

PROPAGATOR (SOFT-WOOD), with a knowledge of general Nursery-work.—Age 30, married: no objection to a private place.—C. T., The Nurseries, Strood, Kent.

FOREMAN or SALESMAN to a Market Gardener.—W. C. D., Post Office, Ealing, Middlesex.

ASSISTANT in a FLORIST'S, or FLORIST and FRUITERER'S.—A young Lady, well acquainted with Cut Flower Trade.—C. D., 4, Well Hall Villas, Eltham, Kent.

To Gentlemen's Gardeners.

IMPROVER, in a good garden.—Age 18; has had three years' experience in the Houses.—GARDENER, Worthy Park, Winchester, Hants.

MARKET NURSERYMAN.—Age 24; has a good knowledge of general work; a good Market Nursery necessary. State wages.—W. S., Post Office, Mortlake, S.W.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C. Printed by William Richards, at the Office of Messrs. Bradbury, Agnew, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the County of Middlesex, and Published by the said William Richards, at the Office, 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—Saturday, March 13, 1875.
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THE

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Established 1841.

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CONTENTS.

SALES BY AUCTION.

Leatherhead.

IMPORTANT UNRESERVED SALE OF VALUABLE NURSERY STOCK.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, The Nurseries, Leatherhead, close to the South-Western and London, Brighton, and South Coast Railway Stations, on MONDAY, March 22, at 12 for 1 o'Clock precisely, by order of the Proprietors, without reserve, a large quantity of useful NURSERY STOCK, viz., fine specimen Coniferæ, including Thujas, Cupressus, Arbor-vitæ, &c., also Spruce Firs, Taxus of sorts, 5000 English Yews, 1½ to 5 feet; 4000 Green and Variegated Box, 3000 Common Laurels, 2 to 5 feet, and many others; 2000 Lilacs, and Deciduous Shrubs in variety, large Ornamental Trees, selected Pyramidal and Dwarf-trained Pears, with a choice assortment of hardy Climbing Plants in pots, &c.

N.B. On view the Saturday prior to the Sale. Catalogues had on the Premises, and of the Auctioneers and Valuers, 98, Gracechurch Street, E.C., and Leytonstone, E.

Garston, near Liverpool, within a few minutes' walk of three Railway Stations. A compact and valuable FREEHOLD ESTATE, distinguished as Meredith's Vineyard, universally renowned as the first Vine and Grape producing establishment in the United Kingdom, first-class prizes having been obtained by the present occupier, Mr. Joseph Meredith, at all the leading shows in Europe.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, in one lot, on the Premises, as above, on TUESDAY NEXT, at half-past 1 for 2 o'Clock precisely, the valuable FREEHOLD ESTATE, known as Meredith's Vineyard, situate in Garston, near Liverpool, and comprising 6 acres 1 rood 32 perches of particularly eligible Building Land, with the attractive and substantial brick-built Residence standing thereon; likewise 30 Greenhouses, set in brickwork, and of the best construction, fitted with every modern appliance, and containing about 50,000 feet super of Glass and Woodwork, heated by about three miles of Hot-water Piping on the most approved principles; also several Brick Pits, numerous convenient Outbuildings, together with all the Stock planted out in the Houses, including the entire celebrated Collection of established Vines, at present in the highest state of perfection.

Cards to view, and priuted particulars with Plans, may be had of Messrs. MOSER AND SONS, Solicitors, Kendal; of Messrs. GIBSON AND POLLAND, Accountants, 10, South John Street, Liverpool; of Messrs. WATELEY AND MADDOCK, Solicitors, Liverpool; and of the Auctioneers and Estate Agents, 98, Gracechurch Street, London, E.C.

Extensive Consignment for Absolute Sale, per s.s. "Fanais," from Yokohama, of thousands of choice LILIUM AURATUM, CALIFORNICUM fl.-pl., TIGRINUM, WASHINGTONIANUM, MONADELPHUM, PURPUREUM, DALMATICUM, WALLICHIANUM, PARVULUM, TENUIFOLIUM, and other rare species; also a large quantity of choice JAPANESE MANUFACTURES and CURIOS, consisting of beautifully Inlaid and Lacquered Cabinets, Tables, handsome Porcelain Vases, Garden Seats, Rare Bronzes, &c.; together with 3000 GLADIOLI and Silver-spotted CALLAS.

MESSRS. PROTHEROE AND MORRIS will SELL the above by AUCTION, at the Guildhall Tavern, Gresham Street, City, E.C., on WEDNESDAY, March 24, at 11 o'Clock.

On view the day prior to the Sale. Catalogues may be had at the Rooms, and at the Auction and Estate Offices, 98, Gracechurch Street, E.C.

SURREY (2005).—In a first-class neighbourhood, close to a station, and twenty-five minutes' ride from Waterloo, a flourishing NURSERYMAN'S and MARKET GROWER'S BUSINESS to be Disposed of in consequence of the death of the Proprietor.

NORTH ESSEX (1961).—To be Sold, a genuine NURSERYMAN'S BUSINESS, the Owner having taken a farm. Part of purchase money could remain on security.

WEST OF ENGLAND (2006).—An old-established NURSERY and SEED BUSINESS to be Disposed of, on particularly easy Terms. £2000 to £3000 required, part can remain on good security.

Particulars of these three Nurseries, and of several others, will be found in Messrs. PROTHEROE AND MORRIS' HORTICULTURAL REGISTER, to be obtained at their Offices, 98, Gracechurch Street, London, E.C.

Rare Lilies, Seeds, Ferns, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, March 22, at half-past 12 o'Clock precisely, a great variety of Hardy and Half-Hardy BULBS and ROOTS, comprising many very rare and choice varieties; 5000 magnificent Bulbs of Lilium auratum, from Japan; a great variety of rare and new Coniferous Tree Seeds, mostly collected by M. Roezl; an importation of New Zealand Tree Ferns, a large number of Gladioli, &c.

On view the morning of Sale, and Catalogues had.

Magnificent New Masdevallia, "Macrura."

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, March 25, at half-past 12 o'Clock precisely, a few PLANTS just received of this magnificent MASDEVALLIA—the largest flowered species yet introduced. The flowers individually are 11 inches long; colour orange, with red rays. The growth is very strong and robust, very much more so than that of any other species in cultivation. Same time will be SOLD, a few Plants of the true and rare MASDEVALLIA CHIMÆRA.

On view the morning of Sale, and Catalogues had.

Established Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, March 25, at half-past 12 o'Clock precisely, a small Collection of ESTABLISHED ORCHIDS, including the following:—

Odontoglossum Roezlii	Angræcum sesquipedale
Oncidium phymatochilum	Vanda suavis
Vanda Batemanni	Odontoglossum coronarium
Odontoglossum angustatum	Cypripedium hirsutissimum
Cattleya Mendelii	Dendrobium Wardianum
Odontoglossum sceptrum	superbum
" vexillarium	&c., &c.

On view the morning of Sale, and Catalogues had.

Periodical Sale of Poultry and Pigeons.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, March 23, at half-past 12 o'Clock precisely, 300 Pairs of choice POULTRY and PIGEONS, from the yards and lofts of well-known breeders and exhibitors.

On view the morning of Sale, and Catalogues had.

Hardy Plants and Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, March 24, at half-past 12 o'Clock precisely, Dwarf Trained, Standard, and Pyramid FRUIT TREES, CONIFERS, ROSES, LAURELS, RHODODENDRONS, Hardy HERBACEOUS PLANTS, Choice GLADIOLI for Spring Planting, RUSTIC GARDEN WORK, &c.

On view the morning of Sale, and Catalogues had.

Imported Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, March 25, at half-past 12 o'Clock precisely, an importation of ORCHIDS just received from New Grenada; including several hundreds of such as Odontoglossum Alexandræ (crispum), Ada aurantiaca, Oncidium Kramerianum, O. Weltoni, Houlletia chrysantha, Sobralia virginalis, Odontoglossum hastilabium, Acinetas, Peristerias, and various handsome Cattleyas, &c.

On view the morning of Sale, and Catalogues had.

Imported Disas.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, March 25, at half-past 12 o'Clock precisely, an Importation of DISAS from the Cape of Good Hope, including a few tubers of the exceedingly rare new DISA BARELLII. This beautiful variety was flowered for the first time in 1873 in the celebrated collection of plants at Dangstein, and was figured in the *Floral Magazine* for February, 1874. Also a quantity of DISA GRANDIFLORA, and of the blue-flowered DISA HERSCHELII.

On view the morning of Sale, and Catalogues had.

Castle Grove House, Chobham, Surrey.

MESSRS. WATERER AND SONS have been instructed by Capt. Ball to SELL by AUCTION, on the Premises, on TUESDAY, March 23, at 12 o'Clock, the valuable OUTDOOR EFFECTS, comprising a well-built light four-wheel Pony Chaise, light Dog Cart, Harness, Chaff-cutting Machine, capital Corn Bin, quantity of Wire Fencing and Gate to form Poultry Yard, Box, Water and Hand Barrows, Garden Frame with iron lights, two iron Wine Bins, twelve Hand-lights, fifty Bell-glasses, iron Garden Roller, two Lawn-mowing Machines by Shanks, Rabbit Hutches, Washing and Wringing Machines, &c. About 500 GREENHOUSE and STOVE PLANTS, including fine Specimen Plants, Stephanotis, Allamanda, two Latania borbonica, Abutilon Malakoff, Dracænas, Camellias, Aloe variegata, Yucca pendula, Ficus elastica, Phormium tenax, Fuchsias, Clematis, Azalea Dieffenbachia, Ferns, a great variety of other Plants, a number of choice Bulbs of sorts, and numerous other articles.

May be viewed the morning of Sale, and Catalogues had upon the Premises; at the White Hart and Sun Inns, Chobham; and of Messrs. WATERER AND SONS, Auctioneers and Valuers, Chertsey, Surrey.

A Great Bargain for an Immediate Purchaser.

TO BE SOLD, or LET, a Gentleman's DETACHED RESIDENCE, on the South Coast, with an extensive range of Glass, well stocked with Grapes, Pines, &c., Coach-house and Stabling.

E. H., *Gardeners' Chronicle* Office, W.C. No Agents.

FOR IMMEDIATE DISPOSAL, in consequence of the ill-health of the Proprietor, an old-established NURSERY, SEED, and FLORIST TRADE, in the Midland counties. For particulars apply to

Mr. R. COOPER, 152, Fleet Street, London, E.C.

Victoria Estate, Kansas, U.S.—To Farmers and others.

FINE STOCK FARMS of 640 Acres and upwards, to be SOLD, Freehold, from 12s. to 50s. per acre. Grass in its natural condition unsurpassed for feeding Sheep and Cattle. For PAMPHLET containing full particulars respecting this Property, apply to

ROBERT W. EDIS, Esq., F.S.A., 14, Fitzroy Square, London, W., Architect to the Estate.

GLASGOW and WEST of SCOTLAND HORTICULTURAL SOCIETY.

The EXHIBITIONS for Season 1875:—Spring, March 24; Midsummer, June 16; Autumn, September 8. The Prize money is £422 12s.

In June, open to all, Collection of Stove and Greenhouse Plants, table not to exceed 6 feet by 6; prizes 16os., 12os., 10os. Besides this prize money the Directors' handsome Silver Cup, value £20, to be the property of the winner for two years in succession or three years in all.

Also, open to Amateurs only, Collection of Greenhouse Plants, space not to exceed 8 feet by 6; prizes 6os., 4os., 2os., with amateurs' silver cup, value £5 5s., on same terms as above.

Schedules and tickets of admission may now be had from the Nurserymen in town, CHAS. M. WILLIAMSON, Treasurer, 194, West George Street; or

FRANC. GIBB DOUGALL, Secretary,

167, Canning Street, Glasgow.

GRANTHAM and SOUTH LINCOLNSHIRE HORTICULTURAL SOCIETY.

President—The Right Hon. Earl BROWNLOW, Lord-Lieutenant of the County.

SUMMER EXHIBITION, at GRANTHAM, JULY 7 and 8.

Schedules of Prizes (£200—Two Silver Cups) may be had of Mr. LYNE, Bookseller, Grantham.

PRESTON FLORAL and HORTICULTURAL SOCIETY.

President—T. M. SHUTTLEWORTH, Esq., F.R.H.S.

EXHIBITION, in MILLER PARK, JULY 28 and 29.

Amongst the Prizes which will be offered are the following:—Ten Stove and Greenhouse Plants, £20; six Fine-foliaged Plants, £10; Twelve Miscellaneous Plants, £16; eight Exotic Ferns, £9; six Orchids, £7; twenty-four Cut Roses, £3 10s.; and six dishes of Fruit, £6.

Schedules of Prizes, which are now ready, and any other information, may be obtained from

W. TROUGHTON, Hon. Sec.,

4, Church Street, Preston.

Verbenas.

JOHN CARTER, NURSERYMAN, Keighley, can supply healthy, well-rooted Plants of Scarlet and Purple Verbenas, from cutting pots, at 6s. per 100. They have been some weeks in a cool house.

Also LOBELIAS, at 3s. per 100.

To the Trade.

HOLLYHOCKS, fine named varieties, autumn-struck plants, 70s. per 100, cash.

JAMES GARAWAY AND CO., Durdham Down Nurseries, Bristol.

To the Trade.

CARNATIONS and PICOTEES.—Selected named varieties, very fine plants, 70s. per 100 pair, cash.

JAMES GARAWAY AND CO., Durdham Down Nurseries, Bristol

To the Trade.

AMERICAN and ITALIAN TUBEROSES, GLADIOLUS BRENCHLEYENSIS, choice named Hybrid Gladiolus.

HURST AND SON have a Surplus Stock of the above. Lowest prices on application to

HURST AND SON, 6, Leadenhall Street, London, E.C.

GIANT ASPARAGUS PLANTS, the best that money can procure, all certain to grow, 2s. 6d. per 100. This delicious vegetable does not require half the expense usually incurred in planting it. See RICHARD SMITH'S SEED LIST for 1875.

Extra strong SEAKALE, 2s. per dozen.

RICHARD SMITH, Nurseryman, Worcester.

Notice.—Cheap and Good.

A PRICED LIST of the best SPRING-FLOWERING PLANTS will be sent free to all applicants. Apply to

DILLISTONE BROS., Nurserymen, &c., Sturner, near Halstead, Essex.

ZONAL PELARGONIUMS.—A fine well-grown stock (autumn-struck plants) of the choice new varieties of last year. Also, an immense quantity of the best Bedding Pelargoniums, Tricolor, Gold, Silver, and Zonal.

LIST of sorts and prices on application.

W. G. CALDWELL AND SONS, The Nurseries, Knutsford.

VINES, VINES, VINES.— Fine strong short-jointed Canes, for fruiting and planting, of Black Hamburgh, Muscat of Alexandria, Foster's Seedling, and White Tokay. Also, fine strong HUMEA ELEGANS, about 18 inches high. Prices (low) on application.

W. G. CALDWELL AND SONS, The Nurseries, Knutsford.

STELLARIA GRAMINEA AUREA—100 cuttings sent post free for 2s. 6d. This is quite distinct from Golden Feather, and certainly the best yellow carpet-bedding plant ever introduced; quite hardy.

H. CANNELL, New Florists' Flowers and Florist Flower Seed Merchant, Woolwich, S.E.

Herbaceous Calceolarias (Neil's Superb Strain).

WOOD AND INGRAM offer fine Plants of the ABOVE, from store pans, at 3s. per dozen, 20s. per 100, post free. Also fine Plants in 5-inch pots, at 6s. per dozen. Basket and package, 2s. for the first and 1s. every additional dozen.

The Nurseries, Huntingdon.

Home Grown Mangel Wurzel and Turnip Seeds.

H. AND F. SHARPE are prepared to make special offers to the Trade of the above-named SEEDS, all saved from carefully selected stocks, and of the finest quality. Prices very low.

Seed Growing Establishment, Wisbech.

PYRUS, or CYDONIA MAULEI.—Plants of this hardy ornamental and useful new Japan Fruit, now sending out, price 21s. each, usual discount to the Trade.

Illustration sent on application. See *Gardeners' Chronicle*, 1874, i. 757, ii. 749; and the *Florist and Pomologist* for this month.

WM. MAULE AND SONS, The Nurseries, Bristol.

CEDRUS DEODARA, 10 to 15 feet high, all prepared for safe transplanting, in large pots, price 10s. 6d. each.

May be planted with safety up to the middle or end of May.

WM. MAULE AND SONS, The Nurseries, Bristol.

Verbenas, Verbenas, Verbenas.

WILLIAM BADMAN offers Purple, White, Scarlet, Crimson, and Rose Verbenas—good Plants from single pots, 12s. per 100; rooted cuttings, clean and healthy, 6s. per 100, 50s. per 1000, package included. Terms cash.

Cemetery Nursery, Gravesend.

Carnations, Picotees and Pinks.

CHARLES TURNER can supply the above in all their various classes, and in every variety of colour, in fine health; plants suitable for borders or for blooming, in Pots. The quality of C. Turner's Collection is well known.

CATALOGUES may be had on application.

The Royal Nurseries, Slough.

W. G. CLARKE, The Nurseries, Wellington, Somerset, offers the following:—WELLINGTONIAS, 12 to 18 feet; SPANISH CHESTNUTS, specimen plants, fit for an avenue, 12 feet; HORSE CHESTNUTS, 12 feet; THUJA LOBBII, 10 feet; CUPRESSUS LAWSONIANA, 8 to 10 feet; MOUNTAIN ASH, 12 feet; WEYMOUTH PINE, 8 to 10 feet; PINUS CEMBRA, 3 to 5 feet; SILVER FIRS, 5 to 6 feet.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS: also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.

Mr. WEBB, Calcot, Reading.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

Cheap.—To Clear the Ground.

YEWS, English, 6 to 12 inches, 6s. per 100, 40s. per 1000; 1 to 1½ foot, 10s. per 100; 2, 4, to 4½ feet, 60s. to 70s per 100, nice furnished and good rooted. We can recommend them to the Trade for transplanting.

GEORGE JACKMAN AND SON, Woking Nursery, Surrey

Eucalyptus globulus (Australian Blue Gum).

JOHN WILSON, SEEDSMAN, Whitehaven, has just received, in fine condition, a Consignment of Seed (hitherto very scarce) of this well-known EUCALYPTUS from Messrs. Thos. Lang & Co., Nurserymen and Seedsmen, Melbourne. Prices on application.

Spring Planting.

FOREST TREES, ORNAMENTAL TREES, and SHRUBS, a large stock at moderate prices. CATALOGUES free on application.
THE LAWSON SEED AND NURSERY COMPANY (Limited), 106, Southwark Street, London, S.E., and at Edinburgh.

VINES, extra strong leading sorts, close-jointed and well ripened; SEAKALE, ASPARAGUS, and RHUBARB, extra strong, for forcing; ROSES, FRUIT, FOREST, and ORNAMENTAL TREES, STOVE and GREENHOUSE PLANTS, &c.
Priced Descriptive CATALOGUE, post free.
DICKSON AND ROBINSON, 23, Market Place, Manchester.

Pelargoniums for the Million.

JAMES HOLDER'S unrivalled COLLECTION of Show, French, and Fancy Varieties, strong Plants, distinct sorts, at 40s. per 100; 25s. for 50; or 15s. for 25. Hamper and packing included. Extra strong plants at 9s. and 12s. per dozen. Cash. CATALOGUES free on application.
Crown Nursery, Reading.

RED-SKIN FLOURBALL POTATOS, grown on warp.—The Subscriber can supply the above in 4-ton lots and upwards, put in at Haxey Station, at £5 per ton cash. Apply to
JNO. E. DIXON, Seed Grower and Merchant, Gainsborough.

Wonersh Nurseries, near Guildford, Surrey.

MESSRS. W. VIRGO AND SON can still supply large quantities of all kinds of FRUIT TREES, EVERGREEN SHRUBS, and LARGE TREES for Belting; extra strong QUICKS, SCOTCH, LARCH, ASH, HAZEL, OSIER, BIRCH, &c.
Standard ROSES, 75s. p. 100; Half-standard do., 50s. p. 100.

NEW ROSES for 1875.—Splendid plants, with magnificent foliage, in forty-three Continental varieties, now ready. LISTS, with raisers' descriptions, post free.
HENRY BENNETT, Manor Farm Nursery, Stapleford, Salisbury.

To the Trade.

ROSES, Dwarf Moss and others, extra fine, strong. Price on application.
Moss Baron de Wassanaer, Comtesse de Mirinais (white), Frederick Soulié, Gloire des Moussenses, Laneii, Princess Alice (Paul's), Unique de Provence (white).
AUSTRIAN BRIARS, Harrisonii and Persian Yellow.
Address, WM. WOOD AND SON, Nurseries, Maresfield, Uckfield, Sussex.

New and Choice Ferns.

WAND J. BIRKENHEAD, having a Collection of many thousands of the most beautiful and choice BRITISH and EXOTIC FERNS, and giving their cultivation special attention, are prepared to supply large or small quantities at most reasonable prices.
CATALOGUES on application. Special quotations for large quantities.
Fern Nursery, Sale, near Manchester.

FREDK. GEE begs to offer, for cash with orders, fine selected stocks of POTATOS:—Climax, splendid quality variety, 5s. 6d. per bushel, 10s. per cwt.; Early Goodrich, productive and good, 4s. 6d. per bushel, 8s. per cwt.; Early Rose, 5s. per bushel, 9s. per cwt.; Myatt's Prolific Ashleaf Kidney, 5s. per bushel, 9s. per cwt.; and many other good sorts on hand.
DAISIES, splendid double, from 2s. per 100.
CABBAGE and other Plants, &c., choice and good; also SEEDS, &c., of all kinds, cheap and good.
Seed Growing Establishment, Biggleswade, Beds.

COCOA-NUT FIBRE REFUSE.—Five hundred trucks. Buy of the maker direct. The only maker advertising. 3d. per bushel. Truck holding 330 bushels, £2, free on to rails.—H. WRIGHT, Steam Fibre Works, Heneage Street, Brick Lane, London, E.

Great Reduction in Price.

COCOA-NUT FIBRE REFUSE (newly made), 3d. per bushel, 20s. per 100 bushels, 45s. per 300 bushels. Larger quantities contracted for.
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COCOA-NUT FIBRE REFUSE.—A large supply on hand, price 4d. per bushel; quantities of fifty bushels and over, 3d. per bushel, sent in bags or truck-loads by rail to all parts of the Kingdom.—The Patent Cocoa Fibre Company's Works, Middle Mills, Kingston-on-Thames.

To Propagators and Plant Growers.

The most useful material for the attainment of successful and rapid culture is

COCOA-NUT FIBRE REFUSE.—Price 1s. per bushel, or 6d. per bushel for quantities of 20 bushels and over.
DAGNALL AND TILBURY, Steam Cocoa-nut Fibre Works, Farm Lane, Walham Green, S.W.

Fibrous Peat.

BROWN FIBROUS PEAT, best quality, for Orchids, Stove Plants, and Potting, £6 6s. per Six-ton Truck-load. BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, New Holland Plants, &c., £5 5s. per Six-ton Truck-load. Delivered on rail at Blackwater, South-Eastern Railway, or Farnborough, South-Western Railway.
WALKER AND CO., Farnborough Station, Hants.

Sphagnum, or Peat Moss, for Orchids.

FRESH SPHAGNUM MOSS, 10s. 6d. per sack.
WALKER AND CO., Farnborough Station, Hants.

PEAT.—For Sale, a few hundred tons of excellent PEAT. Apply to
W. TARRY, the "Golden Farmer," Bagshot, Surrey.

COCOA-NUT FIBRE REFUSE.—H. WRIGHT has successfully lowered the high price of this valuable refuse to 3d. per bushel. Truck holding 330 bushels, £2, free on rails.—H. WRIGHT, Steam Fibre Works, Heneage Street, Brick Lane, London, E.

Elvaston Nurseries, Borrowash, near Derby, 1875.

WILLIAM BARRON AND SON'S Descriptive CATALOGUE of ROSES and Select List of CONIFERÆ and ORNAMENTAL PLANTS, &c., including many new and beautiful varieties, is now ready, and may be had, post free, on application.

NEW WHITE LOBELIA—DUCHESS OF EDINBURGH.—This variety possesses an excellent compact habit, and is a good free grower. The flowers, which are produced in great abundance, retain their purity of colour the entire season. Received a First-class Certificate at the Royal Horticultural Society, Kensington, 1874. Good plants, ready in April, 2s. 6d. each. Price to the Trade on application.
CHARLES TURNER, The Royal Nurseries, Slough.

NEW CATALOGUE for 1875, post free for two Stamps.—Our LIST of the newest and best varieties grown of the undernamed classes of plants is now ready, and may be had on application. Prices very moderate. Plants true to name. Geraniums in all the various classes, Fuchsias, Chrysanthemums, Lobelias, Coleus, Dahlias, Show Carnations, Picotees, Pinks, Pansies, Phloxes, Pentstemons, Antirrhinums, Double Potentilas, Pyrethrums, Delphiniums, and all leading Florists' Flowers and Bedding Plants, Greenhouse and Stove Plants, Spring-flowering and other choice Hardy Plants, Winter-flowering and the best Conservatory Decorative Plants, Show and Fancy Pelargoniums, Vegetable and Flower Seeds, &c.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

Seedlings, &c.

W. P. LAIRD AND SINCLAIR, NURSERYMEN, Dundee, N.B., have still the following to offer, and shall be glad to quote prices on application:—
SEEDLINGS:—3-yr. Silver Fir, 3-yr. Norway Spruce, 2-yr. Pinus austriaca, 2-yr. P. maritima, 2-yr. P. Pinea, 2-yr. P. Strobus, 1-yr. Birch, 1-yr. Alder, 1-yr. Elm, 2-yr. Spanish Chestnut, 2-yr. Hornbeam, 3-yr. Holly, 3-yr. Acer Negundo, 2-yr. Chinese Arbor-vitæ, and small Thorns.
TRANSPLANTS:—Scotch Fir, Pinus Strobus, Silver Fir, clean leaders: Limes, Walnuts, Tulip-tree, Sweet Bays, Irish Junipers, Red Cedars, Thuja Lobbii, Irish Yews, &c.
A few stout Planting Canes of VINES of sorts.
3000 to 4000 FOREST and ORNAMENTAL TREES, sorts, of various heights from 5 to 16 feet.
A few tons of Early Kidney POTATOS.

To Nurserymen, Florists, and Market Gardeners.

GOOD SEED POTATOS, grown on light, sandy soil, of the following varieties, Surplus Stock:—15 sacks Myatt's Ashleaf; 10 sacks American Early Rose; 5 sacks Silverskins; 10 sacks Paterson's Victoria; 5 sacks Walnut-leaf Kidney; 10 sacks Suttons' Early Racehorse; 3 sacks Rivers' Royal Ashleaf.
Also the following VINES in pots, good strong Canes:—15 Buckland Sweetwater; Black Alicante; 9 West's St. Peter's; 10 Mrs. Pince; 8 Bowood Muscat; 16 Black Hamburgh; to Madresfield Court; 4 Muscat of Alexandria; 4 Lady Downe's.
To be sold cheap for cash, or would take the VALUE in SHRUBS, selected, Rhubard, Seakale, and Asparagus Roots, Gooseberries, and Currants.
E. WHITE, Nurseries, Holdenhurst Road, Bournemouth.

AMERICAN CRANBERRY PLANTS.—There are doubtless many thousands of acres of Swamps, Bogs, and Marshes throughout the United Kingdom, which are now comparatively worthless and unproductive, that may be made to yield a handsome income by cultivating this delicious fruit. We are now prepared to furnish strong and well-rooted Plants, in any quantity, carefully packed for transportation, at the following prices, which includes cost of packing and delivery on board steamer, with full directions for planting and subsequent cultivation. 10,000 plants are required for an acre.
Prices: 1000, 20s.; 5000, £4 10s.; 10,000, £8.
WHITE'S CRANBERRY CULTURE, 120 pages, illustrated, sent post paid upon receipt of 6s.
Cash or satisfactory reference to accompany the orders. No orders accepted for less than 1000 plants. Remittances can be made by Draft or Postal Order on New York. Address—
B. K. BLISS AND SONS, Seed Merchants, 34, Barclay Street, New York.

New Show Pelargoniums.

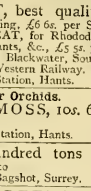
CHARLES TURNER begs to call attention to the select LIST of PELARGONIUMS now offered.
The New Varieties, both Show and Fancy, have been most favourably spoken of by the Horticultural Press, and the majority have received First-class Certificates at Metropolitan and other Shows.
Plants are now ready, and if purchased at once and repotted will produce a fine head of bloom in May and June next.
The following have been selected from many thousand Seedlings, and are highly recommended:—

	£	s.	d.
ALICE (Foster).—Lower petals rosy crimson, maroon spot on top petals, crimson-purple edge, large white eye, very fine	1	11	6
ARCHDUCHESS (Foster).—Lower petals richly painted crimson, with rosy purple edges, top petals black, with narrow crimson edge, large clear white centre, a fine dark and effective variety	1	1	0
ARISTOCRAT (Foster).—Rich deep crimson, black spot on top petals, crimson margin, white centre .	0	15	0
CONSTANCE (Foster).—Fawn colour, with small spot on the top petals, shaded with orange, a large smooth flower of fine form, clear white eye. Figured in *The Florist* for February, 1875 ..	1	1	0
CROWN PRINCE (Foster).—Lower petals richly painted crimson, black maroon top petals, bright narrow edge, clear white eye, very fine. Figured in *The Florist* for February, 1875	1	11	6
DAUNTLESS (Foster).—A good crimson, style of Statesman, medium black spot, a good flower ..	0	15	0
DEFIANCE (Foster).—Crimson-purple maroon, black top petals shaded off to the edge with crimson, white centre, a rich dark flower	1	1	0
DUCHESS of CAMBRIDGE (Foster).—Scarlet, medium black spot on top petals, smooth, fine form and a good habit	1	1	0
DUKE of CONNAUGHT (Foster).—Lower petals crimson, dark rosy top petals, white centre, a large fine-shaped flower, of good habit	1	1	0
FALCON (Foster).—Rosy purple, black spot on top petals, white centre	0	15	0
GRAND MONARCH (Foster).—Crimson lower petals, dark top, crimson edge, white centre ..	0	15	0
ISABELLA (Matthews).—Lower petals rosy pink, medium maroon spot on top petals, shaded with orange-pink, lilac-rose edge, large white centre, very free	0	15	0
PRESBYTER (Foster).—Lower petals rich rosy crimson, dark maroon spot on top petals, crimson edge, large clear white centre	1	1	0
QUEEN VICTORIA (Foster).—Lower petals crimson, medium black spot on top, bright orange-crimson edge, white centre, fine	1	1	0
SULTAN (Foster).—Deep crimson-purple, suffused with lilac, light centre, good shape and substance, very free	0	15	0
SYBIL (Foster).—Soft pale orange, small maroon spot, shaded with orange, white centre, a very fine novel flower	1	1	0

Price for above Set on application.

NEW FANCY VARIETIES.
7s. 6d. each, or 31s. 6d. the set.

ATLANTIC (Turner).—Rich crimson suffused with purple, smooth and excellent habit.
HENRY BAILEY (Turner).—Crimson, with white eye, very dwarf and a most abundant bloomer, a useful flower for exhibition, market, or the home stage.
JEWESS (Turner).—Top petals rosy carmine suffused with carmine, lilac edge, light mottled lower petals.
LADY MAVORESS (Turner).—Rosy lilac, large white eye, white edges, a fine flower.
MRS. HART (Turner).—Rosy crimson purple, narrow white margin on top petals, shaded off with rosy purple to a large clear white eye, a fine-shaped and superior variety.
THE SHAH (Turner).—Deep crimson purple, light centre, narrow lilac edge, a smooth and very pleasing variety, the best by far of its class.
The Royal Nurseries, Slough.



LOBELIA PUMILA MAGNIFICA.

THE

PINE APPLE NURSERY COMPANY

Are now sending out this fine Lobelia.

Price 2s. 6d each, or 24s. per dozen for not less than half a dozen.

It received the Floral Certificate at the Royal Botanic Society, and a First-Class Certificate at the Royal Horticultural Society. It has been favourably noticed by all the gardening papers, and the *Gardeners' Magazine* of July 18 says of it:—"This dwarf bedding Lobelia, exhibited by the Pine-Apple Nursery Company, is unquestionably the most important of the many bedding Lobelias introduced of late years. The colour of the flowers is a deep indigo blue, and as there are no conspicuous eyes to mar the general effect, a solid mass or band will tell in a wonderful manner.

MAIDA VALE, LONDON, W.

FRESH SEEDS OF RARE CONIFERS.

MR. J. C. STEVENS will SELL by AUCTION, on MONDAY, March 22, at his Great Rooms, 38, King Street, Covent Garden, W.C., fresh SEEDS of the following RARE CONIFERS, from the Californian Sierra Nevada, collected by M. Roezl in October and November, 1874, comprising:—

PICEA CONCOLOR
" " var. VIOLACEA
" LASIOCARPA
" MAGNIFICA
ABIES HOOKERIANA
PINUS MONTICOLOR
" CONTORTA

YUCCA ANGUSTIFOLIA
PICEA MAGNIFICA MACROCARPA
" COMMUTATA
" DOUGLASII
" BIFOLIA
" LAMBERTIANA
LILIUM HUMBOLDTII.

On view the morning of Sale, and Catalogues had.

New Dwarf Silver Variegated Geranium, "LITTLE TROT."

WM. POTTEN is BOOKING ORDERS for the above. For particulars see advertisement in *Gardeners' Chronicle*, January 30. A very favourable report of it may be seen in the *Journal of Horticulture*, November 19, 1874, by Mr. Robson, and February 4, 1875, by Mr. Luckhurst. Camden Nursery, Sissinghurst, Staplehurst, Kent.

120,000 Vesuvius Geraniums for Sale.

F. C. WOOLVEN, Langhedge Nurseries, Church Road, Upper Edmonton, London, N., has strong AUTUMN-STRUCK PLANTS of the above to Dispose of, at 8s. per 100. Packed and forwarded to any London railway station, gratis, on receipt of Post Office Order for number required, payable at the Upper Edmonton Post Office, London, N. Also several thousands of CHRISTINE and DOUBLE GERANIUMS, at the same price.

CRANSTON'S NURSERIES, Established 1785.—The following CATALOGUES are just published, and will be forwarded on application:—
DESCRIPTIVE CATALOGUE of ROSES (1874 and 1875).
DESCRIPTIVE CATALOGUE of FRUIT TREES.
DESCRIPTIVE CATALOGUE of CONIFERS, SHRUBS, and FOREST TREES.
DESCRIPTIVE CATALOGUE of BULBS. Address,
CRANSTON AND MAYOS, King's Acre Nurseries, near Hereford.

NEW ROSES.
SIR GARNET WOLSELEY (Cranston's).
CRIMSON BEDDER (Cranston's).
CLIMBING JULES MARGOTTIN (Cranston's).
All the new Continental Roses for 1875—upwards of forty varieties.
Descriptive LIST on application to
CRANSTON AND MAYOS, King's Acre Nurseries, near Hereford.

Vines.—To the Trade.

S. BIDE can still supply good strong PLANTING VINES, in Pots, of the undermentioned varieties, at 30s. per dozen (a special price for a large quantity will be given on application):—Tynninghan Muscat, Madresfield Court, Black Hamburgh, Mrs. Pince's Black Muscat, Lady Downe's Seedling, Burchard's Prince, Seacliffe Black, Frankenthal Hamburgh, Ferdinand de Lesseps, Black Morocco, Primarai's Frontignan, Black Barbarossa, Sweetwater, Troveren Muscat, Bowood Muscat, Muscat of Alexandria, White Nice, Duchess of Buccleuch, Rasin de Calabre.
S. BIDE, Alma Nursery, Farnham, Surrey.

Snowflake.

THE FINEST POTATO ever introduced; will yield from 300 to 400 bushels per acre of handsome tubers of the most splendid quality and FREE FROM DISEASE. Messrs. DANIELS BROS. have just received a consignment of this magnificent variety direct from the original raiser in America, where it has obtained immense popularity, and which is now being distributed at the following rates, carriage free to any address:—3s. 6d. per lb.; 7 lb., 21s.; 14 lb., 42s.; cheaper by the cwt.
DANIELS BROS., Seed Growers and Importers, Royal Norfolk Seed Establishment, Norwich.

CABBAGE PLANTS.—H. J. HARDY begs to offer a quantity of strong autumn-sown plants, all true:—
ENFIELD MARKET, 3s. 6d. per 1000.
ROBINSON'S DRUMHEAD, 3s. 6d. per 1000.
A liberal allowance to the Trade. Packages and carriage free to London. Cash must accompany all Orders from unknown Correspondents. Post Office Orders made payable at Bures. Apply to
H. J. HARDY, Stour Valley Seed Grounds, Bures, Essex.

Hollies.

ANTHONY WATERER respectfully invites the attention of Holly buyers to the very fine Stock to be seen growing at Knap Hill. It comprises upwards of Thirty Thousand Plants, from 3 to 10 and 12 feet high, of the finer Gold, Silver, and Green-leaved kinds, affording a choice in size and variety such as can be met with in no other Nursery in Europe. Every Plant has been recently removed, and will be guaranteed.
The Stock of Common Green Hollies alone occupies 5 acres of land, and Purchasers will find them in large numbers of all heights up to 15 feet.
Knap Hill Nursery, Woking, Surrey.

JULES DE COCK AND SISTER, The Nurseries, Ledeberg, near Ghent, Belgium, offer to the Trade:—
AZALEA INDICA, with buds, best varieties, 100s. to 160s. per 100.
CAMELLIAS, with buds, best variety, 110s. to 400s. per 100.
DRACÆNA INDIVISA, in small pots, 32s. per 100.
,, LINEATA, in small pots, 32s. per 100.
ARALIA SIEBOLDII, 2-yr., 20s. per 100.
ROSES, Standards, best variety, 60s. per 100.
YUCCA ALOIFOLIA, fol. var., 90s. per dozen; stronger, 80s. per dozen.
CHAMÆROPS FORTUNEI, seedlings, in store pots, 10s. per 100.
CORYPHA AUSTRALIS, seedlings, in store pots, 24s. per 100.
PHŒNIX TENUIS, seedlings, in store pots, 16s. per 100.
,, RECLINATA, 32s. per 100.
,, SYLVESTRIS VERA, 40s. per 100.

TO THE TRADE.
PEARS, extra fine dwarf-trained, all the leading kinds.
,, extra fine pyramids on Quince, 4-yr., 5 yr., and 6-yr. old.
PLUMS, extra fine dwarf-trained.
,, extra fine pyramids, fruiting.
CHERRIES, extra fine dwarf-trained.
,, pyramid, fruiting.
,, extra fine Morello, fruiting.
PEACHES, Maiden, twenty to thirty varieties.
THUJA AUREA, 1 to 1½ foot, 1½ to 2 feet, 2 to 2½ feet, 2½ to 3 feet; grand specimens.
,, WAREANA, 1, 2, to 3 feet.
,, GIGANTEA, 3, 4, to 5 feet.
YEWS, English, 2 to 2½ feet, 2½ to 3 feet, 3 to 3½ feet; fine.
THUJOPSIS BOREALIS, 3 to 3½ feet, 3½ to 4 feet; fine.
PINUS AUSTRIACA, several times transplanted, 2, 3, 4 to 5 feet.
Special quotations on application to
CRANSTON AND MAYOS, King's Acre Nurseries, near Hereford.

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CHOICE FLOWER SEEDS,

FREE BY POST OR RAIL.

Suttons' Collections of Choice Flower Seeds, to produce a beautiful and continuous display during Summer and Autumn.

No. 1 Collection, Free by Post or Rail			.. £2	2 0
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Small and Useful Collections can also be had, from 2s. 6d. to 7s. 6d. Free by Post.

Complete Instructions as to the Cultivation of Suttons' Choice Flower Seeds will be found in

"SUTTONS' AMATEUR'S GUIDE,"

The most practical work on gardening yet published, beautifully illustrated with 300 engravings.

Price 1s., Post Free. Gratis to Customers.

ROYAL BERKS SEED ESTABLISHMENT, READING.

E. G. HENDERSON AND SON'S

SEED CATALOGUE for 1875,

Containing over 200 Illustrations of Flowers, will be posted free on application.

The VARIETIES of FLOWER SEEDS are so arranged that the Amateur may readily recognise the most beautiful and desirable.

The VEGETABLE DEPARTMENT is complete, with the best proved kinds in each Section.

For SEEDS of NEW FLOWERS for 1875, see List at page 265, and for Descriptions and Illustrations of ERYTHRÆA MUHLENBERGI, see page 297; SOLANUM HYBRIDUM HENDERSONI, see p. 265; ROMNEYA COULTERI, see page 280, *Gardeners' Chronicle.*

THE WELLINGTON NURSERY, WELLINGTON ROAD, LONDON, N.W.

Now ready, gratis and post free,

DICK RADCLYFFE & CO.'S ILLUSTRATED CATALOGUE.

PRIZE MEDAL GARDEN REQUISITES AND HORTICULTURAL DECORATIONS.

PRIZE MEDAL SEEDS.

GARDEN REQUISITES.

129, HIGH HOLBORN, LONDON, W.C.

JOSEPH BAUMANN, Nurseryman, Ghent, Belgium, begs to offer:—
AZALEAS, 11 New Hardy (A. Waterer's), named, with flower-buds, 1s. each.
AZALEA MOLLIS, 18 New Hardy (L. Van Houtte's), named, with flower-buds, 4s. each; without flower-buds, 3s. each.
GHENT AZALEAS, 10,000 Hardy, named, with flower-buds, 1s., 1s. 6d., 2s., and 3s. each.
RHODODENDRONS, 5000 Hardy, named, with flower-buds, 2s., 3s. and 4s. each.

Gladioli from Paris, per Names and Seedlings.

LÉVEQUE AND SON, NURSERYMEN, Ivry-sur-Seine, near Paris, beg to offer splendid, healthy, and good flowering bulbs of GLADIOLI, to the prices:—Gladioli, seedling, first-rate, 8s. per 100, £3 per 1000; mixed white, 12s. per 100; do. red, 12s. per 100; do. yellow, 24s. per 100; do. rose, 12s. per 100; per names, 100, 10 sorts, 8s. per 100; 25 sorts, 14s. per 100; 50 do., £1 to £2; 100, £2 to £6, and upwards, according to the novelty of the sorts, all in good flowering bulbs. English Cheques or Post Office Orders on Paris accepted for payment.

Rhododendrons.

HENRY FARNSWORTH, Matlock Bank, Derbyshire, has to offer a fine stock of the following, at a moderate rate:—
3-yr. Seedling, fine.
3-yr. Seedling and 2-yr. transplanted.
3-yr. Seedling and 3-yr. transplanted.
4 to 8 inches good stuff; 6 to 10 inches bushy.
For prices and samples apply as above.

POTATOS for PLANTING of the following sorts, English-grown, in any quantity:—Myatt's Prolific, Bresee's Peerless, Red-skinned Flourball, Paterson's Victoria, Climax, and Regent.
By the peck, cwt., sack, or ton:—Mona's Pride Ashtop, Rivers' Ashtop, Early Rose, Late Rose, Early Goodrich, and Hundredfold Fluke.
By the peck, bushel, cwt., or sack:—Erin's Queen Ashtop, Belgium Kidney, Dalmahoy, Paterson's New Prince, and Early Don.
The above, generally speaking, are grown on silt soil, and are, therefore, a good change for any part of the country.
AMERICAN IMPORTED, as under, by the lb., stone, or cwt.:—Snowflake, Eureka, Acme, Nonsuch, Early Gem, Compton's Surprise, King of the Earlies, Climax, and Late Rose.
By the sack or ton:—Brownell's or Vermont Beauty, and Extra Early Vermont.
Wholesale and Retail PRICE LISTS free on application.
Also, 100,000 or 200,000 2-yr. CONNOVER'S COLOSSAL ASPARAGUS PLANTS.
CHRISTMAS QUINCEY, Wholesale and Retail Seed Potato Grower and Merchant, Market Place, Peterborough.

Cheap Plants.

WILLIAM BADMAN offers the following plants for present potting:—
VERBENAS, Purple, White, Scarlet, Crimson, and Rose, from pots, 2s. per dozen, 12s. per 100; rooted cuttings, 1s. per dozen, 6s. per 100, 50s. per 1000.
PELARGONIUMS, Scarlet, White, Crimson, and Rose, best sorts, good plants, from single pots, 1s. 6d. per dozen, 10s. per 100.
LOBELIA, speciosa, true, from cuttings; also pumila grandiflora and Little Gem, 3s. per 100, 20s. per 1000.
HELIOTROPIUM, finest dark varieties, 1s. per dozen, 6s. per 100, 50s. per 1000.
CALCEOLARIA, Golden Gem, finest bedder, 1s. per dozen, 6s. per 100, 50s. per 1000.
AGERATUM, Imperial Dwarf, Blue, makes a fine bed, 1s. per dozen, 5s. per 100, 40s. per 1000.
IRESINE, Lindeni, crimson leaf, good, 1s. per dozen, 6s. per 100, 50s. per 1000.
COLEUS, Verschaffeltii, 1s. per dozen, 6s. per 100.
STELLARIA, aurea, new golden edging plant, 1s. per dozen, 4s. per 100, 30s. per 1000.
GERANIUMS, Show and Fancy shorts, strong plants, for spring bloom, 4s. per dozen.
CENTAUREA, candidissima, silver leaf, strong plants, 3s. per dozen, 20s. per 100.
Package included. Terms cash.
Cemetery Nursery, Gravesend.

The Only Really and Thoroughly Distinct LOBELIA of the SEASON,

BLUESTONE—hitherto a hidden gem.
Strange that this, by far the best of all the Lobelias, should have been kept back from the public by a "crotchet," and it is only within the last few days that the seed has been placed in my hands. The darkest blue, no eye, strong compact pumila habit; foliage, strange to say, is a most peculiar purplish green, and its whole character far exceeds any other Lobelia. Five hundred seeds, post free, 1s. 1d.
Vide p. 94 *Gardeners' Magazine*, February 20: "Challenging the whole of the floricultural community to produce a better."
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ROYAL

HORTICULTURAL SOCIETY.

SHOW of HYACINTHS, TULIPS, &c.,

March 17, 1875.

AWARDS of the JUDGES.

Class 3.—12 HYACINTHS, single spikes, distinct. (Amateurs.)
1st, Mr. J. Douglas, Gr. to F. Whitbourn, Esq., Loxford Hall, Ilford, £1 10s.
2d, Mr. G. Toms, Gr. to H. Wetenhall, Esq., The Poplars, Seven Sister's Road, Stoke Newington, £1.

Class 5.—6 HYACINTHS, single spikes, new kinds never before exhibited. (Open.)
1st, Mr. J. Douglas, 10s.

Class 7.—12 Pots of TULIPS, not fewer than 6 kinds. (Amateurs.)
1st, Mr. J. Douglas, 15s. 2d, Mr. G. Toms, 10s.

Class 10.—6 ORCHIDS, distinct. (Nurserymen.)
1st, Mr. B. S. Williams, The Nurseries, Upper Holloway, £2.

Class 14.—30 CYCLAMENS. (Open).
1st, Mr. G. Goddard, Gr. to H. Little, Esq., Cambridge Villa, Cambridge Park, Twickenham.

Class 16.—12 CYCLAMENS. (Amateurs.)
1st, Mr. G. Goddard.

Class 22.—18 HARDY SPRING FLOWERS in Pots, distinct. (Open.)
1st, Mr. R. Dean, Ealing, £1.

Class 23.—6 HARDY PRIMROSES (Acaulis type), double, distinct. (Open.)
1st, Mr. R. Dean, 5s.

Class 24.—6 HARDY PRIMROSES (Acaulis type), single, distinct. (Open.)
1st, Mr. R. Dean, 5s.

Class 25.—6 HARDY PRIMROSES (Polyanthus type), distinct. (Opeo.)
1st, Mr. R. Dean, 5s.

Class 28.—2 Bunches LATE BLACK GRAPES. (Open).
1st, Mr. J. Ridout, Gr. to W. S. Brown, Esq., Woodhatch Lodge, Reigate, £1.
2d, Mr. W. Wildsmith, Gr. to Viscount Eversley, Heckfield, Winchfield, 15s.

Class 30.—3 Kinds of DESSERT APPLES, distinct, 6 fruits of each. (Open.)
1st, Mr. T. Parsons, Gr. to R. Attenborough, Esq., Fairlawn, Acton Green, 7s. 6d.
2d, Mr. J. Clark, Gr. to Rev. A. D. Stacpoole, Writtle, Chelmsford, 5s.

Class 31.—3 Kinds of KITCHEN APPLES, distinct, 6 fruits of each. (Open.)
1st, Mr. T. Parsons, 7s. 6d.
2d, Mr. J. Woodbridge, Gr. to the Duke of Northumberland, Syon House, Brentford, 5s.

Class 32.—3 Kinds of DESSERT PEARS, distinct, 6 fruits of each. (Open.)
1st, Mr. J. Clark, 7s. 6d.

Class 33.—3 Kinds of KITCHEN PEARS, distinct, 6 fruits of each. (Open.)
1st, Mr. J. Clark, 7s. 6d.

Class 35.—12 Crowns of SEAKALE. (Open.)
1st, Mr. J. Clark, 5s.

Class 36.—24 MUSHROOMS. (Open.)
1st, Mr. T. Record, Gr. to J. Whatman, Esq., Vinters Park, Maidstone, 5s.

Class 38.—1 Brace of CUCUMBERS. (Open.)
1st, Mr. J. Douglas, 7s. 6d.

MISCELLANEOUS.—EXTRA PRIZES.

Messrs. J. Veitch & Sons, Royal Exotic Nursery, Chelsea, for a Group of Hyacinths, Tulips, Narcissi, &c., Silver Medal.
Mr. J. Wills, Sussex Place, Old Brompton, for a Group of Foliage and Flowering Plants, Silver Medal.
Mr. W. Paul, Paul's Nurseries, Waltham Cross, for a Group of Camellias in pots in flower, Silver Medal
Mr. B. S. Williams, for a Group of Foliage and Flowering Plants, Silver Medal.
Mr. J. Aldous, Florist, &c., Gloucester Road, South Kensington, for a Group of Foliage and Flowering Plants, Bronze Medal.
Mr. G. Goddard, for a Group of Cyclamens, Bronze Medal.

SATURDAY, MARCH 20, 1875.

THE ISLANDS OF FINISTÈRE.

(*Concluded from p. 334.*)

WHAT strikes a stranger at first sight at Ouessant is to find nobody but women there. The men are away in the service of the navy, or are busily employed on board their fishing boats. Consequently it is the women who cultivate the ground. I saw some forking up Potatos out of the earth. The children picked them up and piled them in heaps, whilst other women came and carted them away. Others, again, were digging their fields, by the plough is unknown in this corner of the world. All these people appeared healthy and strong. The women might be called very good-looking, with their long hair streaming over their shoulders, and their flat-topped head-dresses in the Italian style. They rear oxen and horses, a great many fowls, but especially a whole army of sheep—more than 6000 for 2000 inhabitants. And such sheep! One of these animals, skinned and dressed for cooking, weighed about 10 lb., and it was the fattest we could find. In justice I ought to add that it was excellent, as likewise was every one we ate. The hens are equally numerous with the sheep. There was a time when the horses were the same; but this small race, much sought after to go in harness, has disappeared through the fault of the inhabitants. According to what the old people told me, these horses were extremely vigorous, and must have borne a great resemblance to the good little island horses on which I have taken many a pleasant ride.

Everything, however, is small at Ouessant, even to the windmills. I stood stupefied before the first I met with. Fancy a cubic yard of unmortared masonry, on which a sentry-box is perched. Four sails, a yard and a half long each, complete this wonderful molary system. But what a host of them there are! I pictured to myself that some dealer in playthings, having giants' children for customers, had left his stock in trade behind him, and I walked away laughing and humming the refrain—

> "Pleurez, pleurez petits enfants,
> Vous aurez des moulins à vent."

> "Cry away, children; cry till to-morrow;
> You shall have windmills to comfort your sorrow.
> Cry away, babies; cry, cry away;
> There's plenty of windmills to help you to play."

Behind the houses, which are neatly constructed, are inclosures wherein grow a few meagre vegetables, consumptive Apples and Fig trees, which are pitilessly shorn by the wind the moment they venture to overtop their sheltering walls. A few inhabitants indulge in luxury to the extent of cultivating flowers, including Roses, Fuchsias, Lavatera arborea, Veronica decussata.

These people lead a happy life, undisturbed by the pressure of artificial wants, of which they remain in ignorance. They are honest, worthy people, who send their children to school, who listen to the voice of their mayor and their curé, and all whose cares and anxieties are centred in the father and the husband out at sea, when the storm is raging. Too often, alas! those fears are not groundless, and the poor widow and her orphan children have to follow, in tears, a cross, which is the representative of the beloved lost one, and over which—a touching custom of this primitive and religious people—the funeral ceremonies are performed in the absence of his body beneath the cruel waves.

I return to my botany. What surprised me from the first moment was to see a large quantity of cultivated Arundo Donax, strong and vigorous. It is employed in the fabrication of fish-traps. Oziers also are grown for the same purpose. A plant found in the wild state almost everywhere is Veronica decussata, known here, as well as in Molène, by the name of Myrte de Ouessant or Ouessant Myrtle. In the two days which I spent on the island I collected 243 Phanerogams, for the most part extremely common. Nevertheless, I found Ophioglossum lusitanicum already in fructification, Raphanus maritimus, Viola lancifolia, Sambucus ebulus, very rare on the continent; Anagallis tenella, Plantago lanceolata var. lanuginosa, Suæda fruticosa, Scilla verna, Spiranthes autumnalis, Triglochin palustre, divers Rushes, several Carices, Rumex rupestris, one of the good plants of Finistère, Hydrocotyle vulgaris, several Mints, Inula crithmoides, Crithmum maritimum, Celery, Samolus valerandi, &c. I reckoned much on finding some of the rock-loving Statices, but there was not a trace of them. Another cause of astonishment was the absence of Ulex europæus. It exists on some cultivated lands as a forage plant, but is replaced in a wild state by U. nanus.

My herborisation finished, I returned to sleep on board, for we were to leave at daybreak. In fact, at five in the morning I was awakened by the preparations for getting under weigh, and I stepped on deck to bid farewell to Ouessant, which I am never likely to revisit. At a quarter past five we started for the Ile de Seins. I did not expect to make any grand discoveries in that island, which consists of nothing but rock covered with sand. Its length is a mile and a half, and its breadth does not exceed a quarter of a mile. Moreover, it lies so low that the sea sometimes submerges it. In 1864, during a gale of wind from the south-east, the water entered into the houses, and the complete destruction of the village was with difficulty prevented. In spite of the slight elevation above the level of the sea, there is a well in the middle of the island whose water is perfectly sweet. I could, therefore, only expect to find a few sand-loving plants. But an interest of a different kind attracted me to the Ile de Seins. I wished to have a near view of its inhabitants, to whom the Government, fifty years ago, was obliged to make an allowance of biscuit, bacon, and haricots, to keep them alive. It was no more than a just recompense for their devotion in saving the vessels so often in distress about their island. For a considerable time past, the increased means of communication have enabled them to sell their fish to advantage. The making of soda has also greatly helped their trade; so that amongst all the 750 inhabitants there is not a single pauper; comfort and ease are everywhere apparent. The land, tilled by the women, as at Ouessant, produces little besides Barley and a few vegetables. This Barley is given as forage, with a very sparing hand, to the few cattle kept in the place, and whose principal provender consists of seaweed; consequently, the milk from the cows is strong and charged with iodine. Might not this fact be turned to some good medicinal purpose? Flour, biscuit, bacon, and Potatos are obtained from the continent, but the alimentary mainstay of the population are congers, whose flesh, prepared in the same way as cod, hangs drying in the sun on the walls of the houses all summer long. Dried seaweeds are exclusively employed as firing. I found there seventy-four plants, including Honkeneja peploides, Lavatera arborea, Eryngium maritimum, Matricaria maritima, Plantago intermedia, Armeria maritima, Salsola Kali, Carex arenaria, Euphorbia portlandica, Spergularia rubra,

Malva sylvestris and rotundifolia, Oxalis corniculata, Mercurialis annua, Glyceria conferta, Sclerochloa loliacea, &c. But the plant which gave me the greatest pleasure was Euphorbia peplis, which I had not hitherto been able to find on the Breton coast, where it is very rare.

About two o'clock we left the island for Douarnenez (on the mainland, and which gives its name to a capacious bay). We had to cross the Raz de Seins, notorious for the shipwrecks of which it is frequently the scene. We had then got away from the rocks which surround the Ile de Seins with a stockade of stone, and found ourselves in waters comparatively calm; but before us the stream of a veritable river more than a mile broad was rushing with a current of seven or eight knots an hour, covering the rocks with sheets of foam, and forming vast whirlpools here and there. The muffled roar which reached the ear increased the indescribable impression made on the eye by the sublime spectacle of the mighty and resistless sea, the inaccessible coast, the Baie des Trépassés, or Dead Men's Bay, rightly so called, with rocks, rocks, rocks, the terror of navigators, everywhere around; and I said to myself, with the Roman poet—

"Illi robur et æs triplex
Circa pectus erat, qui fragilem truci
Commisit pelago ratem
Primus."

We are now in the very midst ot the current, which costs us considerable efforts to traverse. Running along the inhospitable coast which stretches from the Pointe du Raz eastwards, we reached Douarnenez at sunset. The bay was brilliantly lighted up, as was also the Ménéz-Hom, the last massive spur of the mountains of Arei, while the pointed church spires stood out in strong contrast to the bright blue sky. More than 600 sardine fishing-boats were returning laden in closely crowded groups, and filled the port of Douarnenez as it were in an instant.

The Ménéz-Hom, with its triple summit, is one of many examples of the way in which Christianity has been grafted on paganism. The tradition is that its name (the mountain of the trough) is derived from a trough employed in their ceremonies by the Druids, and by such of their followers as took to the art of healing. The first missionaries, finding it impossible to suppress the superstitious veneration of which this trough was the object, came to a compromise with the popular belief and built on the same spot a chapel, which they dedicated to St. Côme, mainly on account of the similarity of name, but also because the saint, like the Druids, practised medicine. On one of the Ménéz-Hom's, or Ménéz-Chom's, three tops stands a dolmen, on another are the remains of a cromlech. The summit, 1082 feet above the level of the sea, is often enveloped in mists, but when they clear away the tourist is repaid for the toil of the ascent by a splendid panorama, including the Rade de Brest and the Bay of Douarnenez, from which it is separated by the peninsula of Crozon.

At Douarnenez I bade adieu to my friend the captain, thanking him for his kind hospitality and for the pleasant voyage he had enabled me to make. Although I had not found those extraordinary plants which my imagination had led me to expect, I had been enabled to take a look at the insular vegetation of Brittany, and to make sure that it was the same as that of the neighbouring coasts, which is only a natural consequence of the same geological characters. But the voyage, if it had but slight botanical results, made me acquainted with populations whose life, passed in the midst of incessant dangers, endows them with an energy far from common, and whose removal from the contact of other men has preserved from many vices, by inspiring them with simple tastes and peaceable and gentle habits. It is something also to have trodden spots once the sanctuaries of Druids and Gallic priestesses, every trace of whom has been unfortunately swept away by Christianity. I have thus also completed my peregrinations through that noble department, Finistère, so full of interest for the naturalist, the painter, the antiquary, and the historian. *C. T.*

New Garden Plants.

Drimia (?) haworthioides, *Baker, n. sp.**

Sent by Mr. Bolus from the province of Graaf Reinet, Cape Colony, to the Kew bulb collection, where it produced flowers in December, 1874, and leaves in February, 1875.

This is a very curious and instructive plant. It has entirely the floral structure of the genus Drimia, but in the ten or a dozen species of that genus which are already known we have an ordinary underground tunicated bulb, with the outer coats dry, brown, and membranous, like those of a Hyacinth or Scilla. Here there is no underground bulb at all, but a dense above-ground rosette of thick fleshy scales, like a rosette of Haworthia turgida or limpida, from the centre of which, after the scape has died down, a few small fleshy proper leaves are produced. So that we have here a very curious link of connection in the series of provisions for a reservoir of nutriment for plants growing in rainless or arid tracts between the fleshy

Fig. 70.—Bulb of Drimia haworthioides.

leaves of an Aloe or Agave and the ordinary squamose bulb of a Lily, the latter passing by gradual stages of transition into the ordinary tunicated bulbs of Liliaceæ and Amaryllidaceæ.

Underground roots consisting only of a few fleshy fibres; above-ground rosette, like that of a Haworthia, a sessile rosette 3 inches broad and an inch high, consisting of about thirty oblong-spathulate purplish-grey scale-leaves without chlorophyll, each 9—12 lines long, 3—4 lines broad, acute at the tip, ¼ inch thick, flat on the face, hemispherical on the back. From the centre of this comes in February a rosette of 3—4 blunt-spreading, ligulate, glabrous, carnoso-herbaceous proper leaves 1½—2 inches long, 3—4 lines broad. Scape produced from the centre of the rosette in December, a foot long, slender, terete. Raceme 3 inches long, laxly 12—20 flowered. Pedicels ascending, ⅓—½ inch long. Bracts as long as the pedicels, caducous, with a short distinct basal spur. Perianth ⅙ inch long, white banded with green, with, just as in the ordinary Drimias, a short campanulate basal cup, and six narrow strap-shaped divisions connivent at the lower part, and rolling back at the tip. Stamens and style nearly as long as the perianth. Ovary of an ordinary Drimia. *J. G. B.*

Phalænopsis leucorrhoda, *Rchb. f.* (see *ante*, p. 301).

I have lately received another specimen of this novelty. It is a broad variety with a green leaf. The new flower has the tendrils of the middle partition of the lip very thin and long, and quite like those of P. amabilis; the callus, too, is like that P. amabilis, but yellow. And yet the flower is easily recognised, the petals having a rosy hue, the lines of the lateral partitions of the lip being brownish, not purplish, there being much yellow over the whole lip, and numerous brownish dots on the lateral sepals inside. All the sepals are yellowish green outside, while the whole shape of the flower is that of P. Schilleriana. This time the flower came from Mr. Bull, who did not send it earlier owing to the frost. *H. G. Rchb. f.*

—— I have just been favoured by Mr. Low with two flowers of another variety of the same plant. It is very much more like the old P. amabilis. The first difference that strikes me is the tendency of the tendrils of the lip to be abortive; they are short and small in one flower, and exceedingly small, short bristles in the other. Then we must look to the callus on the lip's base. It is deep orange, with deep scarlet dots. The longest tooth is at its base. There is also much more dark purple on the anterior lacinia of the lip than in any genuine amabilis. I may state that the callus of P. amabilis is much narrower and higher, having three teeth, the intermediate being much higher, the whole body usually (always?) white, with brownish dots and some very little pallid sulphur colour. When I obtained the flowers they were pure cream-white, but when they had been two days in my room they were covered with a rosy hue on sepals and petals. I intend to give figures, at least of the flowers, in the third volume of *Xenia Orchidacea*, now in preparation.

Mr. Low writes:—"I send two flowers from the same importation, from a plant which we sold to George Heriot, Esq., of Highgate, who tells us it is in habit like amabilis." This plant has a remarkable analogy to Odontoglossum Warscewiczii. It is as inferior to a good P. Schilleriana as any Odontoglossum previously seen is inferior to a good O. vexillarium, and yet both have their high value founded on their being exceedingly rare. *H. G. Rchb. f.*

ELEMENTARY LESSONS IN BOTANICAL GEOGRAPHY.

(*Continued from p.* 204.)

V.—On the Botanical Characteristics of the Zones of Heat (*continued*).

In the last lesson we had only time to study the characteristics of the warmest of the four zones of heat, and have, therefore, still the three others to consider.

2. *The Subtropical or Warm-Temperate Zone.*—The tropic of Cancer runs through the middle of Mexico, to the north of the West Indies, strikes Africa midway between Morocco and Senegal, runs between Egypt and Nubia, stretches across the north of the great Indian peninsula from Kurrachee to Calcutta, and thence by way of Canton and Formosa, north of the Sandwich Islands. The tropic of Capricorn crosses from the north of Chili to Rio Janeiro, strikes Africa south of Benguela, and crosses to the opposite shore some distance north of Natal, crosses Australia north of all the settled colonies, and runs south of the Friendly and Society Islands. This subtropical or warm-temperate zone includes two belts round the world outside of these, varying in breadth from 900 to 1400 miles, which altogether take up about 13,000,000 square miles of land, or about a quarter of the earth's surface. As compared with either the intertropical or cool-temperate zones, this one is much broken up, and contains no less than seven considerable dissevered areas—in the northern hemisphere, North Mexico, the Southern United States and Southern half of California; in Asia, Persia, the northern half of Arabia, Affghanistan, Beloochistan, India south of the Himalayas, exclusive of the peninsula, the southern half of China, and perhaps we should also say the southern extremity of Japan; and in Europe and Africa the Mediterranean basin; in the southern hemisphere at sea-level the whole of Cape Colony; in Australia, Queensland, West Australia, South Australia, Victoria, New South Wales and Tasmania, the whole of New Zealand at sea-level; and in America, Chili, Buenos Ayres, La Plata, and the southern provinces of Brazil.

Its general climate is best defined by saying that, whilst in the south it slides into the torrid zone very gradually, and in the continental or excessive climates its summer heat falls scarcely short of that of the equatorial regions, yet this heat comes for one season only, and does not last during the whole four. The winter nowhere sinks down to the point where vegeta-

* *Drimia* (?) *haworthioides*, Baker, n. sp.—Radicibus fibrosis carnosis; bulbo hypogæo nullo; foliis circiter 30 dense rosulatis exterioribus more Haworthiæ crassis oblongo-spathulatis haud chlorophyllosis facie subplanis dorso hemisphæricis, foliis propriis 3—4 post scapum productis (in hortis nostris vernalibus) parvis ligulatis glabris viridibus carnoso-herbaceis; scapo (hyemali) pedali; racemo laxe 12—20 floro; bracteis basi calcaratis pedicellis brevibus æquilongis; perianthio semiunciali albo, viridi-vittato, tubo campanulato, segmentis elongatis ligulatis; genitalibus perianthio æquilongis.

tion experiences a sensible check from cold, but is such that in various warm portions of its area—as, for instance, the Gangetic plain and the oases of the Libyan Desert—the common cool-temperate cereals, especially Wheat, are grown as a crop, which is planted and reaped in the three coldest months, to be followed during the summer by something that needs a sub-tropical heat, like Cotton, Maize, or Indigo. As compared with the torrid and cool-temperate zones this is, upon the whole, a dry one. A good deal of the region where rain never falls comes within its limits, and the rain in other parts—as, for instance, round the Mediterranean basin—is small in amount, and has a tendency to periodicity in its downfall. Of these continental or dry floras we have examples in those of the Mediterranean basin, the Cape, Australia, Mexico, and the belt across South America from North Chili to Buenos Ayres; and of the other kind, the damp or insular type, in those of the Southern United States, New Zealand, and the Eastern Himalayas, which last, lying as it does at the foot of a great range of mountains facing the South, has a flora the most tropical in its character of all those of this zone.

We might, *à priori*, expect that, under these general conditions of diminished heat and moisture, the flora of this subtropical zone would show a marked diminution in number of species as compared with the torrid zone. But this is not really the case, for we have within its bounds some of the richest and most varied floras in the world. At the Cape, within about a quarter of the area of Europe, nearly 9000 plants have been gathered. We cannot estimate at less than 10,000 species the flora of the Mediterranean basin, taking into it the country up to the Caucasus and bounds of India, as included in Boissier's great *Flora Orientalis*, now in course of publication. In extra-tropical Australia, with New Zealand, there will probably be 7000 or 8000 plants.

The three areas of North India with China, Mexico with the Southern United States, and the subtropical belt in South America, may perhaps be counted as good for 5000 species each; so that as comparatively few of the species of this zone extend into more than one of the six or seven dissevered geographical areas of which it is composed, we may fairly estimate the total flora of the zone as being not short of 40,000 species, or two-fifths of the known number of plants in the world. The diminution of heat and moisture works not in lessening the number of species, but in reducing the luxuriance of individuals.

The features which give the general tone to the physiognomy of its vegetation are as follows:—1. The most striking positive character of the zone is the abundance of its erect bushes, and low, stunted trees, which are spread through its limits in wonderful quantity and variety, the dry character of its climate telling upon their *facies* in producing compactness of growth, small size and rigidity of leaf, and very often in the development of prickles on the stem and leaf-edges, and of glandular dots upon their foliar surfaces, such as the Cistaceæ and Labiatæ of the Mediterranean basin, the Myrtaceæ, Rutaceæ, Proteaceæ, Thymeleaceæ, Epacridaceæ, and shrubby Compositæ of the southern hemisphere, and the Brooms and Heaths of both its northern and southern belts. 2. Another positive character of the zone is, that it is the great seat of the terrestrial Orchids, which are usually represented in each geographical area by special generic types. 3. Entire absence of many of the tropical types of form, and great diminution and gradual running out of those of more flexible constitution, such as Tree Ferns, Palms, Dracænas, epiphytic Orchids, Peppers and Figs, all of which stop before the polar limit of this zone is reached. 4. Incoming of various striking types shared between this and the cool-temperate zone, such as Umbelliferæ, Cruciferæ, Cupuliferæ and Coniferæ. 5. A smaller proportion of woody plants than in the torrid zone, and especially a larger proportion of annuals and of terrestrial mosses and lichens. 6. Incoming of the greensward-producing grasses, such as Poa, Festuca, Bromus, Holcus, Agrostis, and Anthoxanthum, but the green covering they make is soon burnt up in the summer. 7. Incoming of the temperate cereal grasses, such as Wheat and Barley, which often yield great crops in a short time, and outgoing of such as Rice, Maize, Cotton, and Indigo.

The following are the principal natural orders and sub-orders which are either characteristic of the subtropical zone, or, at any rate, are much more abundant here than anywhere else:—Cruciferæ, Resedaceæ, Cistaceæ, Silenæ, Portulaceæ, Berberidaceæ, Papaveraceæ, Rutaceæ, Diosmeæ, Boronieæ, Rhamnaceæ, veraceæ, Fumariaceæ, Geraniaceæ, Oxalidaceæ, Pitto-Podalyrieæ, Genisteæ, Stackhousiaceæ, Brunoniaceæ, Ficoideæ, Cactaceæ, Umbelliferæ, Loasaceæ, Lobeliaceæ, Stellatæ, Campanulaceæ, Goodeniaceæ, Dipsaceæ, Valerianaceæ, Calyceraceæ, many tribes of Compositæ, Chamælauciæ, Leptospermeæ, Myoporaceæ, Selaginaceæ, Labiatæ, Orobanchaceæ, Ericaceæ, Epacridaceæ, Nolanaceæ, Thymelaceæ, Proteaceæ, Paronychiaceæ, Plumbaginaceæ, terrestrial Orchids, Iridaceæ, Liliaceæ, Colchicaceæ, Restiaceæ, Hypoxidaceæ, Amaryllidaceæ, and Hæmadoraceæ.

Amongst large or striking genera that have their head-quarters here, and are not included in the above groups, are Clematis, Althæa, Lavatera, Malvastrum, Rhus, Ilex, Linum, Ononis, Medicago, Trifolium, Trigonella, Coronilla, Acæna, Cliffortia, Fuchsia, Œnothera, Lythrum, Camellia, Aucuba, Escallonia, Gunnera, Cotyledon, Jasminum, Phillyrea, Cyclamen, Serophularia, Linaria, Verbascum, Petunia, Stapelia, Nicotiana, Verbena, Ephedra, Muhlenbeckia, Podocarpus, Melica, Aristida, Cheilanthes, Pellæa, Nothochlæna, and Lomaria.

The principal plants cultivated on a large scale for human use in the subtropical zone are Rice, Maize, Wheat, Barley, Millet, Lentil, Cicer, various kinds of Bean, Fenugreek; amongst fruits the Vine, Fig, Pomegranate, Olive, Apricot, Peach, Orange, Lemon, and Spanish Chestnut, Saffron, the gum arabic tree, the Vallonia Oak, Cinchona, Tobacco, Aloe, Maguey (Agave), Senna, Castor-oil plant, Tea, Opium, Clover (Trifolium alexandrinum), the scented Labiatæ, such as Marjoram, Thyme, Sage, Basil, Lavender and Rosemary, and the Cucumber and various kinds of Gourd and Melon.

3. *The Cool-Temperate Zone* includes in the northern hemisphere a belt from 1500 to 2000 miles broad, stretching across the three great continents, which embraces an area of about 16,000,000 square miles. In the southern hemisphere, at sea-level, it includes only the Patagonian peninsula and a few small islands, so that altogether it takes in about a third of the earth's surface.

The distribution of heat through its area varies far more than it does through the two warmer zones, the two broad general marks which characterise it being that there is always a winter of such a kind as to give a decided check to all vegetation, combined with a summer at least warm enough for the cultivation of the common cereal grasses and Potatos, which, with the Cabbage and Turnip, are the hardiest of the plants grown on a large scale for the use of man. As we cross this belt in the direction of the poles the winters lengthen and the summers grow shorter and shorter, subject to the modification caused by the difference between insular and continental climates. In England our deciduous trees are bare of their leaves for half the year; at a height of 4000—5000 feet in the Alps the length of the period of the vegetation is said to be 200 days; at 5000—6000 feet, where cereal cultivation ceases, 170 days; and at sea-level at St. Petersburg not more than 130 days out of the 365.

(*To be continued.*)

THE LATE FROST.*

The winter of 1874-75 has proved more destructive to vegetation generally in this district than any of the intervening seasons since the memorable winter of 1860-61. Various circumstances combine to render the effects of a severe frost particularly noticeable in this situation, and they are always more marked after a very wet and foggy period, such as was experienced towards the close of last year. Situated in the centre of the long flat strath through which the river Almond flows, the wide area of level land in this district is peculiarly liable to mist and fog, which envelope the young plantation grounds, and, along with the retentive nature of the soil, frequently retard the ripening of the year's growth of wood during the autumn months. Another circumstance which contributes to render frost more severely felt upon evergreens in this locality than in many others, is the fact that its altitude is only 92 feet above sea-level, and that it possesses a southern aspect, which exposes vegetation to the severe alternations of frosty nights and sunshiny days. Although the frost of last winter was scarcely so intense as that of 1860-61, when the lowest indication of the thermometer was 10° below zero, there was a considerably greater amount of wind, which always proves very destructive to evergreens and Coniferæ, inasmuch as it blows off the covering mantle of snow which protects their young wood and buds. From this cause many of the shrubs in this district have, during the past winter, suffered severely; and indeed it is hardly possible as yet to estimate the full extent of the injury which has been done by last winter's frost: for some specimens, at present very much browned in appearance, may recover. So far, however, as we can yet discover, we may state that in this locality the Laurustinus (Viburnum Tinus) is killed outright — a few plants only, in more sheltered positions, being alive under the snow-line. The common Cherry Laurel (Prunus Laurocerasus) is at the present date showing more signs of having suffered than it did immediately after the continuance of the frost, and has lost all last year's growth of wood. In one situation, in rather wet soil, where some two-year-old cuttings were planted, about two-thirds were completely killed.

It is a noticeable fact that the Caucasian variety of the Cherry Laurel has proved much hardier than the common, while the Colchic variety, with its handsome narrower-shaped leaves, of paler green, has suffered most of all. The common Portugal Laurel (Prunus lusitanica) has been very much browned, and in many places is now shedding its leaves; and some of the young wood on the more exposed portions of the plant has been killed.

Hollies, both common and variegated, have been more or less affected; and the larger specimens, about 30 feet in height, have, as was the case in 1860-61, lost many of their leaves, and which they still continue to shed. It is a noticeable feature in regard to the variegated Hollies, that the golden varieties have suffered far more severely than the silver, and also that the parts of the leaves which are most injured are the variegated portions. At first sight it might be thought that this was merely apparent, and due to the tarnished brown colour being more visible on these than on the green parts of the leaf; but on examination it will be found that this is not so, but that the variegated parts have, in reality, proved more susceptible to the influence of the frost. The variety called popularly the variegated Prickly Hedgehog (Ilex ferox variegata) has proved the most tender of the variegated varieties, and next to it the Golden Milkmaid (Ilex aureo marginata); while of the green varieties, the smooth-leaved sort, Ilex aurea Dahoon, has been the most injured.

The common Ivy has been very much singed, and the points of its shoots are much frost-bitten. Variegated varieties have, as was noticed in regard to Hollies, generally fared the worst; one kind, the Algerian (H. algeriensis), has suffered more severely than any other, and, as was noticed in the case of the Colchic Laurel, it is of that delicate palish green colour; indeed, this peculiar tint of green appears to be more susceptible of injury from weather than any other, for we have instances of this in the Pinus Pinsapo, P. lasiocarpa, and other evergreens. In situations with a southern exposure the heart-leaved Ivy (H. Regneriana) has been very much browned, and much of its young wood has been killed. Another wall-creeper, Cratægus crenulata, has been killed to the ground.

Wall Roses have been very severely injured, and on the open border there have been more casualties among standard and dwarf hybrid perpetual Roses than was experienced here even in the winter of 1860-61. Amongst the newer Coniferæ, the Wellingtonia gigantea has stood uninjured—a peculiarity of this species which we have before noticed; and it is far more likely that the Wellingtonia in this country will suffer from the effects of frosty spring winds than from the intensity of frost. The variegated Wellingtonia has suffered very severely in its golden patches of variegation, which are completely killed, although the plants are otherwise uninjured; and it is to be hoped that as they progress in growth they will again throw out fresh shoots here and there of their delicate straw-coloured markings. Taxodium sempervirens has probably suffered more than any other of the newer Coniferæ. Plants of this species of from 3 to 6 feet in height, which had been transplanted to their present position last spring, although they had quite recovered from the effects of removal, and had made vigorous growths for the year, have perished outright. Other specimens, from 12 to 20 feet in height, have lost many of their outer last year's shoots.

Several specimens of Cupressus Lawsoniana have been much browned in the foliage; but although they may lose some of their outer fringes the plants are otherwise perfectly safe, and it is only when exposed to the sun and wind that they have been thus affected. One variety, C. Lawsoniana amabilis, has received so severe a check, and appears so sickly, that it is impossible at present to say whether it will survive or not. Cedrus atlantica has been a good deal scorched on the tips of its needles, and has suffered more in this respect than either C. Deodara or C. Libani. The Araucaria imbricata has been a good deal browned on its young shoots, and presents the peculiar and suspicious-looking feature which many plants did in 1860-61, that of carving the points of its lateral branches downwards; and although it is yet too soon to speak definitely as to the amount of injury which this species has received, we fear that, with a recurrence of frosty easterly winds during the present and next month, many specimens of this handsome plant will be found to have been permanently disfigured.

It is a notable fact that several Araucarias which were killed down to the snow-line here in 1860-61 have suffered materially less during the past winter than others which have been planted here since, though located under similar circumstances—a fact which, I think, goes to prove that as many of the more recently introduced Conifers become longer inured to the climatic changes of Britain, they will throw off any tendency to delicacy they at first

* "Effects of the Late frost on Trees and Shrubs at Carlowrie, near Edinburgh;" a paper read at the March meeting of the Botanical Society of Edinburgh by Robert Hutchison, Esq., of Carlowrie.

evinced, and probably in future years the produce of cones grown and ripened in this country will present a vigour and robustness which their progenitors lacked. Among the other Conifers which have, more or less, been severely browned in their foliage, and which have partially lost some of their last year's growth, I may notice Abies Douglasii, which, where exposed to wind, has suffered severely; Pinus monticola, P. grandis, P. Pinsapo, P. cephalonica, P. Edgariana, P. Jeffreyi, and P. Lowii (Parsonsii). In some exposures Cedrus Deodara is slightly singed on the weather side, while the following have all escaped thoroughly unscathed:—P. Laricio, P. excelsa, P. balsamea, P. Nordmanniana, P. Sabiniana, P. nobilis, P. cembroides, P. Cembra, Libocedrus decurrens, Thuja gigantea, Thujopsis borealis, Retinospora pisifera, and R. obtusa. Amongst the Cupressus family, where again the pale green tint and foliage we have already referred to is predominant, it is noticeable that C. Lambertiana is in many places dead, and in others the young twigs are so severely browned that they are shed from the plant by simply passing the hand along the branch. Cupressus macrocarpa has lost most of its young shoots, and contrasting with the fastigiate habit of this Pine, the curved-over affection of its lateral branches is most striking and apparent. C. Goveniana has lost all its last year's wood, and looks sickly throughout the whole plant.

Among other evergreens which have all suffered more or less severely, and sufficiently so to make the effects remarkable above those of any common winter, we may notice the following:—Pernettya mucronata, Aucuba japonica, Chamæcyparis sphæroidea, Cryptomeria japonica, Jasminum officinale, and Clematis Vitalba. The Nidpath Castle Yew is considerably more browned in foliage, and appears to have suffered more, than the common English Yew, or even than the Irish. Pinus maritima, P. Albertiana, P. nobilis, P. ponderosa, P. excelsa, P. austriaca, P. Pallasiana, appear to be all perfectly safe and untouched.

One noticeable feature upon the hard-wood trees of larger growth, owing to the severity of last winter's frost, was their splitting down the stem—a fact which was also noticed in 1860-61. Individual Beech trees, of from 9 to 12 feet in circumference, which split in the winter of 1860-61 as if struck by lightning, were during last winter observed again to open up their old parts. This is a frequent occurrence in Canada, where old trees, especially if very vigorous and full of sap, are reported to contract and expand, to split and go together again, season by season, with the alternations of climate. Although this is a rare occurrence in a climate like that of Britain, and may be only noticeable after winters of severe frost, such as that of last year, it was not confined to Beeches alone, but Oaks, Limes, and Ashes were observed to suffer in a similar manner. Sycamore and Plane trees of old growth have, since the last winter's frost, shed in abundance the scales of their outer bark; and it was particularly noteworthy that after the severe and sudden depression in the thermometer these bark-scales shrivelled together and became loose, so that on the first blast of wind they were displaced and fell to the ground.

From the foregoing notes it will be observed, that it is hardly possible at this date to give an accurate list of all the shrubs and evergreens which have either proved hardy or unable to resist the severity of such a winter as that of last year; but it is to be hoped that the list already given of such specimens as the frost appears to have seriously affected will not require to be augmented by further experience, while, on the other hand, we trust that with a mild and genial spring, and an absence of easterly frosty winds, many of those species already reported as in a state of dubious vitality may yet recover.

P.S.—It should have been stated that the lowest temperature reached during last winter was on New Year's Day morning, January 1, 1875, when it registered here 4° below zero at 4 feet from the ground. On the ground, 8° below zero was the minimum point reached.

AZALEAS AND CAMELLIAS.

In the Victoria and Paradise Nursery, at Upper Holloway, there are two admirably constructed span-roofed houses specially devoted to the culture and exhibition of Azaleas and Camellias respectively, and we have thought it desirable to place interior views of each before our readers, in order the better to give some idea of their contents, and of the beauty of the display of bloom which every spring gladdens the eyes of visitors. They are situated on that side of the nursery which faces the Junction Road, and form two sides of a square, in which stands the foreman's cottage, the third and rear side consisting of a stove, which connects the subjects of these remarks. The houses are both of the same dimensions, viz., 55 feet long, 25 feet wide, and 15 feet high. They also partake in common of the same style of internal arrangement, of which the accompanying illustrations (figs. 71, 72), prepared from sketches made last spring, are good delineations even at the present time.

The Camellia-house is now, of course, as attractive as it will be this year, and includes many fine specimens of the choicer varieties in cultivation. Facing the door at the Junction Road end is a fine specimen of Jubilee, well sprinkled with its beautifully striped and imbricated flowers, while among the larger specimens we noted imbricata, too well-known to need any comment; Triomphe de Lodi, flesh-pink, mottled with crimson, very pretty; Cygno, fine white; Limichezii, dark red; Comtessa Eostans, mottled red; Leeana superba, deep blood-red, a single flower which shows its centre rather too much, but well deserving of culture on account of its fine colour; Marchioness of Exeter, red, a very fine plant; Lavinia Maggi, the original plant, and perhaps the largest in the country, just coming into bloom; Henri Favre, crimson, very fine; Daviesii, double, crimson-red, and much resembling the flower of a Hollyhock in shape; La Maestosa, cerise-crimson, occasionally mottled with white; and Mathotiana alba, one of the very best of the double whites.

To see the Azalea-house in full beauty we must wait until the month of May, when they form a most attractive spectacle, as may be imagined when we state that such well-known and highly esteemed varieties as the following are represented in all sizes:—Criterion, Magnificent, Brilliant, Holdfordiana, Duchess of Edinburgh, the new white sent out last year; Chelsoni, Concinna, Prince Albert, Distinction, Duc de Nassau, Duchesse de Nassau, Rosea superba, and many others which might be named.

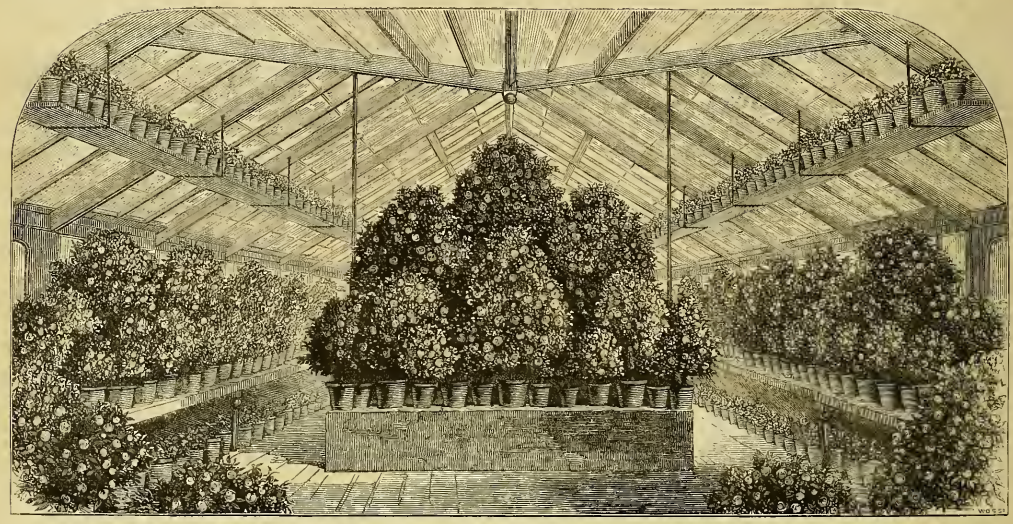

Fig. 71.—Camellia house in the Victoria and Paradise Nursery.

ROYAL HORTICULTURAL SOCIETY.

I attended the adjourned meeting of the Royal Horticultural Society on the 9th inst., to see, hear, and judge how far the Council were prepared to act on the suggestions made by a large body of the Fellows at the annual general meeting. The first evidence offered was the new edition of the report, which I read, and found the objectionable passages expunged. This was eminently satisfactory.* The noble Chairman shortly afterwards announced that the Council was now on amicable and working terms with Her Majesty's Commissioners. Now these were the two points for the attainment of which I understand the original meeting to have been adjourned. Notwithstanding their attainment, I was surprised to hear the Chairman further announce that a report had reached him that what was called the horticultural party intended to move an amendment declining to accept that report, and which, if carried, must lead to the resignation of the Council. Surely this was a blunder on the part of that section of horticulturists which planned and adopted it. It was bad policy, as tending to increase the estrangement between the horticultural party and the local Fellows, and if it was not acting in bad faith towards the Council after they had yielded the points previously contended for, it was, at the least, treating them shabbily. But the meeting was not prepared to endorse this line of action; the majority of the Fellows present approved the conciliatory policy of the Council, and the report was adopted. And it appears to me that to this conclusion the meeting was guided by the Englishman's common sense and native generosity. A society must trust its governing body, or they are powerless for good; and societies where distrust becomes chronic fail to get men of position, character, and ability, to serve them. But let me pass to the subject for which I more especially took up the pen. If the Society is to be relieved from its present financial difficulties, it must

* It was not quite so satisfactory that it was not put into the hands of the Fellows until a few minutes before the meeting. Eds.

be by the union of all interests. A broad, conciliatory, and generous policy, must be adopted. Each interest, while pushing its own views and objects, must allow the others full space and opportunity to push theirs. Mr. Smee put the case of what should be the horticulturists' objects more clearly, truly, and strongly, than I have heard them put before, and I only regretted that, in his short and admirable speech he should have spoken of that part of the Society's programme which we may suppose specially arranged to meet the views of the local Fellows as "vanities." We cannot all be philosophers and men of science, and I cannot regard as vanities those light and harmless amusements which unquestionably give joy and health to so many of my fellow men. Besides, the Society ought to derive an immense revenue from the rank and wealth with which the Kensington gardens are surrounded, but to do this it must study the tastes and wishes of the population. All men are not horticulturists, although few cultivated minds are indifferent to the charms of the art, as, on the other hand, few horticulturists are indifferent to the delights of music and the fine arts generally. Now, if two parties starting from the same point, though seeking a different goal, find their road lie in the same direction for a part of the journey, and can travel safer, more expeditiously, more luxuriously, and more economically together than separately, and withal have but a limited purse, what folly to forego these advantages by insisting too rigorously on the details of arrangement. This, to my mind, is just the position at present of the contending parties at South Kensington. I repeat my conviction, that the Society can only be relieved of its present difficulties by opening some broad, clear, and solid road along which Her Majesty's Commissioners and the Council of the Royal Horticultural Society (the latter as representing the horticultural interests, the interests of the local Fellows, and sundry minor interests) can travel together amicably, expeditiously, and economically, dividing the expenses of travel, while each takes up the pleasures and advantages of the road. To do this it is first necessary to blot out on all sides the omissions and commissions of the past, and to be so earnest and full of the future as to leave no standing room for them should they rise and strive for readmission. *Wm. Paul, F.R.H.S., Waltham Cross.*

—— To those who attended the adjourned meeting on the 9th inst. it must be well known that at an early stage of the proceedings I was about to make a few observations; but the Chairman ruled that a gentleman, rising at the same time I did, had the precedence. The remarks I desired to make had no reference to the report, and, therefore, after the amendment was proposed and seconded, I thought I should be out of place in intruding my genera remarks on the meeting; hence my now writing. It has been observed both outside the Royal Horticultural Society and in, that the professional horticulturists take no prominent part in the Society's annual meetings, and that their voices are seldom heard in the discussions. On this account they have been treated as nonentities, and as unworthy of any consideration. As I judged, therefore, it was necessary for some one of them to explain their position, and set the case right with the Fellows generally. There are various reasons for the reticence and seeming apathy of the professional horticulturists at the Society's meetings. They, as a body, from their avocations, are somewhat diffident; their opinions are seldom or never asked except in a secondary way, and hence the small action they have prominently taken. Moreover, some of them feel, myself among the number, that they could not spare the time to take at all times an active part in the Society's affairs; but those that could not do so would zealously support their colleagues. It must, however, be fully apparent that the horticulturists cannot possibly take any zealous interest in the Royal Horticultural Society constructed as it is at present; for it is a society formed for a technical object, but with a Council elected for carrying on its work composed, with few exceptions, of gentlemen almost entirely devoid of the necessary technical knowledge for that purpose. But what would be thought of the Medico-Chirurgical Society if it had no physician or surgeon on its Council? Would the Linnean Society of London be looked up to with the respect it is by scientific men throughout the world if its managing members had not a profound knowledge of botany and zoology? Would the Institute of British Architects carry on its work for any good purpose if no architects were on its Board? In what an anomalous position, then, is the Council of the Royal Horticultural Society, without a single professional horticulturist belonging to it! I know the objections that may be urged against this. It has been said that the Council of the Society could not be composed of gardeners. Possibly not, but there are gardeners and gardeners; and I am afraid the professional horticulturists would be found lacking much of the technical knowledge that a gardener requires. However that may be, there have been eminent men who have not been ashamed to be called gardeners. The professional horticulturist, however, is only a gardener somewhat in the sense that an architect is a carpenter or mason. Again, it has been urged that if professional men were on the Council of the Royal Horticultural Society it would be swayed by trade influences; but has any one ever heard such an argument used against the Pharmaceutical Society because druggists direct its affairs? Or, indeed, can such be alleged against other societies, when professional and business men take an active part in their administration? It has also been stated that it is of the utmost importance, considering the state of the Society's affairs, that good financiers should be on the Council, rather than horticulturists; but I have yet to learn that the latter are wanting in this respect. The yearly expenditure or monetary transactions of the Royal Horticultural Society are as nothing compared to those of the best horticulturists, and these are generally guided to a successful issue. The many failures in the Society's affairs are owing in a great measure to one great fundamental cause, and that is that the Society has never, since I can remember, had a thoroughly practical horticultural Council—a Council in which the horticulturists throughout the United Kingdom, both professional and amateur, could have perfect confidence. If it had, I have little hesitation in saying that instead of 4000 it would have nearer 40,000 Fellows, not by reducing the subscription, as a member of the late Council has proposed, for there is already a two-guinea fellowship. This reminds me that the late Council did a really good horticultural work by establishing the provincial exhibitions; these, however, have fallen through, as I believe they also would have done if the late Council had remained in power; for the simple reason, that if the Horticultural Society of London is desired in the provinces, it is not because men of great social influence are on its Council, for in any district there are county families; but what is desired on these occasions is to hold communion with, to make the personal acquaintance of, and to fraternise with men whose names are known, not alone at Kensington, but throughout the horticultural world, for their technical knowledge and their practical experience in horticulture. There were only one or two such on the late Council. With fair management, and with such a Council as I have suggested, I have no doubt an annual profit of from £1000 to £2000 would be made from the provincial exhibition, and this besides doing legitimate horticultural work, enlisting the sympathies of country residents, and making a large number of Fellows in the districts visited. But I venture to say—and I do so with some regret, since I should be sorry to wound the feelings of any one, still it is necessary to be candid—that beyond a few the names of the present Council would not be known in connection with horticulture outside the Horticultural Society. What an anomalous position this for horticulture to be in at headquarters! If it were necessary for the Council to send a deputation on any horticultural matter abroad, beyond one or two of them their names even would not be known. Fortunately, however, horticulture does not depend on any society, for the love of it increases with the higher development of civilisation. Still, professional horticulturists cannot but deplore the present state of what should be the first horticultural society, not in England alone, but in the world; and this brings me to the consideration of the Horticultural Gardens, for about these I differ from some of my colleagues. They are leased on such easy terms that I am not one of those who advocate giving them up; for, whatever may be said against these gardens, I consider them a monument of horticultural skill as a town garden, and, from what I have seen, I much doubt if they are to be equalled in any capital in Europe. The rent need only be paid once in five years—something, therefore, under £500 a year for these magnificent ornamental grounds. I know it is

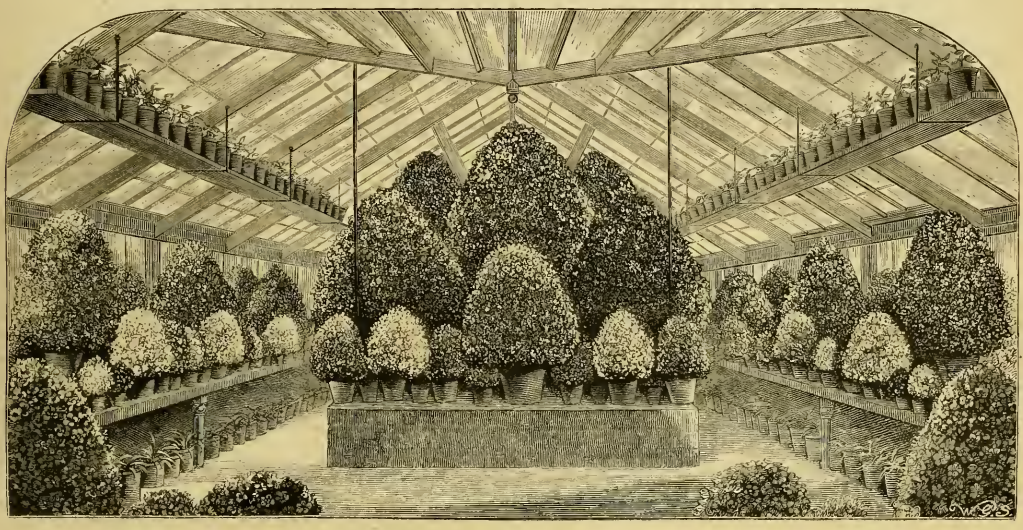

Fig. 72.—Azalea House in the Victoria and Paradise Nursery.

stated that £500 a year cannot be set aside to defray the rent, that £2400 must be paid in one year, and that every fifth year. Here again crops up the want of a truly practical horticultural Council, for with such a body various ways would suggest themselves of easily providing the rent. But one occurs to me at this moment—viz., to hold a grand International Horticultural Exhibition every five years. I doubt not that the horticultural Fellows would provide a guarantee fund, and if not, I believe the professional horticulturists would subscribe it themselves. But work such as this would involve could scarcely be expected from amateurs, much less from those who are not horticulturists. Amateurs may render good advice and service, but in practical work and technical knowledge they can seldom be expected to take the place of the professional man. If any one had a sick child he would scarcely send for his amateur friend, who has always a favourite pill to prescribe or some essence to recommend, but he would rather send for the man of professional skill, on whose practical knowledge the utmost reliance could be placed. The Horticultural Society is now the sick child, and the inference is obvious. If the primary object of the Horticultural Society is to be merely the keeping of the gardens at Kensington as a London square, then good horticultural work is not of paramount importance, and it matters but little how the Council is constructed; but if the legitimate objects for which the Society was founded are to be carried out, it behoves the Fellows to take action, and see that a good Council of the best known professional and amateur horticulturists are guiding it. As an instance of what practical horticulturists can do, I may mention that, previous to 1865, we at different times had been receiving invitations from our foreign friends to international entertainments; we had accepted their hospitality, which was given with an ungrudging hand. The English horticulturists felt they must do something in return, and like Britons they were determined it should be well done, so they projected an International Horticultural Exhibition; they applied to the Royal Horticultural Society, but then, as now, their Council was too weak technically to do anything in the matter. The horticulturists, not to be beaten, then did it themselves, at an expense of something like £15,000. That magnificent exhibition will still be in the recollection of many of your readers. As the time neared for closing the exhibition, it was found there would be a deficit of some thousands of pounds; here, again, the practical element rose to the surface; the committee held a conference, and decided that they would not call on the guarantors who had given them their confidence, but that they would continue the exhibition a few days longer: this was an easy matter, for several of the committee were large exhibitors—the other exhibitors were their friends. In the end, instead of a financial failure, it was a success; so much so, that the committee actually had a surplus of £2000, which they scarcely knew what to do with; they gave £1000 to the Gardeners' Benevolent Institution, and bought the Lindley Library, which they placed in the hands of trustees and lodged in the rooms of the Royal Horticultural Society, otherwise to this day there would not have been a library for the use of the Society.

I cannot pass from this subject without paying a tribute to the excellent generalship of Lord Bury. I have sat at the anniversary meetings of many societies, but I have never seen a president who could meet great difficulties and smooth over extremely perplexing circumstances so easily as his lordship. At the last meeting of the Horticultural Society one or two gentlemen incidentally mentioned that they belonged to certain learned societies. When the observation was made it occurred to me—for I also belong to eight or ten—how different they must consider the annual meetings of the Royal Horticultural Society to those of other societies, at which it is usual for the President or some member of the Council to give a short retrospect of the important events of the year, with glimpses of what is likely to occur in the future. Now, some of the Fellows of the Royal Horticultural Society would have been glad to have heard from the President what part the Society took in that great assemblage of botanists and horticulturists at Florence last year; what they intend to do this year at the International Exhibitions at Cologne and Antwerp, as also what they purpose to do next year in Philadelphia and Amsterdam. Then what can be thought of the arrangements for the flower shows at Kensington this season? The Council issue a schedule announcing what shows will be held, detailing the objects for which prizes would be offered; they then advertise that four of those shows would not take place, but at the last meeting announce that they would all be held, only the exhibitors would be asked to take 50 per cent. less than the prize money that had been offered. Can vacillation further go? *William Bull.*

—— The following are some reasons for Guinea Fellowships in the Royal Horticultural Society. There are few objects for a society, which have the sympathies of so many of all classes, as gardening and improvement of fruit, flowers, and vegetables. Therefore, the great central horticultural society ought to be popular, successful, and prosperous. Is this the case with the Royal Horticultural Society as at present constituted? For the ten years I have known it, its action has been constantly crippled for want of funds. In earlier times the parting with the Regent Street rooms and sale of its splendid Library show great pressure of poverty, and tradition says that the Society was poor even in the days of the brilliant shows at Chiswick. It is no question of management. Successive members of Council have come into office in high hopes of showing themselves wiser and more successful than their predecessors, but soon has come the old tale of "further reductions on account of want of funds." I believe (and having served eight years on the Council, and having filled many other offices in the Society, I have had good opportunities of observation) that the way to place the Society in its right position is to increase its number of Fellows, bringing them in from all parts of the country, and that this can be done by Guinea Fellowships. It has been objected that different districts should support their local horticultural society; no doubt they should, but our claims do not clash, on the contrary we ought to help one another. The central society does work which local societies cannot do. Fruit, flowers, and vegetables come to Chiswick and South Kensington from all parts of the country, are judged, and the verdicts circulated all over the country the same week, being reported by the Horticultural Press, and so they serve town and country alike. It has been suggested that the guinea plan trusts too much to the support of gardeners. My first letter on the subject, written in the latter part of 1873, says:—"Consider what a vast number of well-to-do people, fond of their gardens, there are now in the country. Very many of them would be willing to help horticulture, if it did not cost them much money or trouble. I would make the annual subscription a guinea." As I wrote then I think now. So much for trusting to the guineas from gardeners, though I hope we shall have the best of their class as Fellows. We have already received the names of many good would-be Fellows—I mean to go on till we can show a list which will be irresistible, and to follow the old saying—

"Gutta cavat lapidem non vi sed sæpe cadendo."

George F. Wilson, Heatherbank, Weybridge Heath.

—— I agree with you in doubting whether at the late meeting the Council showed a sufficient appreciation of the critical position in which the Society stands. You have arrived at that conclusion from your own observations, I have drawn it from one or two straws of trifling moment in themselves, but which have seemed to show how the wind blew. One of these is a passage in the amended report. This report is undoubtedly a great improvement on the previous one. It has been avowedly prepared on the footing of abstaining from all remarks or allusions which could irritate or give rise to feelings of disagreement, more especially as between the Commissioners and the Council, but also between any sections of the Fellows themselves. The appeal was, "Let us dismiss all grudges from our minds, and work with one accord for the common object in view;" and yet they go out of their way to fling a stone at the old Council. It was out of their way, for all other criticism upon the accounts has been carefully eschewed: I cannot blame them, for the subject was not a pleasant one, but they retain the only passage relating to them from the old report, viz., that the Council had compromised for £600 an old debt of £1200 due to the late Sir Trayton Drake, which had been ignored by the old Council. If it was considered necessary or proper to take special notice of this alone out of all the items in the accounts, it would have been more in accordance with the conciliatory spirit advocated by the Council, not to say with the ordinary fairness, had they added two words of explanation why it was not debited to the Society by the old Council. It was a sum advanced by Sir Trayton in the old Chiswick days, and advanced with the promise or assurance that, although interest would be expected during his life, the principal would be bequeathed to the Society. This is the explanation of its not being dealt with as an ordinary debt by the old Council, and also, no doubt, of its being compromised for £600—Sir Trayton's men of business having been, as I am informed, quite cognisant of the footing on which the loan took place. Unfortunately, Sir Trayton would appear to have forgotten all about it, and died without making the promised bequest.

Another straw, whose direction I like still worse, was the observation of our President when disclaiming any partisanship with any section of the Society—that as he would oppose any attempt on the part of the local Fellows to interfere with the horticultural objects of the Society, so he would oppose any attempt to surrender or deprive the Society of the garden at South Kensington. It was cleverly put, one might almost say—

"'Tis so like sense, 'twill serve the turn as well."

But it is neither sense nor logic. His lordship's propositions are not equal. The antecedent is based on truth, the consequent on a fallacy. It is undoubtedly the duty of the President of the Royal Horticultural Society to do all he can to support the advancement of horticulture, but it is in no respect necessarily his duty to preserve the garden at South Kensington. So little is this part of his duty, and so far from being one of the essential elements of the Society, that our charter itself contemplates the alienation of the garden, and provides for a termination of the lease by which we hold it. It is, therefore, a very mistaken notion of his duty on the part of our President to suppose that his obligations to horticulture and his obligation to preserve the garden are in *pari casu*, or of equal force. The one is vital and paramount, the other is merely incidental and indifferent, and matter of arrangement and detail.

Seeing that, from my stand-point at least, the views of the Council, as expounded by Lord Bury, are thus ill-balanced, it may do no harm if I state what I believe a large portion of the Fellows expect, and will be disappointed if they do not receive at the hands of the Council. They expect that in dealing with the Commissioners they will make an arrangement as to the debenture debt, their first, most pressing, and most anxious tipulation; and here permit me to say—in this motive-imputing world it is necessary to guard every point—that neither I nor any one connected with me have anything to do with the debentures. I am moved solely by a pure and honest desire for the good name of the Society. For it, an arrangement securing these debts ought to be the Council's first aim, and it will not satisfy the Fellows if their efforts in that direction be of a mere perfunctory nature. If, to secure better terms with regard to the garden, they are cold and spiritless here, and merely put forward their claims as if to invite defeat and to be able to say that they did urge it but were unsuccessful, I do not hesitate to say that, in my mind, it will be a betrayal of their trust. It is my firm conviction that they can secure an arrangement if they sufficiently press their point. They stand upon a vantage ground from which nothing should induce them to retire. The money borrowed has all been spent upon the buildings in the garden, devised and constructed by the Commissioners. If the Society has done the debenture holders wrong, it has been at the instigation and prompting of the Commissioners, and they have all the advantage of the wrong. It would, no doubt, be right legal for them to stand by the letter of their bond, but it would not be right royal. It would be but a poor example to set the masses, to disregard equity and to profit by law. That is not the education that Prince Albert meant to give them in rearing these arcades, and it is not the spirit that animates the Commissioners. It may require urging and pertinacity to make them fully aware of the true position of the matter, but once that is done our cause is won; and we look to the Council to do that urging, and to make these explanations. It may not be convenient for the Commissioners now to pay either principal or interest; but that is not necessary. All that I plead for is that they will agree to interpose their security for the final payment of the debt. Now is the time to get it done, when a new arrangement is under consideration, and before all recollection of the origin of the debt shall have faded from the memory of those administering the estate.

I have not the same anxiety about the interest on the debentures. If it has its bad side, it also has its good side. If the Commissioners should accept the final responsibility for the whole of the debt (as they have already done for the half), it immediately acts as an additional stimulus to them to make the Society prosper. So long as the Society prospers and pays the interest on this debt, so long does it act as a buffer to keep off the creditors from the Commissioners. I presume it is unnecessary to warn the Council against accepting any annual payment from the Commissioners towards the debenture interest in lieu of their security for repayment: as much in addition as they like, but nothing in its place. Security for repayment includes everything, and annual payments only mean temporary relief with postponed collapse.

With security for repayment by the Commissioners will come new light upon the skating rink, which, to my mind, is an excellent scheme, deserving of every support, and quite within the indirect accessories of horticultural gardens. It is a scheme that has been worked out by the present Council, and they are fairly entitled to the credit of it, and as a sequel it seems only reasonable that the Society, if it is carried out, should benefit by it; how far, will no doubt form part of the present negotiations with the Commissioners. More pecuniary assistance than something of this kind need not, I fear, be looked for from the Commissioners. The rent will, no doubt, be given up, but as we have so seldom paid it, and then only by the help (I had almost said connivance) of the Commissioners, that will not help us much. It is not the will to do more, but the power, that is wanting on the part of the Commissioners; and that brings us face to face with the great difficulty that has to be met, viz., the financial deficiency.

On this point the Fellows will expect the fullest information as to the grounds on which any scheme that may be brought forward by the Council is based, and more particularly as to what the local Fellows are prepared to do. You say that they have not responded, as was expected, to the appeal made to them by the Council. All will admit that the Council touched the thing with the point when they announced that they looked to the local Fellows to meet by increased subscriptions the deficiency in the ways and means of the Society. It was in their interest and to meet their views, that the steps were taken which have produced this deficiency. It was they who with opprobrious shouts drowned the voices of those who would have warned them against the course they were entering on. It was they who stifled the protest of the Fellows at a distance by refusing them a vote by proxy; and surely it is they who, now that their counsels have landed us in this slough, should put their shoulder to the wheel to pull us out.

Will they be any better off if they decline to come forward, and so precipitate either the actual collapse of the Society, or its practical collapse from inability to perform

its functions? In such a case we are threatened with or promised a successor to the old Horticultural Society, to be recruited largely from its own ranks, which is expected to be more numerous and more homogeneous than the present Society, and, having no aims but horticultural ones, and no debts or burdens, is to be infinitely more powerful for horticultural good. What will be the position of the local Fellows then?—merely that of residents around a square. If they wish to have the benefit of the gardens they must pay for the privilege, and they must remember that they do not stand on such good ground as the Society. They have no claim for favour at the hands of the Commissioners, they have no scientific standing, and no national aims. Theirs are purely private and personal, and after paying for the privilege of using the gardens, they must be at the expense of keeping them up. So regarded, it becomes a question of arithmetic, which they can easily solve. They best know what they would rather give than want the gardens, and if necessary by house visitation or personal canvas within a certain radius, the Council should be able to tell the Fellows with precision how much the local Fellows are prepared to subscribe annually for the purpose of enabling the Society to retain possession of the gardens. And when we know that, and what the Commissioners will do, the Fellows can then calculate for themselves whether they can afford to keep the gardens or not; and if they cannot, Lord Bury, like every one else, will have to submit to the inexorable logic of facts, and throw his guns overboard to save his ship.

I was glad to see that Lord Bury at the meeting—although by that time he must have seen that he could reckon on a majority—had the good sense to resist the appeal made to him by Mr. Mackenzie to give the Fellows no option or opportunity to discuss the terms the Council might resolve to enter into with the Commissioners, but simply to act as they thought best, and conclude without again consulting them. In an ordinary case, I quite admit that it is a most infructuous and unwise thing for any Board to come and consult its constituents as to the course they (the Board) ought to follow. It is to invite the destruction of the best considered scheme by vain, unconsidered, and crude discussion. But there is no case without exceptions, and this is one of the exceptions. The success of any scheme that may be brought forward entirely depends upon the Fellows. They are leaving the Society in crowds, and if the Council wish to retain them, they must conciliate them. A more unhappy time for any display of the *sic volo sic jubeo* tactics could not be chosen. The Commissioners themselves know that any scheme will fail which has not the support of the Fellows, and might reasonably object to enter into such. To what purpose then to affront the wishes of the Fellows? If they are satisfied, the scheme of the Council will be approved. If they are not, the conclusion of the scheme in opposition to them will only hasten the dissolution of the Society.

I have spoken out of the fulness of my anxiety, for I have no sympathy with those who are looking on with curious indifference (if not complacency) at what may be the death-throes of the old Society. No other new Society can be to many of us what the old Society has been with its glories and its traditions, and I will not believe that it is about to die. My trust, hope, and belief is that it will recover, and still run a long course of usefulness and honour before we or our successors shall have to say of it—

"There's the end of an auld sang."

Andrew Murray.

—— When I had last the honour of addressing you on the subject of the Royal Horticultural Society there was an apparent disposition on all sides to adopt a policy of mutual concession, and so to put an end to the intolerable scandal of a great Society divided against itself, and this at a time when the depressed and beaten-down state of that body demanded the loyal and united support of every member of it. Such hope exists no longer. The advances made to the local Fellows, with the view to a beneficial compromise and fusion of interests, have been met by open war. The continuance of the lease is to be gained and held by force, while horticulture and horticulturists have no pleasanter prospect before them than five years of famine under conqueror's law.

We have much to reproach ourselves with for all this. Disaffection and apathy have done their work, and prepared the way for the deep humiliation now hanging over us.

Out of evil there comes good at times, and one result of these, our complicated wranglings, has been that the fog and mystery that so long enveloped us all exists no longer. The position of the Society is now as clear and well defined as anything can be in this world. Our course, too, is now clear. The time for half measures is past. We cannot serve two masters.

I appeal to those for whom and with whom I have worked, year after year, against wind and tide, for well nigh half a lifetime; to those who with me have seen themselves and their aspirations derided and insulted by the votaries of Vanity Fair, who have seen their Council "turned out," as one amiable gentleman expressed himself the other day, to make room for the alien; I appeal to those whom misunderstanding and small imaginary causes of irritation have kept asunder to come together in this our great strait, and acting with one will to say their yea or nay. It has been said to me, "You are weaving a rope of sand, you are fighting a windmill, you are trying to make the silk purse out of you know what, your very existence as a scientific body is an imaginary quantity, your bones are marrowless, you are effete, you are dead, your hosts are gone, and your independent leaders and supporters might be numbered on your ten fingers." I have never held this opinion, and do not hold it now. The scene at the February meeting showed that we could exert ourselves if we would, and could, if necessary, do it again.

Should it be that this gloomy view I have mentioned be, as I hope and believe, not founded on fact, and that the old fire, though long smothered, is still burning unseen, there may be yet hope for the Society.

My general views and convictions as to what a horticultural society should be are perfectly well known, and any Fellow who shares them will oblige me by sending his name to my address. *R. Trevor Clarke, Welton Place, near Daventry.*

Apiary.

Neighbour's Glass Woodbury Hive.—Most bee-keepers are now conversant with the ordinary wood or straw Woodbury hives, either practically or by report. It is a bar-frame hive, and may be described simply as a wooden box 14½ inches square, inside measurement, and 9 inches deep; the usual ten frames fill up this space, resting upon a rabbet a little below the surface, leaving a space of three-eighths of an inch between the upper side of the bars and the crown (top) board. This allows a free passage for the bees on the top. Each frame, as recommended by the *Devonshire Bee-Keeper*, is seven-eighths of an inch wide, the frames hang in the rabbet so as to leave three-eighths of an inch above the floor-board; in fact, if properly made, a free passage is allowed for the bees on all sides.

For many years British bee-farmers thought any hive containing more than ten frames was hurtful to the bees, rather they could not be worked successfully; I hope shortly to show your readers the fallacy of this opinion, which is, contrary to my experience of hives even double the size, or twenty frame hives.

The glass Woodbury hive, of which I give an illustration (fig. 73), is manufactured by Messrs.

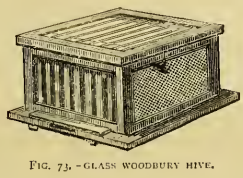

Fig. 73.—Glass Woodbury Hive.

Neighbour, of High Holborn, and which they describe as follows:—"Some bee-keepers like to be able to make a full and daily inspection of the hive; we have, therefore, constructed a hive of wooden frames, enclosed on all sides, and on the top with glass. The dimensions are precisely the same as the ordinary Woodbury. The crown has a round hole cut in the glass, to admit of feeding. The four sides are constructed of double glass, to preserve the bees from variations of temperature."

Many persons believe these hives, which are very elegant — the wood-work is stained oak, and varnished—will not answer as a winter residence for the bees; but if it has a wooden covering on all sides, the same as used to shield the other hives from the weather, they will winter in it, and come out early in the spring, hearty and strong. My experience has taught me that damp kills far more bees than cold; the top-board should be propped up about an eighth of an inch all the winter, to allow all the moisture to escape: this is all that is necessary.

These hives are well adapted for a gentleman's lawn, so that the more timid part of the fair sex may inspect them at any time with confidence. If asked to recommend a hive as an ornament to the garden, so as to provide intellectual amusement for visitors, I should without any hesitation name this as being the best adapted for the purpose. *R.*

Foreign Correspondence.

Ooshooia, Fireland, Patagonia: *June* 12, 1874.—Here at Ooshooia the Winter's Bark is not found; it abounds more in the open parts of the Archipelago. We are very busily engaged in a great variety of occupations which thoroughly engross thought and hand, so that we have little time for foreign matters. I think the greatest peculiarity in Fireland vegetation to be the growth of the various tree fungi—if they are fungi—used plentifully by the natives as food, of which one or more sorts are to be had in abundance all the year round. There are twenty or more kinds all growing from living trees, the same tree bearing at different seasons different kinds. For the most part they are globular and very glutinous, and slightly sweet. Three of the kinds are true fungi, and sometimes attain an immense size. One kind is very decidedly sweet, and must be very nutritious. They regularly grow out of a woody excrescence which is like a living tumour on the tree, around the stem and twigs of which it extends in all positions, and of all sizes. Of the four Fireland trees, the Winter's Bark is the only unproductive one; the other three are Birches (? Beech), two deciduous, the white and red; the other is evergreen, and chiefly abounds in the outer parts.

At a future time, if you seek it, I shall be (D.V.) ready to give you further information. For the present I will say good-bye. [We should gladly have more information, and if possible specimens of these fungi. Can they be species of Cyttaria? Eds.]

The enclosed seeds are Muggoo or Embothrium Despardi. This grows on exposed stony hills, and is a beautiful flowering shrub. The flowers are like honeysuckle and bright red, and have much honey. The plant is deciduous; wood very beautiful (red mottled), seldom larger than 6 inches diameter. *B.*

Notices of Books.

Das Buch der Erdbeeren, &c. By Franz Göschke. Berlin: Schotte & Voight. 8vo. Pp. 274. (The Book of Strawberries.) London: Williams & Norgate.

This is a work of which we should gladly welcome an English translation. Still more pleased should we be to see an original pomological work in our tongue compiled with such scientific method and completeness as the one before us. The first section of the book is devoted to the planting, cultivation, and propagation of the Strawberry in the open air, or in forcing-houses. The second division comprises the botanical history and classification of the species, whether European, Asiatic, or American, together with a full list of the cultivated forms. The forms are also grouped according to their season of ripening, their use for forcing purposes, &c. The author has studied the works of Duchesne, Madame Vilmorin, Léonce de Lambertye, and others, with profit.

Each variety is carefully described, sometimes figured; its synonyms are given, and references to the books wherein it is described by other authors, or wherein plates are given. All these details are given with the system and accuracy of a scientific monograph.

The garden forms are referred to six races, viz., 1, the Forest Strawberry, Fragaria vesca; 2, the Monthly Strawberry, F. semperflorens; 3, the Hautboy, F. elatior; 4, the Scarlet Strawberry, F. virginiana; 5, the Chili Strawberry, F. chiloensis; and 6, the Pine-apple, or large-fruited Strawberry, F. grandiflora. These are further sub-divided, according to the form of the fruit, the insertion of the seed, the colour of the fruit and of the flesh. We use the words fruit and seed here in the gardening sense.

An alphabetical index fitly terminates a volume which we may certainly say is one of the most complete and scientific treatises on Pomology that we have met with.

Out of Doors; *a Selection of Original Articles on Practical Natural History.* By the Rev. J. G. Wood, M.A. Longmans.

This volume comprises a number of agreeably written articles which have from time to time appeared in various magazines, some having been written so far back as 1862. Of course, this does not make them any the worse for those who may not have read them in the originals; but for those who have done so, the protracted interval between the first production and the re-appearance only seems to intensify the sense of partaking of *crambe bis cocta*. The author, moreover, so far as we have seen, has done little in the way of revision or addition, though some of the subjects of which he treats—*e.g.*, fish hatching—would seem to require both, while his account of opening oysters and eating the same is positively cruel in a double sense, cruel in that oysters are not to be had by persons of modest incomes now-a-days, and cruel in the same sense that a sportsman's account of his day's work, or a huntsman's narrative of his runs, is cruel. For consistency sake we hope Mr. Wood is not an opponent of vivisection, though we are abundantly sure he is not one who would practise or see it practised needlessly or recklessly, in spite of the ferocious way in which he writes of the opening and cooking of oysters. Any one in search of a pleasant book to while away half an hour may be recommended to read this, from the perusal of which he is very likely to gain some new ideas.

Le Jardin Potager, &c. Par H. Spruydt. Second edition. Braine-le-Comte: Lounia. (Williams & Norgate.)

A thoroughly practical and clearly-written treatise on kitchen gardening in all its branches, and which we commend to the notice of all those interested in the subject, and conversant with the French language.

HORTICULTURAL EXHIBITIONS, 1875.

March.

27 to April 3, inclusive.—Royal Horticultural Society, South Kensington. Mr. William Paul's Special Show of Hyacinths, Tulips, Roses, and other spring flowers.
31.—Royal Botanic Society, Regent's Park. Spring Show. Sec., W. Sowerby.

April.

4.—Special Exhibition of the Royal Horticultural Society of Antwerp.
7.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.
21.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.
22.—Royal Horticultural Society of Ireland. Spring Exhibition. Sec., A. Balfe, 28, Westland Row, Dublin.
27.—Manchester Botanical and Horticultural Society. Exhibition of Auriculas, &c., in the Town Hall. Manager, Bruce Findlay.
28.—Royal Botanic Society, Regent's Park. Spring Show. Sec., W. Sowerby.

May.

1 to 10, inclusive.—Royal Botanic Society, Regent's Park. Mr. William Paul's Special Show of Roses, Pelargoniums, &c.
1 to 24.—Royal Botanic Society, Regent's Park. Special Exhibition of Clematis, by Mr. G. Jackman.
7 and 8.—Exhibition of Plants and Flowers in the Kibble Conservatory and Royal Botanic Garden, Glasgow. Manager, Robert Bullen.
12.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees. Pot Rose Show.
14 to 21.—Manchester Botanical and Horticultural Society's Annual National Exhibition, at the Garden, Old Trafford. Manager, Bruce Findlay.
17 and 18.—Halifax Floral and Horticultural Society's Annual Exhibition. Sec., Leonard Kershaw, 20, Gladstone Road, West Hill Park.
20.—Royal Horticultural Society of Ireland. Early Summer Exhibition. Sec., A. Balfe, 28, Westland Row, Dublin.
22.—Crystal Palace Great Flower Show. Sec., F. W. Wilson.
26.—Royal Botanic Society, Regent's Park. Summer Exhibition. Sec., W. Sowerby.
26.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.
31.—Coventry and Warwickshire Floral and Horticultural Society's First Show of the Season. Sec., Thomas Wigston, 3, Portland Terrace, Lower Ford St., Coventry.
31 to June 4.—Bath and West of England Society's Exhibition at Croydon.

THE

Gardeners' Chronicle.

SATURDAY, MARCH 20, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

Monday,	Mar. 22	Unreserved Sale of Nursery Stock, at "The Nurseries," Leatherhead.
		Sale of Rare Lilies and Coniferous Seeds, Tree Ferns, &c., at Stevens' Rooms.
Tuesday,	Mar. 23	Sale of "Meredith's Vineyard," Garston, near Liverpool, by Protheroe & Morris.
		Sale of 380 Pens of Poultry and Pigeons, at Stevens' Rooms.
Wednesday,	Mar 24	Sale of Hardy Trees and Shrubs, Roses, Bulbs, &c., at Stevens' Rooms.
		Sale of Lilium auratum and Chinese and Japanese Manufactures, at the Guildhall Tavern, Gresham Street, by Protheroe & Morris.
		Spring Exhibition of the Glasgow and West of Scotland Horticultural Society.
Thursday,	Mar. 25	Sale of Established and Imported Orchids, at Stevens' Rooms.

THE season is late, and so far less protection for FRUIT BLOSSOMS (or protection, at least, for a shorter period) will be needed. Everything, however, ought to be held in readiness, for with a change of weather will come a rapid development of the blossoms and the danger period. Unopened blossom-buds are protected by the best of all coverings—those provided by Nature. The scaly coverings of buds have a resisting force out of all proportion to their relative thicknesses; they also present the substance of the bud in the best possible form for bearing the greatest amount of cold with impunity. By bringing the parts of the flower together as they do, the whole substance of the flower is interposed between the frost and the ovary or young fruit in the centre of the bud. The flower by these matchless arrangements protects itself, and especially its most vulnerable and vital parts, from excessive cold.

But no sooner do the flowers expand, than all those cold-resisting powers provided by Nature are either weakened, or altogether removed. The first efforts of growth consist in an unclothing process. Bud coverings are unwrapped and thrown off in obedience to the alluring stimulus of warmth; hence the tenderness of early growths. When more progress is made everything becomes hardier, stronger, and endowed with greater powers of resistance. Unfortunately, the fickleness of our climate reaches its extreme point at the season when our flower-buds present themselves all unclothed to its influence; hence the necessity that arises for artificial, as we call it, protection. The phrase is, however, unfortunate: it would be more true to call the protection we afford natural. Our clumsy modes of applying protection are artificial enough, but the protection arrived at is an attempt to place the trees under more natural conditions than our variable climate provides for them in the spring.

The fact is, we place the trees of a Persian climate, say, on our walls, and then talk of our moist atmosphere as their natural climate. This is quite a mistake. Those who by the most skilful protection of their trees can place them under circumstances most nearly like the conditions under which they grow in their native country are those that follow Nature most closely; and those who leave the trees to battle with and succumb to our climate are the most artificial, and, we may add, superficial cultivators.

Nor must it be forgotten that the original nature of plants is little changed by art. Much that has been written, and more of what is believed concerning acclimatisation is sheer fallacy. By little of actual fact can be sifted out of the masses of chaff to prove that any plant is one whit hardier than it was when first imported, though we do not go to the extreme of denying the possibility of such a change, or even its occasional existence.

Take the Peach, Nectarine, and Apricot, for instance. They are as warm-blooded and excitable as when first grown in England. Though they have been cut by spring frosts, to the utter ruin of the crops and the crippling of their energies throughout centuries, they are just as ready to open their flowers on the first bright day and offer them up to the frosts of the first frosty nights, as when first introduced. And so with other plants: safety must be looked for, not in endowing plants with greater powers of endurance than Nature has given them, but in surrounding them, as far as we can, with the natural conditions that Nature provided for their safety in that particular climatal niche that she intended them to fill.

Looked at thus the question of protection is settled once for all in the affirmative. We have only to determine the time, mode, materials, and extent of it. In regard to time, that, too, is settled by condition. No good, but much harm, may come of protecting too soon. As already stated, while the bud-scales remain on they form the best protection; just as they are about to be cast off our help becomes necessary. In early seasons this may happen in February. In a season like this protection may not be needful till the middle of March; applied too soon it weakens the trees, and in so far as it weakens it injures—applied too late the injury of a frost-bite cannot be retrieved by any mode or means of protection. Neither must our artificial protections be continued too long; Nature, after a time, supersedes our clumsy expedients by growing better protectors for herself. Art may assist, but should never attempt to supersede Nature. Whenever it does so it fails. Thus Nature's winter protectors are sufficient till they are thrown off in obedience to its summons to grow in the spring. And again, as soon as the wood-buds develope into shoots our artificial protection may be withdrawn. If left on too long it induces weakness, and breeds hosts of insects that prey upon the tender growths of the trees. Measuring the importance of the protection afforded by the young branchlets, the skilful cultivator will not disbud much nor remove many of the young shoots until the danger from spring frosts has passed away. Neither does the tree suffer loss, but the reverse, from late disbudding. The young shoots drain the trees but little during their first stages of growth, while they wake up the sleeping energies of the roots and quicken them into new activity. As the weather becomes milder disbudding may be proceeded with tentatively, reserving as far as possible not only the shoots that will best furnish the tree with wood, but likewise those that will most effectually protect the young fruits from injury. As to the mode of protection all methods have been tried almost—from absolutely covering the entire wall for a time with glass to the placing of an extra coping of wood to project beyond the wall coping. That method is the best that effectually moderates the energy of radiation. That energy is greatest towards the open sky, and consequently the most efficient modes of protection are those that deal chiefly with the top of walls. It has been found, for instance, that a wooden coping, a common or straw mat, laid on brackets along the upper part of a wall, has afforded more protection than a thin screen of bunting enclosing the entire surface. The reason is not far to seek: the vertical projecting protectors cut asunder the energy of celestial radiation, and left the wall and its surroundings in almost undisputed possession of what may be called the local supply of caloric. There is also another, though perhaps less obvious, reason for the efficiency of what may be termed horizontal protectors placed on the top of walls. They create more or less of motion, or currents. This, which at first sight may seem to result in a lower temperature, really acts as a moderator to and preventor of extreme cold. Air in motion frustrates the energy of radiation, and hence it is found that a body of air enclosed by the flimsy meshes of a net or canvas may be absolutely colder than if no such protection were given. The protection, while of little service in directly excluding cold, keeps the air still, and this helps radiation to exert its full and most natural cooling force upon it.

In regard to materials, doubtless opaque substances, such as wood, thick mats, straw, reeds, nets, common bunting, &c., are the most efficient. The thicker the greater their protective force; and if we wanted to cover dead substances, or even dormant plants, the question would be narrowed to the single point, to find the cheapest material to exclude the most cold. But in protecting tender plants in a state of growth, and the blossom of fruit trees, the problem to be solved is a much more complex one. Extreme cold must be kept out, and every ray of light let in. Hence, if opaque protectors are used, they must be so contrived as to be readily portable, and only employed when absolutely necessary. Canvas and other screens should be mounted on rollers, or suspended by rings or iron bars, to be pushed or rolled off and on when wanted. To save all this labour, and to find a substitute for opaque protectors that shall be better than either—all of this has long been a problem among fruit growers. That problem seems at last to have been almost solved by the very thick, rough, or rolled plate-glass protectors, placed under the wall copings. These afford shelter without shadow, and are frost-proof up to about 10°. During very severe weather it has been found that their efficiency is much strengthened by being smeared over with whitewash.

As to the extent of protection, care must be exercised not to overdo it. It should be applied as late and removed as early as possible. Neither must the amount of it be excessive. A glass coping, 18 inches wide for instance, is as near perfection as may be; but a wooden one of the same width is excessive, as we noticed last year, where wooden copings blanched the trees towards the top of the wall into great weakness, while under glass copings of the same width they were in perfect health. Further, all glass copings and protective expedients of all

kinds should be removed early in May, or sooner, if the growth of the trees and the state of the weather permit; and during the time glass copings are on the trees, should dry, mild weather set in, it must be borne in mind that the copings which keep out the cold and consume the heat, likewise exclude the refreshing showers and stimulating dews, and the loss of these should be supplemented, as far as possible, by frequent syringings and sprinklings of the trees overhead.

We have little to say to those who condemn all protective expedients. If recent springs and failures do not teach the necessity of protection, neither can any words of ours. It seems something akin to reckless improvidence to trust the most valuable crops of the year to the tender mercies of our English climate. Facts and experience alike point to protection during the blossoming and earlier stage of growth of our fruit crops as mightily increasing the probabilities, if not guaranteeing the certainty, of a crop. That being so, we are bound to protect wisely and well, at the best time, in a proper manner, with the right materials and to the right extent. Doing this a crop of fruit and healthy trees will generally be the rich and satisfying reward. To trust to chance for immunity to our fruit crop in the spring is neither worthy of the knowledge, ability, nor appliances of modern horticulture.

—— On various occasions we have referred to the flower shows connected with the annual exhibitions of the Bath and West of England Agricultural Society. This week we have an opportunity of giving an illustration of a group of plants, including Verschaffeltia, Lilium auratum, Adiantum Farleyense, &c., which formed part of the last exhibition at Bristol. It will be remembered that these shows are entirely managed by a steward of the Society, the Hon. and Rev. J. T. Boscawen, who sets to work on a plan widely different from that according to which most shows are organised. There is, in fact, no prize list and no competition. The collection is got together solely by the energy and persuasive importunity of the steward. Prior to the show he visits the principal gardens of the neighbourhood, selects those plants which give evidence of the best cultivation, and which are best suited for his purpose, and begs the loan of them from the proprietor. He is seldom or ever refused, and having the material thus at his command, he arranges and stages it as seems to him best. As Mr. Boscawen is well up in plants, and is a man of taste and energy, this plan answers well in his hands, though it is doubtful how far it would succeed in the hands of a less competent dictator. A compliment in money is made to the gardener in each case, the amount varying with the merit displayed in the cultivation of the plant, &c. Under this system every gardener deemed worthy of exhibiting at all is sure to receive something, for there are no blanks, but all prizes. We look forward with much interest to the show at Croydon in June next, when, as we have already remarked, Orchids are to constitute the main feature of the display.

—— Referring to the Death of Mr. Henry Hind, near Naples, Messrs. Gedge, Kirby & Millett, of 1, Old Palace Yard, Westminster, state in the *Times* that "there is much reason to believe that Mr. Hind was murdered by order of the Secret Society of Market Gardeners in Naples. His great skill in the cultivation of flowers had enabled him to undersell other florists, and a deputation from that Society had, shortly before his death, waited upon him, and demanded that he should raise his prices, which he had refused to do. His murder would get rid of a rival, and in such matters Naples is as much at the mercy of secret societies as Tipperary. Unfortunately, the fact that Mr. Hind's accession to fortune would remove him out of their way was unknown to the conspirators. Permit us to add that Mr. Hind's funeral was attended by nearly all the resident English and Americans at Naples, and that the chaplain of the English Church, the Rev. Pelham Maitland, addressed the assembly at the grave, paying to the deceased gentleman the tribute of approbation which

Fig. 74.—Group of plants at the Bath and West of England exhibition, 1874.

was justly his due, and stating the reasons which had convinced the authorities that he had been murdered, and thereupon a subscription was commenced for a reward for the discovery of his murderers. Mr. Calvert, Her Majesty's Consul, will receive donations, and he is co-operating with the Neapolitan authorities in their vigorous and systematic inquiries. Mr. Hind's gardener has been arrested."

—— We find that the Pink Lily of the Valley, which is inquired for at p. 348, is included in Mr. T. S. Ware's last *Illustrated Catalogue*, under the name Convallaria majalis rosea, the flowers being "of a decided rose colour." This variety was cultivated as far back as the time of Gerarde, who says—"The kinde with the red floure is a stranger in England, howbeit I have the same growing in my garden." Martyn speaks of it as having remained true in cultivation to its "reddish or red" colour for above forty years; and both double and single red Lilies of the Valley, as well as a form having large white flowers variegated with purple, are mentioned by Phillips in the *Flora Historica*. Mr. Stratton records the occurrence of two large patches of Convallaria majalis in one of the combes of the Quantock Hills, the flowers of which were of "a full pink, inclining to rose, with no trace of any purple tint."

—— The dinner of the Royal Agricultural Benevolent Institution, at which His Royal Highness the Prince of Wales will preside, will take place at Willis' Rooms on Saturday, June 5.

—— We clip the following from the *Richmond and Twickenham Times* of last week:—

"From outside the gates of Osterley Park, the residence of the Duchess of Cleveland, is being removed the fallen trunk of a tremendous hollow tree, known as the King's Retreat, and the following anecdote is related as to the manner in which it received its royal name. King George II. was on visiting terms with a Mr. Richardson, the then owner of Wyke House, now the residence of Dr. Willett, and His Majesty, whilst on his way to visit the Earl of Jersey, at Osterley House, in company with Mr. Richardson, was prevented from proceeding by a violent thunderstorm. On presenting himself at the lodge for shelter, and stating who he was, the lodge-keeper disbelieved him, as she considered the King would never be so modest as to walk, and refused him admission. The lightning struck the tree and opened its trunk sufficiently to hold the King as well as Mr. Richardson, and since then the tree has been named the "King's Retreat."

—— The thirty-first annual competition of the Scottish Pansy Society will be held in the Music Hall, George Street, Edinburgh, on Friday, June 18.

—— We perceive, from a recent number of the *Journal of the Central Horticultural Society of France*, that discussions have arisen in that body as to the possibility of Grafting Potatos. While M. Royer is of opinion that it is impossible to effect this, M. Vavin takes the opposite view, and exhibited specimens in support of his assertion, which the Society declined to pronounce any opinion upon, as none of the assembled members had been present when the Potatos exhibited by M. Vavin were dug. M. Duchartre insisted on the importance of ascertaining clearly whether there really was any union of stock and scion in these cases. He leant to the opinion that new tubers might be formed in such cases either from the stock or from the scion, or from both together, but considered it very doubtful if grafting ever occurred. M. Rivière stated that he had tried the experiment in vain, never having succeeded in getting union. On the other hand, a case is cited from the *Botanische Zeitung*, January 15, 1875, where a portion of a white tuber was engrafted on a red one, with the result that new tubers of intermediate character were produced. In this country, as is well known to our readers, numerous experiments have been made by Mr. Fenn, and some who once were sceptics have converted. Certainly the results shown on more than one occasion by Mr. Fenn were sufficiently remarkable, and were commented on by us at the time. The few experiments made by ourselves were negative, except in one case, where decided adhesion took place between the inserted portion and the old tuber. M. Duchartre talks of *soudure*, but no such fusion takes place in ordinary grafting. Again, the production of a thin layer of corky cells over the edges of the wound would, we imagine, not necessarily prevent adhesion, as a similar layer of dead tissue becomes of necessity interposed, in most cases, between the stock and the scion, as pointed out by Mr. Murray. It is a great pity an interesting question of this kind is not definitely set at rest at Chiswick, or in some other experimental garden, where all stages of the process might be carefully watched by competent observers. If no grafting takes place, how can we account for that abundant production of mongrel tubers of all sorts, sizes, colours, and shapes, such as those exhibited by Mr. Fenn? If by "sporting" only, why such an outburst of this not uncommon phenomenon under these peculiar circumstances? Of course we place perfect confidence in the veracity of Mr. Taylor of Fencote, who asserts positively that Yorkshire Hero was produced in this way, but the accuracy of the observation is at least open to question. We should ourselves think much more likely Mr. Fenn's oddities were the result of the grafting process than that so perfect a tuber as the one mentioned originated, *tout d'un coup*, in this manner.

—— The following schedule of prizes has been decided on by the committee who are promoting the Potato Exhibition, to be held in London during the autumn of 1875. Other special prizes are anticipated, and they will be published in a complete form when the arrangements for holding the show are completed. The time and place will be shortly announced by advertisement:—

List of Classes open to all Comers.

		1st.			2d.			3d.			4th.		
		£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
A.	24 varieties, distinct, 9 tubers of each ..	8	0	0	6	0	0	4	0	0	2	0	0
B.	12 varieties, distinct, 9 tubers of each ..	5	5	0	3	3	0	2	2	0	1	1	0
C.	6 varieties, distinct, 9 tubers of each ..	3	3	0	2	2	0	1	1	0	..		
D.	6 varieties, distinct, kidney-shaped, 3 white and 3 coloured	3	3	0	2	2	0	1	1	0	..		
E.	6 varieties, distinct, round, 3 white, 3 coloured	3	3	0	2	2	0	1	1	0	..		
F.	Best dish of 9 tubers of any white round	1	0	0	0	15	0	0	10	0	..		
G.	Best dish of 9 tubers any coloured round	1	0	0		15	0	0	10	0	..		
H.	Best dish of 9 tubers of any white kidney	1	0	0	0	15	0	0	10	0	.		
I.	Best dish of 9 tubers of any coloured kidney	1	0	0	0	15	0	0	10	0	..		
	Special Prizes.												
	By Messrs. Sutton & Sons, Reading.												
K.	18 varieties, distinct, 9 tubers of each; Silver Cup, value ..	5	5	0	2	2	0	..			..		
	By Messrs. Hooper & Co., Centre Row, Covent Garden, W.C.												
L.	12 varieties of American, distinct, 9 tubers of each: Silver Cup, value ..	5	5	0	2	0	0	..			..		

—— The Orchids are now a prime feature in the London Nurseries. Looking through Mr. B. S. Williams' collection the other day, we noticed in the Cattleya-house a fine variety of Dendrobium Wardianum, with larger flowers than usual; Vanda suavis and V. tricolor, Cœlogyne cristata, Lycaste Skinneri, Lælia-Turneri (very rich in colour), Cypripedium villosum, and Odontoglossum triumphans. In the East India house, Phalænopsis Schilleriana, grandiflora, and amabilis were all numerously represented. Aerides Fieldingi was making a beautiful show; Cymbidium eburneum and Calanthe Turneri were also among the *pièces de résistance*, together with the new Cypripedium Roezlii and C. Lowii. Dendrobium lituiflorum will shortly be finely represented by an aggregate of twenty spikes on several small plants. Amongst the cool Orchids the gem at present is a plant of Masdevallia Lindeni, with twenty-five flowers and buds. M. ignea was represented by a single flower, while on one plant of Odontoglossum Alexandræ there was a spike of sixteen flowers, very fine in size. Oncidium cucullatum, Odontoglossum luteo-purpureum, and O. Uro-Skinneri were also to the front; and Cœlogyne flaccida, though it had been flowering for a long time, was still in a fresh condition. We were also glad to see Disa grandiflora making very strong growth in the same department.

—— A cordon of Horticultural Societies is being rapidly drawn around the metropolis. Fortunately this bodes nothing evil to the inhabitants of this wilderness of bricks and mortar; on the other hand, it may be taken as indicative of a considerable advance in a horticultural direction by the residents in suburban districts, who are the chief promoters of these societies. The Royal suburb of Richmond—that most famous of all Cockney resorts—is about to possess the advantage of a horticultural society. A movement recently set on foot has been so far favoured that already a good list of subscriptions has been promised, numbers of gentlemen, and professional as well as amateur horticulturists, have given in their adhesion, and a large aggregate meeting of all interested is to be held in the town on the last day of the month, when a managing committee will be appointed. Surely a better locality for a flower show could scarcely be found. We hear also that a movement in the same direction is proposed in the locality of Isleworth and Hounslow. In a neighbourhood so densely populated, and one in which reside many of our metropolitan exhibitors, it should be a matter of comparative ease to establish a strong and active society.

—— We understand that Mr. Eyles, now that his services are no longer retained by the Royal Horticultural Society, intends to devote the whole of his time and energies to landscape gardening, in so far as relates to the furnishing of designs for and superintending alterations and improvements, in the laying out of grounds as public and private gardens, the construction of horticultural buildings, &c. Mr. Eyles has already earned some reputation in this department of gardening, during the period in which he was connected with the Horticultural Society, having devoted a portion of his time to advising on these matters. His future address will be 44, Eardley Crescent, South Kensington, S.W.

—— The following gentlemen have agreed to act as a committee for the purpose of raising a fund for the benefit of the widow and children of the late Mr. Wilbraham Buckley, of Tooting, so well known as a plantsman, who, in consequence of his long illness, have been left totally unprovided for:—James Brand, Esq., chairman; J. S. Bockett, Esq.; C. Gassiott, Esq.; S. Rucker, Esq.; Dr. Cooper Forster, Dr. Moore, Mr. Harry Veitch, Mr. Bruce Findlay, Messrs. Barr & Sugden, Mr. T. A. Dickson, Mr. G. Deal, Mr. Penfold, Mr. Howard, Mr. J. C. Niven, Mr. Baxter, Mr. Thomas Moore, Mr. W. Robinson, Mr. Thomas Ware, Mr. R. Parker, and Mr. James Wood; Mr. G. T. Rollisson being honorary secretary. Subscriptions will be thankfully received by any member of the committee.

—— Mr. Andrew Campbell, of the glass department, Stamford Nursery, Bowdon, has been appointed to the situation of head gardener at the Southport Winter Gardens.

—— Gardenia Stanleyana, a species very rarely seen in flower, is now blooming in the stove at Kew. There are eight expanded flowers, with many others advancing. The habit of the plant is remarkable; from the central stem the branches spread in a perfectly horizontal manner, forming flat surfaces of foliage. Its leaves are oblong, acuminate, shortly petioled, entire, and glabrous. The buds are at first erect, inclined considerably with increasing weight. Compared with the more familiar members of the genus, the corolla in form is remarkable; it measures, when fully extended, about 9 inches in length, and about 4 inches across from tip to tip. The tube is 6 inches long, slender, and dark purple, expanding into a campanulate mouth, green without, and ten-ribbed, purple within. The limb is composed of five broadly ovate spreading segments, at length reflexed. They are white, with irregular oblong purple spots, not extending to the margin. The lobes are peculiar, in having a longitudinal band of colour on one side, lighter in shade than the spots. This is not represented in the figure published in the *Botanical Magazine* of 1845. It may not, however, be constant, though strongly marked in this instance, especially on the under-side, where there are no spots. There is also a decided obliquity, the white side being the most rounded. This species was sent to the Right Hon. the Earl of Derby, by Mr. Whitfield, from Sierra Leone, "and assuredly one of the most remarkable and beautiful of the plants which that gentlemen has had the satisfaction of introducing to our collections." At first there was evidence of its being a free flowering plant, but subsequent experience has proved it the reverse; though perhaps with suitable treatment it may be made to flower annually. That accorded to the above plant may be of interest. About this time last year it was potted in soil consisting of fibrous loam, with a good part of peat, and a portion of dung. Of the latter a mulching was given afterwards. It was then plunged in a bed, with a bottom-heat temperature of 85°, where it remained during the summer, making good growth; and in the autumn was removed to its present position in the stove. Liberal treatment appears to be an important point in the cultivation of Gardenias, the heat and vapour of a dung-bed during the season of growth is found to be very congenial. G. Stanleyana is kept in stock at most of the nurseries.

—— Some of the French papers are recommending the cultivation of Lathyrus tuberosus as a substitute for the Potato. The tubers are very palatable, but we are not aware of any attempts having been made to cultivate them on the large scale.

—— We learn from Brussels that the Royal Flora Society of that city intends to celebrate its hundredth exhibition by an International Exhibition of great magnitude, and by a Botanico-Horticultural Congress. The exhibition is to be held from April 26, 1876, till May 4. This intelligence will, we fear, be received with some consternation and much regret. Amsterdam has clearly the priority, having announced her intentions so long previously. Should it not be practicable to adjourn the exhibition at Brussels, we trust that it may be judged convenient to carry it out on a less ambitious scale, so as not to interfere with the success of the exhibition proposed at Amsterdam.

Home Correspondence.

Foliage for Rose-buds. — The numbers of flowers suitable for "button-holes" which can be procured at all seasons of the year is very limited. Amongst these there is no more general favourite than a Rose-bud, and particularly the buds of Tea-scented Roses. It is usual to place a leaf or two of their own foliage at the back of the flower, and one or two leaves of the Fairy Rose in front, and sometimes a spray of Maidenhair Fern is also introduced. Though these leaves are usually supported by fine wires, they rarely survive exposure in a hot room for more than six hours without flagging, even if kept in a tube of water; while the Rose-bud, if so treated, will look well for a couple of days. In winter Roses are so costly that they are worth saving as long as they will last; and I am glad to report having found some foliage which goes capitally with Rose-buds, which wants no wiring and which outlives the Rose, in the leaves of starved plants of Balm of Gilead (Dracocephalum canariense), a small branch of which has been in my coat for five days, and looks fresh still. It is very sweetly scented. *W. T. P.*

The Opening of Flowers.—In addition to the plants noted at p. 310 as opening their flowers at stated hours, I have myself noticed that Passiflora trifasciata commences to open its small white flowers about 9 A.M.; they are fully expanded at 10 A.M., and closed for ever at 11 A.M. The flowers of this plant may no doubt be often overlooked on account of their small size and want of colour. *T. Smith, Newry.*

Streptocarpus Saundersii. — Mr. Gumbleton recently made some inquiries concerning Streptocarpus Saundersii, and where it could be obtained. As no one seems to have answered his inquiry, he and others may perhaps be glad to know that Mr. T. Cooper, Holmesdale Road, Reigate, Surrey, had a stock of it a year or two back, and, I believe, has still. Some of them were, I think, raised from seeds collected by himself at the Cape of Good Hope. He had also, in 1873, a few plants that were raised from seeds of S. Saundersii, at Mr. Saunders'; these were a very distinct variety of the parent plant, having more numerous and smaller drooping flowers, of a delicate waxy white colour, faintly tinged and spotted with lilac, and proved to be really a very charming variety of the beautiful S. Saundersii. It may be well to mention that among the dried specimens collected by Mr. Cooper is a Streptocarpus that appears to be the same as the variety raised by Mr. Saunders; it is therefore probable that it is purely a natural variety, and not one brought about by the altered conditions of the plant under cultivation, or it may be that the plant is dimorphic, as the same batch of seed produced the true S. Saundersii, as well as the variety. *N. E. Brown.*

The Wild Daffodil.—I have read with some surprise the letter of your correspondent in last Saturday's *Gardeners' Chronicle*, who states that if Narcissus Pseudo-Narcissus be brought into a garden and diligently cultivated it almost always becomes double; whereas, *vice versâ*, if the great double Daffodil be transplanted into a meadow it as surely shortly becomes single. I can only say that I never before heard of the occurrence of either one or the other of these things. My own experience leads me to form precisely the opposite opinion. Some twelve years ago I dug up and brought into my garden a quantity of N. Pseudo-Narcissus; so far from showing any tendency to become double they have very decidedly deteriorated in every way. On the other hand there are two or three meadows in this parish where the great double Daffodil has grown long beyond the memory of the oldest inhabitants, and they are as double and full as any that could be grown by the most experienced Dutchman in Holland. The double variety of N. Pseudo-Narcissus is extremely rare. Mr. Barr was fortunate enough to get hold of a few bulbs last spring, and he has distributed them among his friends. Up to that time I know of no collector who grew them in his garden. *H. Harpur-Crewe, Drayton-Beauchamp Rectory, Tring, March* 15. [Mr. Barr also writes to say that "C. W. D.'s" statements are in direct opposition to anything he has read of or seen in gardens or in fields. Eds.]

Miltonia Warscewiczii.—I do not wish in any way to detract from the beauty of the spike of Miltonia Warscewiczii mentioned at p. 340, still I think it but fair to mention that at the last Whit-week exhibition at the Manchester Botanic Gardens a plant was exhibited by Mr. Mitchell, gr. to Dr. Ainsworth, that had produced two spikes from the leading growth, on one of which there were forty-six blooms, and on the other there were forty, making altogether eighty-six blooms from one bulb. After being exhibited at Manchester, this plant was also taken to Leeds, and staged there among a collection of Orchids shown by Mr. Mitchell. Another plant in this collection had three spikes from the leading growth, which produced seventy blooms. The beautiful triangular form you allude to produced by the number of laterals this plant brings when strong was very apparent in these spikes, and the rich colouring of the labellum, with the curious markings of the sepals and petals, forms an object at once singular and interesting. *W. Swan, March* 16.

Relative Cropping Quality of Potatos.—As considerable attention has been drawn to the cropping qualities of the American sorts of Potatos, I should much like to see a thorough and reliable test of say six of the Americans against six of our most productive kinds, but on equal terms. All who are familiar with these American kinds know that, in a given surface, they usually have double, and oftentimes treble, the number of eyes that good English kinds have. Thus, in cutting up 1 lb. of tubers of any of the former kinds, it is possible to secure from fifty to sixty separate eyes, and if these be planted carefully and nursed a large proportionate crop may follow; but as the latter kinds would, at the most, give but half the number of eyes, they would be placed at considerable disadvantage. To some persons this abundance of eyes may prove a recommendation; but generally, I think, it is not held in esteem, and good cropping kinds that have few eyes, and those shallow, are thought to be the best varieties. Now, if of twelve kinds, as already mentioned, twelve tubers of each sort were selected, all medium sized, and weighing in each case about 1½ lb., and all planted and grown under similar conditions, and each crop lifted and weighed off as soon as ripe, I believe this would constitute a fair relative trial, as I think it would be found that what the Americans gave in size our kinds would equally give in both quality and quantity. *Alex. Dean.*

Midland Counties Exhibition.—The schedule of this Society has been distributed, and I have no doubt that the prizes offered will bring together a good collection of exhibits. The show is to be held from July 1 to July 5, *i.e.*, from the Thursday till the Monday following. Now, in the case of fruit, I think the time much too long, for after the exhibition is over the fruit is worthless—in fact, a loss. I would suggest, therefore, that the fruit exhibited on the first be removed on the close of the second day, and those intended to be competed for on the fifth be staged on the third instead. Intending exhibitors would do well to call attention to this matter at the proper quarter; a short fruit exhibition means fruit saved and exhibitors' expenses lessened. *T. W. Bond, The Beeches, Weybridge, Surrey.*

Eucalyptus globulus.—Your numerous correspondents seem to solicit information respecting this tree, and the high encomiums passed upon it as to its utility in rendering unhealthy situations salubrious, by its powers of absorption and exhalation, have induced many landed proprietors to plant young trees of it on their estates and about their dwellings; but the operation has invariably failed in producing the desired effect, as the tree cannot resist severe frost, and consequently does not last many years. I have frequently seen young trees 10, 20, and even 30 feet high in the Channel Islands, growing vigorously during a period of three, four, or more years in sheltered situations, but on the appearance of severe frost being killed to the ground. I enclose you specimens of wood and leaves, which I cut from a young tree about 20 feet high, growing in the front of Mr. John De Gruchy's house, near St. Saviour's Church, Jersey. You will perceive that the leaves and young shoots are all burned or dried up by the wind and frost, and that, although the wood remains green, the destruction of the leaves or lungs will stagnate the sap and cause the death of the tree. It is evident that it requires a milder and more growing climate than this part of Europe offers, and that continuous growth is essential to keep it in health. The young trees are very beautiful, and often make shoots 6, 8, and 10 feet high in a season, with leaves 6 and 8 inches long, of a rich glaucous blue-green colour, commanding attention by their vigorous and healthy appearance. The seeds are easily obtained and raised; the young plants require but little nursing, and are usually kept in pots during the first season, to be planted out the following spring. The first season's growth is generally very promising, and should the following winter be mild, progression is very rapid, inducing the belief that all previous attempts to grow it have failed through the insufficiency of the experimentalists; but the third or fourth winter being a little more severe than the previous ones, proves the correctness of the theory, that the Eucalyptus is not sufficiently hardy for our climate. We have very severe weather here just now. *C. B. S., Jersey, Feb.* 23. [It ought to be understood that this Eucalyptus is not generally hardy in England, though it may survive in favoured localities in the south-western districts, and also in some parts of Ireland. Eds.]

Pine Sucker Fruiting Young.—I feel curious to know what is the shortest time known for growing a Pine from a sucker (without a root) till the fruit is cut. We have a Queen Pine here, taken from the parent stem on the 5th of last August. "This one," said my foreman, "is large enough for a fruiting pot," to which it was consigned without loss of time, and plunged in a bottom-heat of about 100°—not too high, other things necessary to success being in proportion. It soon started into growth, and by the end of October was gradually rested, with a pot full of fine healthy roots. The treatment now was exactly the same as that given to others required to be started by January 1—all Queens—which showed fruit fourteen days after fresh excitement. The sucker (still called the sucker) did not "show" till February 1, and, judging from its appearance now, we hope to cut a fruit fully the average weight of Queens by the end of May—within a period of ten months. *T. W. Bond, The Beeches, Weybridge, Surrey.*

Madresfield Court Vine.—I can highly recommend the Madresfield Court Grape to Mr. Martin (p. 312) for planting in an early vinery. I grafted it on the Hamburgh in 1872 in my second early vinery, so that I have my third crop just about commencing their second swelling. I commenced cutting them last year on April 21, and their size, colour, and flavour were everything that could be desired. It has never shown the least signs of cracking with me. The Vines are planted inside close to the front wall, which is arched, so that the roots run outside as well as in; in fact, I look upon it as the finest Black Grape we have. I grow it at the cool end of a Black Hamburgh house, 50 feet long by 20 feet wide, and it is ripe in ten days after the first Black Hamburghs at the hot end, while it sets as freely as the Hamburghs. I intend planting one in the early house, which is now (March 8) colouring fast, and will be ready for cutting in about ten days. The Madresfield Court in my opinion is A 1 as a second early or summer Grape, but for a late keeper I would not recommend it, for if the least damp gets into the bunch it goes like ice before the sun. *James Smith, The Gardens, Waterdale, St. Helen's, Lancashire.*

Blue-flowered Hortensias.—The *Journal Officiel* of France mentions that much has been and is still written on the causes which affect the red blossoms of the Hortensia, converting them into blue, consequent on their cultivation in certain soils. The action inherent in the soil occasioning the blue tint has been attributed to the special presence of certain qualities—a question at present little understood. A fact related in the Hamburg *Agricultural Journal* gives weight to the opinion that the blue shade of the Hortensia owes its colour to the iron nature of the soil. M. E. Siebert states that his attention having been drawn to this subject, he was able to profit by an experiment made by one of his acquaintances on a layer of ferruginous earth. Having procured a quantity of earth he planted it with Hortensias, care being taken to divest the roots of all previous soil by thoroughly washing them. At the end of the following July the plants, instead of producing red, were covered with blue flowers. *B.*

Linum trigynum.—Few things are more useful for winter blooming than the above plant, and yet one seldom sees it in good condition. This arises from its being commonly treated as an ordinary greenhouse plant, whereas, to grow the plants in really good style, and free from red-spider, they require special treatment, while the temperature of an intermediate house or warm conservatory is necessary to induce them to unfold their blooms properly. Plants propagated at his season, and grown freely on, invariably form the best stuff for flowering the following winter; and if a small house or pit can be devoted to them, their requirements as to shade and atmospheric moisture can be much better attended to than if mixed up with other things. Old plants put to work now in moist heat will soon afford the necessary quantity of cuttings. These should be inserted in cutting pots, made up principally with leaf-soil or peat, with a dash of sand. Most soft-wooded things emit their roots much more freely in cutting pots filled with fine leaf-soil than they do in the hard, barren mixtures of sand and loam too commonly used for propagating purposes, and after rooting they can be more readily separated without injury than they can if inserted in the latter. As soon as the cuttings are rooted they should be potted in small pots, in a mixture of leaf-mould and loam, or peat and loam, in the proportion of two-thirds of the former to one of the latter, as they are fond of loose decomposed vegetable matter, in which they root and grow with great freedom. After potting they should be placed in gentle heat, where they can be well syringed and kept growing steadily on. Continue to shift into larger pots as they require it, using the same free open kind of soil, in which the roots will be found to run with great freedom. By the end of May they may be transferred to a cold pit, and if there should be sufficient depth to hold a few leaves or tan, to afford a slight bottom-heat, they will succeed all the better. In any case they should

be plunged in some material, so as to keep the roots in a uniform state as to moisture, or red-spider is sure to attack them if they are allowed to become dry. It will be necessary to afford them a thin shade for two or three hours during the hottest part of the day, and before shutting up they should have a heavy syringing, so as thoroughly to wet the leaves both on the upper and lower sides. If this is not attended to they are very liable to the attacks of red-spider, and once this pest makes its appearance on them the plants are soon disfigured and worthless. The mistake many make in growing the Linum is in treating it as an ordinary greenhouse plant, and under such *régime* it only partially succeeds. To get the flowers to open freely, it is necessary to give it the temperature of an intermediate house or warm conservatory; and in a temperature of this kind, if the plants have been previously grown properly, they will be a blaze of bloom and last in perfection the greater part of the winter. *J. Sheppard, Woolverstone.*

Count Kerchove's Conservatory.—We give this week two small illustrations (figs. 75, 76) of the interior of Count Kerchove's Winter Garden at Ghent, and which we were unable to publish last week with the descriptive letterpress. In the one is shown the stairs leading to the rock-work, in the other is shown a group of Tree Ferns, Palms, &c., which serve to show something of the magnificence of the building and its contents.

Reports of Societies.

Royal Horticultural: *March* 27.—W. A. Lindsay, Esq., in the chair. The Rev. M. J. Berkeley read a short communication from Mr. W. Gardiner, gr. to E. P. Shirley, Esq., Eatington Park, Stratford-on-Avon, on a plan of preserving Apples which had been bird-pecked, and which simply consisted in dropping a spot of liquid sealing wax on the place while the fruit is hanging on the tree. In the specimens before the meeting, the plan seemed to be perfectly successful. It was then stated that the Euphorbia punicea shown by Mr. Murrel was imported from Jamaica in 1778, and had been figured in the *Botanical Register* so far back as 1817. Attention was called to a plant of Cattleya amethystoglossa remarkable for the number of flowers on the spike. These were not, however, individually so large as those figured in Warner's *Select Orchidaceous Plants*, nor were they so deeply spotted. A cut flower of Cypripedium villosum was sent by Major Berkeley, to show the persistency of the flowers, this one having been cut a fortnight, and mention was made of a fine specimen in a collection sent by Mr. B. S. Williams. This plant has not at present been figured in any of our more popular illustrated works, but there is a figure in the second volume of Mr. Warner's book. Cut specimens of a Bambusa in flower, said to be B. gracilis, was sent by Mr. Stevens, gr. to the Duke of Sutherland at Trentham, but it would probably prove to be an Arundinaria. Mr. Berkeley stated that in general these plants, when they produce seed, die. There are some which flourish for thirty years or more, and then bear seed, after which the plants invariably die. A letter from Mr. Burbidge was then read, in which the writer called attention to some cut flowers of Narcissus Pseudo-Narcissus, and N. Tazetta, received by him from Cornwall on Feb. 5 of the present year. The flowers were then only just expanded, and since their arrival had been kept in a vase of water and moss; with the result that they had nearly attained their full size, and the ovules were in many cases perfectly formed. Mr. Burbidge did not think that in this case they would come to maturity, but he wished to call attention to the fact that many plants which flower late in our climate might be induced to perfect their seeds if the fruit-bearing stems or branches were cut and placed in a light, airy position indoors, in vases of water, moist sand, or sphagnum moss. This was no new idea, others having previously called attention to it, but the fact was not sufficiently known among horticulturists and hybridisers. The cut seed-bearing spike of Hedychium Gardnerianum, shown by Mr. Bennett, gr. to the Marquis of Salisbury, at Hatfield, was most interesting, on account of its beauty and the rarity with which the scarlet seeds are produced. The plant had been very attractive for the last four months, and Mr. Bennett recommends growers of Hedychiums not to be too hasty in cutting down the plants after flowering, the spikes of seed vessels being as attractive and more durable than the flowers. The plant shown by Messrs. E. G. Henderson & Son under the name of Salvia multiflora coccinea, Mr. Berkeley believed to be the same as Salvia boliviensis, figured in the *Flore des Serres*, and which was raised from seed some years ago at Maidstone.

The Chairman stated that he had addressed an official letter to the newly-appointed Governor of Fiji, pointing out the desirability of collecting plants in that country, and asking that such might be sent to the Society. He had not yet received an official answer, but had heard privately that the reply would be a favourable one.

Scientific Committee.—M. P. Edgeworth, Esq., in the chair.

Fruiting of the Narcissus.—The Rev. M. J. Berkeley exhibited specimens of Narcissus Tazetta, &c., from Cornwall, which had set their fruit after having been cut and placed in water. (See *ante.*)

Disease of Scotch Fir.—Dr. M. C. Cooke forwarded specimens of Scotch Fir from the Edinburgh Botanic Garden infested with spots of an imperfect form of Hysterium abietinum.

Monstrous Cyclamens.—Rev. — Rawson sent specimens of Cyclamens with stalked umbels of flowers intermixed with leaves, also partially double and synanthic flowers of the same plant.

Double Cineraria.—Mr. E. Bennett sent additional specimens of the so-called Double Cineraria before alluded to.

Flowering Specimens of Bambusa gracilis.—Mr. Stevens, of Trentham Gardens, showed flowering specimens of Bambusa gracilis (Hort.), a plant which he grew in considerable quantities for decorative purposes, but which had never before flowered with him till this year, when almost every plant produced panicles of bloom.

Mr. Edgeworth remarked on the rarity with which Bamboos flower in India, and on the long intervals which elapse between the flowering seasons. Usually the plant dies after flowering. It has frequently happened that in the year previous to a great famine the Bamboos have seeded, and afforded a welcome supply of nutriment to the natives.

Opium Blight.—Mr. Berkeley commented on the fungi connected with the Opium blight, *à propos* of a report on the table, drawn up by Dr. Cunningham, and entitled "Microscopical Notes regarding the Fungi present in Opium Blight." The fungus seems to be a form of Peronospora.

Fungi in Ant-hills.—A conversation ensued as to the production of edible fungi in ant-hills, as alluded to at a former meeting, and the following extracts from the proceedings of the Agri-Horticultural Society of India were read:—

"In an extract from the *Gardeners' Chronicle* on 'Mushrooms in India,' in the Society's *Journal*, vol. ii., part 1, p. 36, the writer says:—'I cannot conceive white-ant earth being of any use in gardening. The only growth I have ever observed on it, or in the nests, was that of a very small fungus, less in size than an ordinary pinhead, and often mistaken for the egg of the termites, in shape resembling a Button Mushroom of a white colour.'

"I now send you a bottle containing Mushrooms I extracted a few days ago from the centre of a white-ant hillock. When I collected them they were in appearance like Asparagus, over 14 inches in length, and the people about here consider them particularly good eating, partaking of them both raw and cooked, and call them 'Bhuephor.'

"When I read the above article in your Society's *Journal*, somewhat over a year ago, I was then aware that Mushrooms existed in the anterior of ant-hills, for I had often seen them, but I did not know their season of sprouting, and whenever I searched was unsuccessful till the other day. I have now ascertained the season they sprout is the end of August, or the beginning of September, and I believe all ant-hills produce them then.

"These Mushrooms appear to me to proceed from a peculiar substance always found in ant-hills in this country (whether white or black), generally called ants' food, a bluish gritty substance, like coarse wheat-flour turned mouldy and adhesive — in dry weather brittle, and in damp weather like soft leather. It is this substance, under the combined influence of heat, damp, and darkness, from which the Mushrooms grow.

"As my experience is at variance with the writer in the *Gardeners' Chronicle*, you may care to record it perhaps.

"The liquor in the bottle with the Mushrooms is white wine vinegar, which I thought would best preserve them; and to ascertain their true shape and length I would advise your breaking the bottle, for I do not think you can possibly extract them entire otherwise.

"I would like these Mushrooms, if possible, referred to some mycologist, and their names ascertained; and I would like also to know, if the bluish substance, the ants' food, was collected and treated artificially, could similar Mushrooms be raised.

"I know of several other fungi which are eaten by the people here, and considered good food, which on procuring I will forward to you, to be recognised. One in particular I am desirous of knowing more about, to all appearances like a small Potato, and considered the best of all. It is procured from under the ground, and its presence is indicated by the earth cracking, generally near the stumps of Saul trees."

The Secretary next read the following remarks, obligingly furnished by Dr. Cunningham:—

"I herewith return the letter sent to me more than a month ago, along with specimens of fungi said to have been procured from the interior of a white ant-hill.

"The specimens apparently belong to some species of Lepiota, and are chiefly remarkable for the extreme length and coarse fibrous contents of the stem.

"The occurrence of fungi in connection with ant-hills is well-known, but in so far as I am aware those hitherto described as occurring on the hills of the white ant belong to species of the Gasteromycetons order, Podaxinei, so that the occurrence of a species of one of the sub-genera of Agaricus in such localities is a new and interesting fact.

"With regard to the material from which they arise, and which must apparently be of the same nature as the so-called spawn of the cultivated Mushroom, consisting of vegetable *débris* permeated by the mycelium of the fungus, it may be noted that a similar substance is described by Belt as occurring in the nests of the leaf-cutting ants of Nicaragua, and is supposed by him to serve as food, the ants culling and storing the leaves for the sake of the fungi which are subsequently developed in the *débris*.*

* *The Naturalist in Nicaragua*, p. 80.

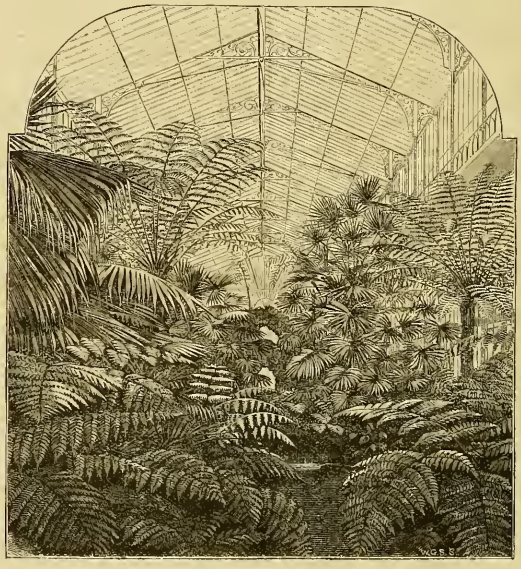

Fig. 75.—View in the Winter Garden of Count Kerchove.

"Were this spawn artificially exposed to conditions similar to those which it naturally encounters in the interior of the hillocks—heat, darkness, and moisture—I believe that the pilei might very probably be raised at will; and if they really are good eating the experiment would be well worth trying."

Reproduction of Yeast.—Professor Thiselton Dyer exhibited under the microscope examples of the ascospores (or endospores) of yeast. These had been described by De Seynes in 1868 in the case of Mycoderma vini. Trécul stated that he had observed them in yeast, but Max Reess had given the first detailed account of them in 1870 (*Botanische untersuchungen über alcoholgährungspilze*). To obtain them it was only necessary to cultivate the yeast which had ceased active growth (*unterhefe*) on a moist slab of plaster-of-Paris in a damp atmosphere. After about ten days the cells of the yeast which had been starved by this treatment developed from two to four spores in their interior. These when placed under appropriate conditions were found to be capable of germinating and so of reproducing actively growing yeast.

Fertilisation of Fungi.—Mr. Renny alluded to some recent discoveries as to the fertilisation of Coprinus.

Phenological Phenomena.—A report on this subject, drawn up by a joint committee of the Royal Agricultural, Royal Botanic, Royal Dublin, Royal Horticultural, Marlborough College Natural History Society, and of the Meteororological Society, was placed on the table. The report consists in a list of the flowers, insects, birds, &c., whose first appearance in spring is to be noted in connection with meteorological phenomena.

Fruiting of Hedychium Gardnerianum.—Dr. Masters called attention to the beautiful specimen exhibited by Mr. Bennett, of the Gardens, Hatfield. Though so common in collections, the fruits had not been hitherto observed. No artificial fertilisation had been resorted to.

The Hyacinth Show.—This was held in the Western Arcade, and, thanks to the liberality of several of the leading nurserymen, was a much better display than could reasonably have been anticipated under the circumstances now so familiar to all. As a Hyacinth show, however, it must be confessed that but for a large and attractive collection staged by Messrs. Veitch & Son it would have been like the play of "Hamlet" without *Hamlet*. The miscellaneous class was the mainstay of the exhibition, so that what is usually alluded to by us at the last must on this occasion be considered first. A silver medal was gained by Messrs. Veitch & Son for a large and important collection of plants, including over 100 Hyacinths, very good for the season, but not so fine as last year; some very good Tulips, Cyclamens, and Crocuses; a showy group of Clematis, including such varieties as Lord Londesborough, Lady Londesborough, Miss Bateman and Albert Victor, with which were mixed specimens of bright coloured Hippeastrums; and a large basketful of Rhododendron præcox var., Early Gem, a new and most valuable variety, with pale rosy purple flowers for spring decoration, the plants being now all out in full bloom in their Coombe Wood Nursery. Mr. John Wills, of Sussex Place, South Kensington, and the Melbourne Nursery, Annerley, S.E., contributed a very extensive group, including amongst flowering plants Narcissus, Roses, Tulips, Hyacinths, Spiræas, Azaleas, Cinerarias, Heaths, &c., and of subjects remarkable as fine-foliaged plants several of considerable beauty and interest. Aralia Guilfoylei was capitally represented, and so also was Cupania undulata, Abutilon Sellowianum, Phyllanthus nivosus, Aralia Veitchii, Croton Weismanni, Cupania filicifolia, Dieffenbachia Bausei, Ficus Parcellii, Phyllanthus mimosæfolius, Terminalia elegans, Phyllarthron comorense, and Xylophylla latifolia, &c., all neat and well-furnished examples. A silver medal was awarded. Mr. B. S. Williams also sent a good collection of flowering and ornamental-foliaged plants, which included Echmea Maria Regina, with a fine spike; Phalænopsis Schilleriana, with fifteen flowers; Dendrobium Wardianum, Lælia elegans, Odontoglossum triumphans, Amaryllis Mendelii, vermilion-red, very fine; Cyclamen persicum giganteum, a very robust grower, with large flowers; Adiantum gracillimum, a fine specimen; with Palms, Dracænas, &c. A silver medal was awarded. From Mr. William Paul came a large and admirably effective collection of Camellias in pots, which were very much admired. By far the greater proportion of the flowers were white, which contrasted beautifully with the rich deep green of the abundant foliage; and these also won a silver medal. A bronze medal was awarded to Mr. J. Aldous, florist, Gloucester Road, South Kensington, for a neat group of capital decorative plants, which included one of the finest specimens in the country of Kentia Forsteriana.

Mr. Douglas, gr. to F. Whitbourn, Esq., Loxford Hall, Ilford, was the only exhibitor of new Hyacinths in the class devoted to varieties which have not before been exhibited, and he took the 1st prize with Diana, single dark blue; Prince Imperial, single purplish blue; Alice, single red; Oxford, single dark blue; Helen, single pale rose; Starlight, single blue. In the class for twelve Hyacinths (amateurs), Mr. Douglas was again 1st with an excellent group, including fine spikes of Von Schiller, single red; L'Innocence, single white; Grand Lilas, single blue; Grandeur à Merveille, single white; Koh-i-noor, single red; Ida, single yellow; General Havelock, and King of the Blues. Mr. G. Toms, gr. to H. Wetenhall, Esq., The Poplars, Seven Sisters' Road, N., was 2d. The same exhibitors also occupied similar positions in the class for twelve Tulips, Mr. Douglas having very strong and finely-flowered plants of Fabiola, Keizerskroon, Chrysolon, orange-yellow, very fine in colour; Proserpine, Van der Neer, and Vermillon Brillant. In the two classes for Cyclamens, the only exhibitor was Mr. Goddard, gr. to H. Little, Esq., Cambridge Villas, Twickenham, who had some truly magnificent specimens, and took both 1st prizes. Mr. Goddard also staged a very large and most striking collection in the miscellaneous class, and took a bronze medal. For six Orchids, Mr. B. S. Williams was 1st with a capital group, including Odontoglossum Alexandræ, with one spike on which were sixteen flowers, all being of fine size and great substance. This was considered to be one of the finest spikes ever seen. The others consisted of Vanda suavis, with two spikes; Lycaste Skinneri, with about a dozen and a half flowers; Masdevallia Lindeni, with seventeen flowers and buds; Cymbidium eburneum, and a fine Cypripedium villosum. Hardy spring flowers were represented by a nice group of eighteen from Mr. R. Dean, Ealing, who took a 1st prize, and also secured the premier awards in classes for Primroses of the Polyanthus and acaulis type.

Of fruit and vegetables the display was very limited. The 1st prize for two bunches of late Black Grapes went to Mr. J. Ridout, gr. to W. S. Brown, Esq., Woodhatch Lodge, Reigate, who had Alicante, good in bunch, berry, and bloom. Mr. W. Wildsmith, gr. to Viscount Eversley, Heckfield, was 2d with Lady Downe's—small compact bunches, fair sized berries, and carrying a splendid bloom. Alicante and Mrs. Pince's Black Muscat, cut from the Vine on December 1, were shown by Mr. Donaldson, gr. to Lord Chesham, Latimers. The 1st prizes for kitchen and dessert Apples went to Mr. T. Parsons, gr. to R. Attenborough, Esq., Fairlawn, Acton Green, who had amongst others very fine samples of Alfriston, Wellington, and Blenheim Orange, &c. Mr. J. Clarke, gr. to the Rev. A. D. Stacpoole, Writtle, was 2d for dessert kinds; and Mr. J. Woodbridge for culinary sorts. The Pears were very poor. Excellent Mushrooms came from Mr. T. Record, gr., Vinters Park, Maidstone; and Seakale from Mr. Clarke.

Floral Committee.—R. B. Postans, Esq., in the chair. A First-class Certificate was awarded to Mr. H. Bennett, nurseryman, Stapleford, Salisbury, for a new hybrid perpetual Rose named Hippolyte Jamain, bright rose, with a fine dark crimson centre; a full, well built flower, and particularly good as to foliage. A fruit-bearing spike of Hedychium Gardnerianum, the scarlet seeds on which were greatly admired, came from Mr. Bennett, of Hatfield; and Messrs. Paul & Son contributed two boxes of very fine forced Roses, and a white Lilac named Alba grandiflora. Messrs. James Veitch & Sons sent a dozen new Hyacinths, but no awards were made in this direction to-day. Four very fine specimens of Cyclamens came from Mr. W. Shorten, Rabbley Gardens, Herts, and gained a Cultural Commendation. From Mr. W. Bull came two plants of the new Phalænopsis leuchorroda, imported with several other new hybrids from the Eastern Archipelago, and described in our columns by Professor Reichenbach, at p. 301 [see also p. 366]. Messrs. E. G. Henderson & Son exhibited, under the name of Salvia multiflora coccinea, a very bright scarlet flowering plant, which Mr. Berkeley believed to be the same as S. boliviensis, figured in the *Flore des Serres*. The same firm also showed Cyclamen persicum multiplex, a variety with two rows of petals instead of one, as in the ordinary form. A specimen of Cattleya amethystoglossa, with one spike, on which were seventeen flowers, and the bright orange yellow-flowered Lælia flava, with three spikes, came from Mr. W. Wilson, gr. to W. Adams, Esq., Chace Park, Enfield. Mr. Murrell, gr. to E. J. Rutter, Esq., Cambridge Park, Twickenham, sent a plant of the old Euphorbia punicea, whose crimson-scarlet bracts contrast well with its green foliage. Tulipa Greigii, a species from the mountains of the Caucasus, and remarkable for its spotted foliage, was shown by the New Plant and Bulb Company, Colchester.

Fruit Committee.—H. Webb, Esq., in the chair. The only objects which came before this body were six brace of the Duke of Edinburgh Cucumber, shown by Messrs. Munro & Wilkinson, of Potter's Barr, N.; some fine specimens of Uvedale's St. Germain Pears and Lowndes' Pippin Apples from Mr. Bennett, Hatfield, and excellent examples of Celeriac, or the Turnip-rooted Celery, from the Society's garden at Chiswick. This vegetable is but little grown in this country, but somewhat extensively in France, where the roots are sent to the table in thin slices to eat with cheese, and also stewed like our Celery.

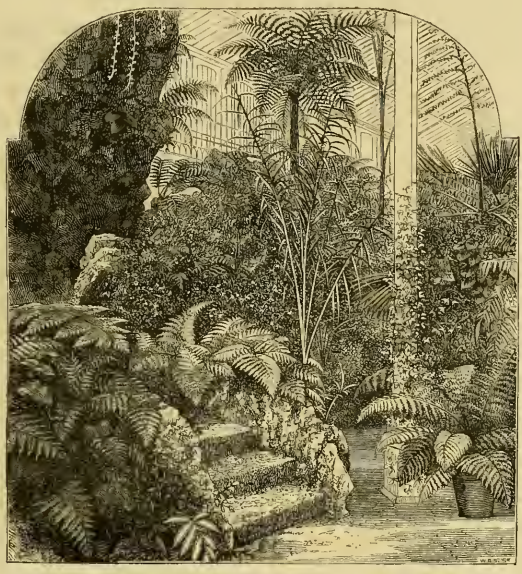

Fig. 76.—View in the winter garden of count kerchove.

Manchester Botanical and Horticultural.—The first show of the current season, held in the Town Hall, King Street, on Tuesday, March 16, presented several features of considerable interest. Upon no former occasion of a show in this room has

so large a variety of plants been introduced; never, perhaps, have there been more of the description styled "new," which term, however, must be admitted to hold a very different sense with the botanist and with the horticulturist; and upon few occasions has the general effect been so lively and pleasing. This came principally from the abundance of bulbous flowers, Hyacinths in particular, and of the beautiful phalanxes of Cyclamens. The gay and cheerful colours of these last made the visitor forget the dulness of the day, which, unhappily, though fine, was not blessed with a single sunbeam, and nowhere in the world are sunbeams more desirable than on the first floor front of the Manchester Town Hall. Hyacinths, however, like the lady in Spenser's *Faëry Queene*, are gifted with the pleasant power that "makes a sunshine in the shady place," and their presence in fair plenty was thus most opportunely useful as well as contributive to the excellence of a display in many respects exceptionally meritorious. The long-continued severity of the weather, the imminent danger of rain and sleet and reduction of temperature, naturally had the effect of keeping away several of the principal local amateurs one is accustomed to give welcome to at the Manchester shows. Their place was well supplied, however, by nurserymen—two or three coming in strength. Amateurs grow plants simply for pleasure, nurserymen grow them for sale; they cannot afford to wait for fine days, when somehow, by a kind of instinct, they seem to stand back and make way for the non-professional. Such, at least, is observable on the occasion of the minor shows in the provinces. The pre-eminent features of the show on the 16th inst. consisted in a group of ten Orchids from Dr. R. F. Ainsworth, which received the Society's Gold Medal; and in a conspicuously well-filled table set out by Mr. B. S. Williams. As very effective among the former may first be named a couple of plants of Dendrobium crassinode, loaded with bloom, and wanting only foliage in order to be perfect. Were it not that the Mezereon, the Almond-tree, the Forsythia, and scores of the Amentiferæ, pleasing enough in their way, have the same fancy for blooming on leafless stems, one might almost suppose it congenerous with the oddity of the Orchideous race in regard to structure and habitations. But the circumstance is too common, and is illustrated in plants belonging to orders too widely different, to allow of its being regarded as anything more or less than one of Nature's fixed, though inconsistent, manners and customs. We have only to remember that Flora is of the feminine gender, and waywardness is the very thing to be expected. The Orchid, however, which most attracted the attention of the *connoisseurs*, was the owner's hybrid, Dendrobium Ainsworthii, a very pretty plant, exhibited a year ago, and described and figured in the *Gardeners' Chronicle*, but then only a rudiment; now it is tall and elegant, and clothed with bloom from head to foot, with green leaves in abundance. After these a very noticeable plant was a beautiful example of Odontoglossum membranaceum. The brownish amber centre of this otherwise pure white flower is very remarkable, being constituted of many broken concentric rings. Lycastes and Cypripediums made up the ten. Mr. B. S. Williams' plants were at once referable to "new and rare," and to highly finished among the relatively old. Such, perhaps, is the division that all collections admit of, or ought to admit of, for high finish is by no means universal: but on the present occasion it was very marked. Among the novelties the grand attraction was a promising plant of the Æchmea Maria Regina, from Costa Rica, of which, we believe, Mr. Williams holds the entire stock in Europe. Its appearance is certainly very imposing. The foliage, as would be expected in a Bromeliad, is of the Pine-apple type; the solitary flower-shaft is clothed at the upper part with large and brilliant magenta-coloured bracts, erect at first, but subsequently pendulous, and at the top of all is a beaded cone, now, before the expansion of the corollas, creamy white, but in due time to be tipped at every point with violet-purple. Geonoma gracilis, in this collection, reminded one of Cocos Weddelliana, for which Palm it will form an excellent companion. Alongside of it were several hybrids, reckoning, of course, as "new" plants, the principal being Amaryllis Mendelii, spacious and brilliant; Cypripedium Argus, curious in its green and chocolate; also several very engaging varieties, counting also as "new" plants, which, of course, they must be allowed to be, so long as difference of structure is not insisted on as passport to the title. Very beautiful in this class were Mr. Williams' examples of Abutilon Sellowianum marmoratum, an immense improvement on the old A. striatum Thomsoni, at all events in the juvenile stage; whether the complexion will be preserved in the adult plant of course remains to be proved. Very inviting, also, as a good dinner-table plant, was Mr. Williams' Anthericum (what species?) variegatum, understood to be a rival of the Pandanus Veitchii, with which it may certainly contend in elegance of form and in coloration, with the advantage, upon its own side, of smooth-edged instead of spinous leaves; Ficus Parcellii, Adiantum gracillimum, Dendrochilum glumaceum, the racemes of tiny flowers looking like skeletons of Wheat ears; Tillandsia Lindeni, reminding one of a blue Iris or Marica; Masdevallia Lindeni, the best specimen ever shown in the North of England. Calamus ciliaris, Dendrobium Jamesianum, and Odontoglossum Roezlii likewise held their own among the new and rare; while of Odontoglossum Alexandræ there was a raceme so grand and luminous that no one at the show entitled to speak could say he had ever beheld the like of it. Mr. Williams came well to the front also with Cyclamens, a bank of about fifty, with a dozen besides of the strain giganteum. To those who remember what the Cyclamen persicum was only thirty years ago, the advance made in the development of this lovely plant is almost incredible. It speaks very plainly for the potentiality of improvement that lies hidden away in floral Nature. If flowers were made for the pleasure and solace of man, it is very certain that man in turn was made for the flowers, just as he was made for the cereals, the vegetables, and the fruit trees, none of which would ever have assumed the forms under which they are now familiar had not the ingeniously constructive animal we designate the human race been introduced upon the scene as workmen on their behalf. How many more flowers are to be induced to follow in the wake, first of the ancient Auricula and Carnation, now of the modern Cyclamen, we do not know; but certainly our florists need not fear that we are approaching even the beginning of the end.

From the Royal Nurseries, Ascot, there were sent up, by Messrs. Standish, some good new varieties of Clematis and Azalea, again very interesting of their kind. We should like to be informed, however, whether this elegant basket of great white stars of Clematis, and that other basket of great lilac stars, placed the plant before the public in the way that it grows naturally, or can even be made to grow. If not, is it quite legitimate so to exhibit such plants? The charm of a lovely plant consists not more in its intrinsic beauty than in its upright and downright honesty in every part. Nothing is more painful than insincerity, or even the suggestion of it, and floriculture, above all things, should never give occasion for the least thought of an untruth. Although suggested by the Clematises referred to, the above remark has far less reference to them as individual examples, which, after all, perhaps they were not, than to incomparably more fragrant ones, alas! only too common, bedding-out, so to speak, in pots. A plant that is really good will always speak for itself, and needs none of the ingenuities of "making-up." Mr. T. Perkins, of Leamington, sent a large basketful of the double Chinese Primula. No doubt the variety is interesting, but as a matter of personal taste we would fifty times rather see the sweet and simple flower of five petals and yellow eye. Mr. R. S. Yates sent some capital trays of cut Camellias and Rhododendrons, and, better still, half-a-dozen beautiful demi-arches of Solomon's Seal, a flower that belongs by birthright to the time of the nightingale, but which he manages to improvise "before the swallow dares." From Messrs. G. & W. Yates came a nice little collection of Conifers, and another of the "sculpturesque" section of plants, Aloes, and so forth. Mr. Thomas Studd, of Heaton Nursery, followed creditably with miscellaneous plants, and gave also quite a new feature to a town-hall show, and more particularly to an early spring one, in the shape of six or eight choice bouquets. We have so often had to look with sorrow upon the floriferous "Mushroom" and its lace petticoat, that it was quite refreshing to note the taste which in Mr. Studd's designs came to the rescue. Mr. S. Cooper, of Timperley (amateur), sent a very pretty lot of early and accelerated spring flowers, chiefly bulbous. Mr. Sherratt brought from Knypersley a grand branch of the Kumquat, loaded with its miniature Citrons; and, lastly, from the Society's gardens at Old Trafford came a showy appendix to the contributions of the outsiders, in the shape of a bank of tropical and greenhouse evergreens, with foreground of the never-too-highly-valued Hyacinth.

The following awards were made by the Committee:—

Collection of Orchids: The Society's Gold Medal, Dr. R. F. Ainsworth.

First-class Certificates for new plants:—Adiantum gracillimum; Abutilon Sellowianum marmoratum; Æchmea Mariæ Reginæ; Amaryllis Mendelii; Cypripedium Argus, Mr. B. S. Williams, Holloway. Primula sinensis, Prince Arthur, Mr. Perkins, Leamington; hybrid Clematis, Mr. Quilter; hybrid Clematis, Mr. Badger; and hybrid Azalea indica, Sigismund Rucker, Messrs. John Standish & Co., Ascot. Cypripedium Harrisianum, Mr. Robert Aders, Whalley Range. Oncidium cucullatum, Mr. W. Leech, Fallowfield.

First-class Commendations:—Miscellaneous collection of plants, Mr. S. Cooper, Timperley. Miscellaneous collection of Palms, Mr. George Toll. Floral Bouquets, Mr. Thomas Studd, Grange Nursery, Heaton Mersey. Cut Orchid Blooms, Mr. S. Barlow, Stoke Hill, Middleton. Cut Camellia and Rhododendron Blooms, Mr. R. S. Yates, Brocklands. Collection of Miscellaneous Plants, Messrs. G. & W. Yates. Grapes, Lady Downe's, Mr. John Rylands.

Cultural Certificates:—Grapes, Lady Downe's, Mr. John Potts, gardener at Manley Hall; Odontoglossum Alexandræ, Mr. B. S. Williams.

East London Amateur Floricultural Society. — This highly successful amateur floricultural society held its Spring Flower Show—and it is the only amateur society that ventures upon such an exhibition around London—on the 17th, 18th, and 19th inst. The exhibition was held at the Bow and Bromley Institute, and consisted of a stage of nearly 400 feet in length, embellished by between 400 and 500 pots of Hyacinths, and nearly as many Tulips, &c. As regards Hyacinths, Tulips, forced Azaleas, Rhododendrons, Spiræas, Solomon's Seals (huge specimens of which were very imposing), &c., it was superior in point of merit to the display at South Kensington on the 17th. Messrs. Hill and Parker staged some remarkable Hyacinths, Tulips, and Narcissi. The spikes of the former averaged 15 inches in length, and had generally ten to twelve tiers of bloom. Narcissi were remarkably fine also, averaging twelve to fourteen blooms to the spike on the generality of the spikes. The special classes were variously well contested, and the arrangements neat and effective. *W. E.*

The Villa Garden.

Kitchen Garden.—As soon as the weather is in keeping with the traditional character of that which should distinguish the time of year, a period of busy, even of restless activity will have set in for gardeners. If any vacant pieces of ground from which green crops have been cleared require to be dug over, let them be manured and dug at once. The drying March winds will penetrate the soil and pulverise it, and render it fit for working for crops when required. Such necessary work as this cannot be got through too quickly.

Peas.—If some early Peas are already sown, then follow on with successional crops of this most popular vegetable. Such moderate growing varieties as James' Dwarf Prolific, Premier, Veitch's Perfection and Omega, a new dwarf variety of Mr. Laxton's raising, are best adapted for small gardens. In large gardens, where space is not so circumscribed, such fine types as Champion of England and Ne Plus Ultra may be sown. Both require to be in good soil. All the varieties of Peas here named belong to the class of wrinkled marrows, which have a branching habit of growth, and consequently should not be sown so thickly as the early round-seeded varieties that branch but very little. The last-named kinds pod mainly at the top of the haulm; the former, or wrinkled marrow type, nearly the whole length of it. The sorts named above can be strongly recommended for exhibition as well as table purposes, if the show takes place from the middle of July to the middle of August. Dishes of Peas form classes in all local shows now-a-days, and this custom serves the excellent purpose of bringing into cultivation in village and cottage gardens the bettermost sorts of Peas of recent introduction. For exhibitions held at the end of June and the beginning of July, and which are somewhat early in relation to outdoor crops, one of the best and most reliable sorts is Laxton's William the First. Peas must have rich ground to produce large and continuous crops, and it is a good plan to sow them in the old Celery trenches; these are generally well manured, and the crop does not exhaust the whole of the manure so liberally applied. Sow Peas in drills about 2 inches in depth, or even less; they strike their main roots down into the soil, and some soil can be drawn up to the rows when required, in the same manner in which gardeners earth up Potatos.

Broccoli, Cabbages, &c. — Numerous other seeds should now be sown, or at least directly the ground is in a fit state to receive them; such as Broad or long-pod Beans to succeed the early ones. The Broccolis, Cabbages, Kales, Cauliflower, Carrots, Lettuce, Onion, Parsley, Parsnip, Radish, and Spinach should all be got in as quickly as possible. It is of great advantage to get seeds of the Brassica tribe—Broccoli, Cabbage, Brussels Sprouts, and Winter Greens, the two last especially—sown early in the season, as the stronger the plants are when put out at mid-summer and the weeks following, the better. On the other hand, small plants are often checked by spells of drought, and fail to grow into size by the autumn. The Brassicas can be sown in small beds, the seeds being scattered broadcast, and then, at the proper time, planted out in their winter quarters. Beet, Parsnips, Carrots, and Spinach should be sown in shallow drills, a foot apart, at least. Sow thickly, which will tend to reduce the

labour of thinning out by-and-bye. Onions may be sown either broadcast or in shallow drills, 8 or 10 inches apart. All successful cultivators recommend the liberal manuring and deep digging of soil intended for Onions. The ground should be trampled or rolled down fairly hard before the seed is sown. Place it thinly in shallow drills, only just covering the seed with soil. Onions are now much grown for exhibition purposes, and those who make a point of showing them sow very early in the season—in January or early in February—so as to get a good start of the season, as they say. In cases where ground is scarce, Lettuces and Radishes may be sown sparingly over the Onion beds, as they are removed before they can do material injury to the Onion crop. The Reading or White Spanish Onion is the best for a general crop. Of Lettuce sow that fine Cabbage variety, the Leyden White Dutch, which is unsurpassed for summer culture, and is extremely crisp and sweet and pleasant to the palate; and the Paris White Cos where the upright Cos Lettuces are preferred to the Cabbage type. It is always well to sow some of each.

Potatos.—Potato planting must also be proceeded with; the earliest kinds at least should be in the ground by the first week in March if the weather proves at all favourable. In suitable weather the planting might be carried right through, from the earliest to the latest varieties. As a general rule the ground should be forked over, and the planting proceeded with as the ground is dug. Break the soil well to pieces immediately about the Potato sets. It is not desirable for manure to be put in with the tubers as the work proceeds, but far preferable that ground intended for Potatos should be manured in the autumn, and allowed to lie till the time for planting. For the early crop plant Veitch's Improved Ashleaf, and follow on with Rector of Woodstock, Yorkshire Hero, and Excelsior Kidney; these, or some such well-known high-class varieties, will yield almost all that is required where gardens are small. If nice clean samples are wanted for exhibition—and it is now as much the practice to grow Potatos for this purpose as anything else—it will greatly assist the production of fine show samples if a light mixture is made up to put in with them, such as some old turf, decayed vegetable refuse, leaf-mould, and a little soot and lime, or wood ashes; and this will also tend to invigorate the crop, and, by reason of its nourishing quality, yield a larger return. Early Potatos, and in fact all varieties of moderate growth of haulm, should be planted about 12 inches apart in the rows, and the rows should be about 2 feet apart from each other. The teachings of experience have shown that wider intervals tend only to waste of ground, and closer ones serve to check the perfect growth and maturation of the crop by overcrowding. Later and stronger growing varieties should be planted 15 inches apart in the row, or a little nearer or farther according to the size of the tubers. The rows should be 2½ feet apart, or should the soil be rich, this distance may be extended with advantage.

Law Notes.

Oldroyd *v.* Mytton: *Feb.* 22.—This was an action brought by Messrs. Oldroyd & Son, nurserymen and seedsmen, Shrewsbury, in the Shrewsbury County Court, against Captain Mytton, of Garth, for the sum of £31 10*s.* alleged to be due for shrubs and seeds. The case for the plaintiffs was to the effect that on February 27, 1874, Miss Ann Jane Jones, and Evans, Captain Mytton's gardener, visited their nursery and purchased some trees and shrubs. Evans told the senior partner that Miss Jones was Captain Mytton's housekeeper, and that the plants were for him. They were sent with the invoice to Trefuany Court, and the bill was forwarded in the autumn. Some time afterwards they had a letter from Captain Mytton, in which he stated that he did not consider himself liable. In this letter the defendant said he had not the slightest idea that the plants had been put down to him. The idea of his allowing a woman to order trees and shrubs was too preposterous for him to entertain for a moment.

The plaintiffs and defendant, Miss Jones and the gardener Evans, were examined at some length. His Honour (Judge Smith, Q.C.) on giving judgment said he had consulted the text-books, and the law did not support the plaintiffs' case in any degree. There had been no antecedent dealings with Messrs. Oldroyd. Nothing would be easier than for any particular persons to give orders for seeds right and left. Half the gardeners in England might go and order any quantity of seeds, and pledge their masters' credit. He considered the conduct of Messrs. Oldroyd in this case as similar to that of thousands of respectable tradesmen, but at the same time he thought it was a very objectionable way of doing business. If tradesmen liked to run the risk of servants pledging their masters' credit, they must do so at their own peril. The old adage was, "All's well that ends well," and tradesmen sometimes ran the risk, hoping it would all turn out right. As the plants were there, he had hoped that Captain Mytton would have paid a certain price for them. Whether he would do so or not he could not say. If he did so, it would be as a present from himself, or as an equivalent for any benefit he might have derived, or would derive, under his order. He should give judgment for the defendant. The only question he hesitated about was that of costs.—Mr. Redman: We don't ask for costs.—His Honour: That relieves my mind. The only reason why I might not have made Messrs. Oldroyd pay the costs was this—that Captain Mytton has had the shrubs and trees, and I should have been sorry if they had also had to pay the costs. I should be glad to hear that Captain Mytton had (notwithstanding what has happened) in a spirit of magnanimity said, "Oh, I'll overlook it, and give you a cheque for—say £10."

Action Against a Seed Merchant by the Agricultural and Horticultural Co-operative Association.—This was an action tried in the Westminster County Court on Thursday last, before Mr. Judge Bailey and a jury, to recover the sum of £21 11*s.* 11*d.* from the defendant, Mr. Kophel, a seed merchant. Mr. Simpson, the chief clerk of the Company, proved the order for the goods, and Robert Simpson, in the seed department of the Association, proved the correctness of the invoice of the Company. Mr. Merriman, the solicitor, called upon the defendant, who said he had been formerly seed buyer to the Company; further, that he had a set-off of £19 against the Company, but in cross-examination he showed such an indisposition to reply that the learned Judge, considering him, in the position of a defendant, as an adverse witness, said he could not be subjected to the ordinary rules of cross-examination.

Mr. Alsop, the defendant's solicitor, combatted this, which was overruled by the learned Judge, when witness stated that the set-off was the cost price of the goods, that he had 50 per cent. profit on the goods, and that the goods were supplied to him as agent for the Company, and had charged as much as 100 per cent. for goods sold by the Company. Several items, the amount of which were disputed by the defendant, were submitted to the jury.

By the defendant's solicitor, the witness said that there was an agreement between himself and the Company, but it was not produced. It was for commission on all goods sold at 2½ per cent., and on all purchases of seeds. The agreement was not stamped, therefore not admissible in evidence. The learned Judge thought it was a question whether the defendant was or was not a buyer when the debt was contracted. By Mr. Merriman: The defendant said he had purchased plants for the Company, and that his commission on sales formed the amount stated in his set-off. He gave notice to the Company to leave, but there was no settlement of accounts at the time, and he had not received £67 for commission when in the Company's service. At this stage of the case the Judge ordered a non-suit to be entered, as the balance was not proved.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
For the Week ending Wednesday, March 17, 1875.

Month and Day.	Barometer. Mean Reading reduced to 32° Fahr.	Barometer. Departure from Average of 19 years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 60 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Degree of Humidity. Sat.=100.	Wind. Average Direction.	Rainfall.
Mar.	In.	In.	°	°	°	°	°	°			In.
11	30.06	+0.14	48.5	32.9	15.6	39.8	— 0.9	31.7	75	E.; E.S.E.	0.00
12	29.79	−0.12	37.6	34.0	3.6	35.5	— 5.3	33.2	91	E.N.E.	0.05
13	29.77	−0.13	41.0	36.4	4.6	37.8	— 3.2	34.3	87	ENE.; E.S.E.	0.00
14	29.90	+0.02	46.7	34.9	11.8	40.2	— 1.0	36.3	81	E.; E.N.E.	0.00
15	29.97	+0.10	48.8	31.4	17.4	38.6	— 2.8	36.3	92	N.E.; E.N.E.	0.00
16	30.03	+0.17	41.5	33.9	7.6	36.9	— 4.6	34.3	91	NNW	0.00
17	30.12	+0.28	41.5	35.1	6.4	37.3	— 4.3	33.7	87	NNE.; N.E.	0.00

Mar. 11.—Fine, mild, brisk wind, and partially cloudy all day.
— 12.—Overcast, dull, cold, and sleet fell during the morning. Overcast at night.
— 13.—Overcast, dull, cold, and brisk wind throughout. A little rain about 10 P.M.
— 14.—Overcast, dull, and cold in morning. Fine, and mild in afternoon and evening.
— 15.—Overcast, dull, and cold in morning. Fine, and mild in afternoon and evening, nearly calm throughout.
— 16.—Overcast, dull, mild, and mist prevailed throughout.
— 17.—Overcast, and dull throughout. A little rain in early morning.

—— In the vicinity of London the reading of the barometer at the level of the sea increased from 29.69 inches at the beginning of the week to 30.08 inches by the afternoon of the 8th, then turned to decrease to 29.85 inches by the early morning hours of the 9th, increased rapidly to 30.45 inches by the morning of the 10th, decreased to 29.94 inches by the afternoon of the 12th, and again increased to 29.99 inches by the end of the week. The mean reading for the week was 30.08 inches, being 0.24 inch higher than that of the preceding week. The mean readings were alternately above and below their averages throughout the week, the greatest amount in defect being 0.22 inch on the 7th, and in excess 0.31 inch on the 10th.

The highest temperatures of the air at 4 feet above the ground ranged from 57° on the 7th, to 37¼° on the 12th, the mean value for the week being 50°. The lowest temperatures of the air varied between 51¼° on the 8th, and 33° on the 11th, the mean for the week being 39¼°. The mean daily range of temperature in the week was 10¾°, the greatest range being 19¼° on the 10th, and the least, 3¼°, on the 12th. The mean daily temperatures of the air, and the departures from their respective averages, were as follows:—March 7, 50°.2, + 9°.7; 8th, 53°, + 12°.5; 9th, 48°.8, + 8°.3; 10th, 42°.5, + 1°.9; 11th, 39°.8, − 0°.9; 12th, 35°.5, − 5°.3; and 13th, 37°.8, − 3°.2. The mean temperature for the week was 43°.9, being 3°.3 above the average of sixty years' observations.

The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in the sun's rays, were 119½° and 115¾° on the 10th and 11th, but on the 13th 46° was the highest reading. The lowest readings of a thermometer on grass, with its bulb fully exposed to the sky, were 22° and 27¼° on the 10th and 11th, but the lowest reading, on the 8th, was 48½°. The mean for the seven low readings was about 34°.

The direction of the wind during the week was S.W. and N.E., its strength gentle.

The weather during the week was somewhat fine, and very mild, except on Friday, which was overcast, dull, cold, and sleet fell during the morning.

Rain fell on three days, the amount being 0.39 inch.

In England the extreme high day temperatures ranged between 62° at Sunderland and 52° at Newcastle-on-Tyne, the general average over the country being 57° nearly. The extreme low night temperatures varied from 34° at Sunderland to 26° at Hull, with a general average of 30¾°. The mean range of temperature in the week from all stations was 26¼°, the extremes being 32° at Hull and 20° at Newcastle-on-Tyne. The mean high temperatures observed by day varied between 52¾° at Sunderland and 46¼° at Newcastle-on-Tyne, the general average being 48½°. The mean low temperatures observed by night ranged from 39¼° at Blackheath to 34½° at Newcastle-on-Tyne, with an average value of 36½°. The mean daily range of temperature in the week was 12°, the greatest range being at Sunderland, 15½°, and the least at Bristol, 10¼°.

The mean temperature for the week was 41¾°, being 6½° higher than the value for the corresponding week in 1874, the highest recorded in the week was 44¼°, at Sunderland, and the lowest 39½°, at Newcastle-on-Tyne. The fall of rain at the different stations varied from 1 inch nearly at Bristol, to rather more than one-tenth of an inch at Sheffield, the general average fall over the country being three-tenths of an inch.

The weather during the week was fine and very mild, except on one day, viz., Friday, which was dull, cold, and sleet fell during the day; the sky was for the most part cloudy.

Fog prevailed at Liverpool and Bradford on Wednesday, March 10.

In Scotland the highest temperatures by day ranged from 58¼° at Aberdeen to 52° at Paisley. The lowest temperatures by night varied between 33° at Aberdeen and 29° at Paisley and Perth, their respective averages being 54¼° and 30¾°. The mean range of temperature in the week was 23¾°. The mean temperature for the week was 41°, being 2¾° higher than the value for the corresponding week in 1874, and, therefore, the excess of mean temperature this week was marked in Scotland as well as in England. The highest in the week occurred at Edinburgh, 42¼°, and the lowest at Paisley, 39¼°. Rain fell at each of these stations, and varied in amount from 2¼ inches at Aberdeen to three-quarters of an inch at Leith; the average fall over the country was 1½ inch nearly.

At Dublin the highest temperature was 57¼°, the lowest 27°, the mean 43°, and the fall of rain 0.96 inch.

JAMES GLAISHER.

Garden Operations.

(For the Ensuing Fortnight.)

PLANT HOUSES.

Orchids. — March is the commencement of the growing season, and a greater degree of heat and moisture will now be required. The temperature for the East India-house should be kept at 70° by night and 80° by day, when a few degrees more may be allowed by sun-heat; the Mexican-house 60° by night and 68° by day; the cool-house 48° by night and to 58° by day. A strong degree of moisture must be maintained for the East Indian plants. The evaporating pans must be kept full of water; water must be poured over the floors and benches morning and evening; and the pipes may be syringed in the evening, so that the house may become charged with vapour. After a sunny, drying day the plants that have commenced their growth will be all the better with a light syringing in the afternoon; this should be done as soon as the external heat begins to decline. Plants on blocks will now require frequent syringings, and those that are in a growing state will be all the better for a dip into tepid water twice a week. The water for syringing should always be a few degrees warmer than the house, and rain-water should always be used for the purpose. But little ventilation will be required for another fortnight, except on very hot days; it should then be admitted with caution through the bottom ventilators. The wind this month is generally drying and cold, and if allowed to enter the house in a heavy stream it dries up the plants' food. It is advisable to allow the floors to dry up once a day, which will keep the atmosphere of the house sweet.

Calanthe vestita and *C. Veitchii* must be shaken out, have the old roots cut away, and be repotted into a compost of three parts fibrous peat and one of old cow-dung or horse-droppings and turfy loam, with broken potsherds or pieces of charcoal, the whole being well incorporated together. These plants require large supplies of water during their growing season, so that good drainage is indispensable. The pot should be filled up to within an inch of the top with the compost, on which the bulbs should be placed; water very sparingly until the young shoots begin to root, after that they will require a good supply, in fact the soil must not be allowed to become dry until the growth is finished. *Calanthe Masuca*, *C. veratrifolia*, and *Sobralias* should have copious waterings with weak manure-water; *Cypripediums* and *Cymbidiums* will also be the better for a little weak manure-water if the pots are full of roots. *Odontoglossum nævium* and *O. Phalænopsis* should be syringed pretty freely, they will also require a good supply of water at their roots. This is a very good time to repot any that require it. The above two varieties should never be in a temperature below 55°. The small yellow thrips are very troublesome to the Odontoglots, especially to the small leaved-varieties; and frequent spongings must be resorted to, to destroy them. The young growths of the *Masdevallias* are frequently disfigured by them. The sponging must be done by a very careful hand, as being succulent they are easily broken. Where tobacco smoke can be blown into the young growth the thrips is easily killed. *G. Baker, Clapham Common.*

FLOWER GARDEN, &c.

Parterre and Mixed Garden.—The wintry weather prevailing of late will have retarded operations in this department, and unless alterations that may be in hand are now pushed on vigorously to a close, there will be some difficulty and much labour in getting fresh-laid turf, Box edgings, &c., properly established before dry weather sets in. It is best to avoid transplanting deciduous trees thus late, but it may in some cases still be necessary to do so, to complete alterations already in hand. In such cases the plants should be removed from place to place as expeditiously as possible, so that the roots may not suffer from unnecessary exposure, as at this season a slight check in this way soon causes the bark to become contracted, and when this takes place it is a long time before the plants make satisfactory progress. In planting at this late season, care should be taken to wash the earth well in amongst the roots, as success in a great measure depends on this. This should be done when the roots are only partially covered, and the water should be thrown in in quantity, and with some force, so as to wash the earth well into the interstices. Water used in this way will do more in settling and consolidating the soil about the roots than any amount of treading, especially if the ball of the plant is large. Plants heavily watered in this way before being finally covered in will be independent of the water-pot for months after, provided they receive a good mulching of some kind, as all newly transplanted stuff should. The broom and roller should be in almost constant use at this season to keep both grass and gravel walks in first-rate order.

Where large breadths of lawn or greensward have to be laid down, and the necessary quantity of turf cannot be obtained, measures should at once be taken to prepare the ground, and to sow it down with a suitable mixture of grass seeds. These should be obtained from some of the large and reliable seed-houses, and not, as is frequently the case, from the mangers, cribs, and other feeding-places of cattle. Such seed as is thus obtained is totally unfit for the purpose, containing as it does many seeds of weeds and coarse inferior grasses, that never form a close velvety piece of turf. Before sowing, the ground should be made perfectly level and firm, so as to prevent any after settling. The margins should then be laid with turf, a foot or so wide, before sowing the seed. Choose a still day for the latter operation, to prevent the seed from being blown about, and to insure regularity in its distribution. After sowing, scatter some fine soil over it, then rake it well in, and roll down.

Push on with the pruning and training of all kinds of *Wall Creepers*, *Roses*, and trellis plants. See that the shoots are not overcrowded, and make choice of the strongest and best-ripened for laying in. The protection round *Tea Roses* may now be removed, and the weak branches should be pruned entirely out, leaving only the strongest and best situated. These should be slightly shortened back, as, on account of their less vigorous growth, Tea Roses do not bear such severe pruning as the perpetual and other varieties. Even these are often pruned too severely, and if treated as advised for the above, shortening back the strong wood more or less according to the variety and strength of the plant, much finer blooms may be obtained than by cutting hard back to a bud or two. The stems of standards that have become mossy should receive a scraping with some blunt instrument, or be well scrubbed with a stiff hard brush, so as to get the bark thoroughly clean and healthy, without which satisfactory results cannot be obtained. After pruning, the beds should be heavily mulched over with good rotten manure, making choice of that from the cow or pig in preference to any other, especially if the soil is at all light. Roots of Briars, Manetti, and other Rose stocks may still be grafted with success. Select strong pieces of root or young plants of Manetti, which should be shortened back so as to leave only an inch or so of stem. To this attach the graft in the usual way, tie tightly, and plunge in close propagating boxes in a temperature of 75° to 80°. Keep them totally dark for a fortnight or so till they begin to unite or start into growth, when light should be gradually admitted. Cuttings of *Pot Roses* that have been forced and have tolerably firm wood, strike freely if placed in brisk moist heat, and these may be put in as the plants go out of bloom, should it be desirable to increase the stock in this way. Many Roses do best on their own roots, and are preferable in other respects, as the suckers from stocks are often troublesome. *J. Sheppard, Woolverstone Park.*

FRUIT HOUSES.

Pines.—Take advantage of suitable occasions for prosecuting any operations which may have been deferred through unfavourable circumstances. If important matters, such as starting fresh plants and potting, to which attention has recently been drawn in this Calendar, are now completed, constant watchfulness over the state of heat in the beds where plants are plunged will be essentially requisite. A temperature of 95° is to be recommended as the most suitable standard for promoting proper root-action in the case of such Pine plants as those alluded to, and for this purpose no means which are employed to generate heat equals that which is obtained from fermenting materials, and that from tan in particular. The directions given in recent Pine Calendars upon this subject should be carried out, the chief object being to induce root-action; until this be accomplished, growth in the plants is undesirable, and more detrimental to future prospects than otherwise; therefore, by all means avoid maintaining a high temperature about the plants, and shade effectually from sunshine when it is powerful, which will not only obviate growing in abundance of air, but will materially assist in preserving a more genial condition about the plants, which under these conditions is so much required. Any plants which have severely suffered from the invasion of worms or drip, or from other causes which have brought the soil into an unhealthy condition, should be examined. In all bad cases it should be entirely taken away, and the plants re-started and treated in the same manner as rootless suckers. Maintain a brisk bottom-heat of from 85° to 90° in those beds wherein plants are plunged which have recently been transferred to fruiting pots; by so doing the roots will soon take hold of the new material, and growth will follow, which, as the season advances, with the aid of sunshine and light combined, should be encouraged by making available as far as possible the natural means—solar heat—for the purpose. Ventilate these plants at about 80°, and keep on a liberal supply while the internal temperature does not fall below 85°; close the house at this degree, and lightly sprinkle the plants overhead occasionally. Natural advantages will now materially assist in Pine cultivation. The plants under proper treatment will quickly make growth, and come into fruit, and give most satisfactory results. *G. T. Miles, Wycombe Abbey.*

Figs.—The early forced crop of Figs in pots will now be rapidly swelling, and syringing them twice daily, and attending to watering the roots, will be the routine till the ripening period arrives. If the pots are well drained, there is little danger of over-watering them at this stage of their growth. The night and day temperature lately advised may still be maintained, and when the weather is favourable plenty of ventilation will be required to make the foliage and young fruit look healthy. In the house where the Figs are planted out, the tying-in and regulating of the terminal shoots, and stopping the spurs at the fifth or sixth joint, will now be required. Keep the house as moist as possible by daily syringings and by damping the paths at shutting-up time, so as to keep the red-spider from attacking the foliage. This is a good time to propagate young plants from cuttings, should it be necessary to increase the Fig collection. The shoots should be selected from 5 to 6 inches in length, with a heel of last year's wood attached. Such cuttings will strike roots readily in bottom-heat. *William Tillery, Welbeck.*

Cucumbers.—However much artificial heat we are able to command, it is but a poor apology and substitute for a bright and genial sun-heat—the great lack of which for the past few weeks has not been quite favourable to the growth and fructification of Cucumbers. In such weather as we have lately experienced, it is only by dint of a close and regular attention that a good and continuous supply is secured. Where plenty of heat is at command, however (as it always should be, and nobody can have a perpetual supply without), there should certainly be no lack of Cucumbers at this season. As the days lengthen, and the power of the sun increases, increased vigilance on the part of the cultivator will also be necessary to guard against red-spider and other pests, for if these now get a strong foothold they will occasion serious trouble and loss, it may be, all through the season. The market grower well knows the importance of maintaining a clean growth: let the amateur imitate the example. The work of cutting over the plants every week must from henceforth never be omitted, for it is the reverse of good practice to cut out large quantities at one time; moreover, there is no saving of time attending it, as well as the danger of removing that which it is desirable to retain. Increase the night temperature to 72°, and by day to 85°—90°, with sun-heat, and employ a little more atmospheric moisture. For pits and frames, see this week's Melon Calendar. Make further sowings as occasion requires, and prepare more fermenting material for frames, as fast as they become cleared of Potatos, Carrots, winter salads, and the like. Frames never need be unoccupied. *Thomas Simpson.*

KITCHEN GARDEN.

If forthcoming requirements in regard to new plantings of *Asparagus* which may be necessary have been considered, and due provision made by manuring and trenching an already well-enriched plot of ground, the plants may now be transferred to the beds at almost any suitable time; we, however, perform the operation when the shoots are just emerging from the soil, and prefer two-year-old plants for the purpose. The long existing character of this plant when subject to even ordinary good treatment is such as does not render a removal of beds often necessary, excepting under certain circumstances. In those places where a part of the stock is annually destroyed in the forcing operation, provision must annually be made to maintain a supply of suitable roots for the purpose. The main object in the cultivation of this delicious and wholesome vegetable—which is doubtless more universally esteemed as being the best of the choice kinds of vegetables—consists in securing large clumps of healthy roots and crowns, which, as a natural consequence, produce fine "grass" in abundance. For this purpose we have abandoned the old method of planting three rows in the ordinarily-sized bed of 4 feet 6 inches wide, and now have substituted two rows instead, thus affording considerably more space for the extension of the roots; the plants are considerably diminished in number, although practically more satisfactory results are obtained, both in regard to the quality of the roots for forcing, and the superiority of the "grass" for use. In connection with the cultivation of Asparagus a great mistake is committed (not by practical men generally) in tolerating the existence of seedling plants on the surface of properly planted roots in beds; it is a sure means, sooner or later, of frustrating the object in view, if not of ultimately sacrificing them altogether. In planting remove the soil entirely 1 foot wide and about 3 inches deep, so that the roots can be laid out evenly on a flat surface 2 feet apart from plant to plant, and 1 foot on each side from the centre of the bed We have some planted out on the French

system, single roots, in rows 4 feet apart, the plants being 3 feet asunder, and treated accordingly; so far these promise to give very satisfactory results. Asparagus seed should now be sown thinly in drills about 18 inches apart.

If it has not been already done, a part of the supply of *Horseradish* should be lifted by trenching the ground and clearing it of all waste pieces of roots, selecting that which is fit for use, which should be laid in at the back of a north wall, where it will be ready to hand throughout the whole of the busy period, and retaining the thin long clean pieces of from 18 inches or more in length for transplanting. After the ground intended for it has had an addition of manure, and has been trenched, it should be planted its entire length in rows 18 inches wide and about 8 inches apart. This useful root, which is always in request, is now having more attention given to its cultivation by private growers than it had formerly, which its hould command at all places, considering its importance for many uses. Let the ground which is allotted for new plantings of *Globe Artichokes*, *Rhubarb*, and *Seakale* be got ready, so that planting can be effected at the end of this or the beginning of the following month. Do not be hasty in removing the ashes from about the collars of Globe Artichokes, as severe frost may yet ensue, and seriously affect the plants, which are still very tender from the effects of the protecting materials. All work, such as sticking Peas, stirring the soil about growing crops, &c., should be kept well in hand, as every week at this season will multiply various wants.

FORCING DEPARTMENT.—Shift *Capsicums* and *Tomatos* into larger pots when they need them; 8-inch pots will be ample to obtain strong plants of Tomatos; out of these they should go into the prepared borders or pots, as the case may be; 12-inch pots are suitable for fruiting these. Pot them rather firmly into turfy loam, with an admixture of decomposed manure—about a third, and mulch the surface with it, to encourage roots there. Another sowing of these plants should be made about the end of the month, for cultivation on the walls outside. All plants which are being raised in heat for outside purposes should be well ventilated on every favourable occasion, to check their being drawn up weakly. Now is a good time to make a sowing of French Beans in a pit, which will come in just before those from outside. *G. T. Miles, Wycombe Abbey.*

Enquiries.

He that questioneth much shall learn much.—BACON.

43. FICUS PARCELII.—I shall be obliged if some of your correspondents will inform me if they consider the fruit of this plant eatable. We have a good-sized fruit swelling on a plant growing in an 8-inch pot. *G. B.* [It is not likely to be good eating, and you had better be cautious in trying the experiment. EDS.]

Answers to Correspondents.

BLANDFORDIAS: *F. J. H.* These should be potted in turfy peat, and grown in a rather warm greenhouse.

FUNGI: *New.* 1, 3, and 4, all Polyporus versicolor; 2, P. lucidus.

GRASS FOR SANDY SOILS ON THE SEA-COAST: *E. N.* If the sand be a drifting sand, add some Elymus arenarius (Upright Sea Lyme-grass), and Ammophila (or Psamma) arundinacea, 4lb. or 5lb. of each, "mixed with clay and straw ropes cut into small pieces and dibbed into the sand." In addition to this, or (if the soil have sufficient stability to resist a storm of wind) without it, sow the following seeds per acre. We take this list, with some alteration, from Lawson's *Agrostographia*:—

	With a crop.	Without a crop.
	lb.	lb.
Alopecurus pratensis	1	1½
Avena flavescens	1	1½
Dactylis glomerata	2	2
Festuca duriuscula	2	3
„ heterophylla	1	1
„ pratensis	2	2
„ rubra	2	3
Lolium perenne	6	6
Poa nemoralis	2	3
„ pratensis	1	1
Medicago lupulina	1	1
Trifolium pratense perenne	3	4
„ repens	4	5
	28	34
Also, when no crop is formally grown, Rye	..	1 bushel.

ANTHURIUM SCHIERZERIANUM: *C. W. S.* The seed should be sown as soon as it is ripe on Sphagnum moss, and must not be covered over. Your other query shall be answered next week.

CARTES DE VISITE: *X.* We have given no authority to the gentleman in question to use the name of the *Gardeners' Chronicle* on his visiting card, and he has no right so to use it.

CONIFERÆ: *Seedling.* We do not undertake to answer such questions as yours. Consult our advertising columns.

GRAPES IN WATER: *Old Subscriber.* With care Grapes will keep good in water from three to four months.

HOLLYHOCKS: *E. J. W.* Your Hollyhocks are infested with a fungus—Puccinia malvacearum, which was figured and described in our columns, p. 767, 1874. You may try Gishurst Compound and flowers of sulphur, but the safest plan would be to burn them.

INSECTS: *A. B.* The aphis which attacks your Melons and Cucumbers is the same which is found upon several other plants, including the Poppy, hence named Aphis papaveris. Perseverance in the plans you have already adopted is the only means of checking the evil when once established in your frames. Better still, destroy the infested plants and get fresh ones. *I. O. W.—H. M.* The insects which have appeared by thousands in your newly made tan-bed for Cucumbers is one of the many species of Acari found in decaying vegetable matter. It is not improbable they would attack also the young fibres of the roots of the Cucumber. Soak the beds well with gas-tar and lime-water; soot and strong soapsuds may be mixed with the fluid. *I. O. W.*

MONSTERA: *H. W. C.* Monstera was growing against an open wall at Lisbon a few years since. *H. K.*

NAMES OF FRUITS: *W. R. F.* We regret that we cannot name your Apple: it was too much bruised.

NAMES OF PLANTS: *Seif.* 1, Hymenophyllum tunbridgense; 2, Cheilanthes hirta; 3, Nephrolepis exaltata. The Dendrobe is D. Pierardi.—*H. O. P.* Dendrobium nobile.—*H. G. S.* Eranthemum albiflorum.

PEACHES: *F. & S. K.* We are equally at a loss to account for your Peach trees refusing to grow; your soil may not be of the best character, or very suitable for Peaches; and, of course, it could be analysed. The simplest plan would be to try some other soil; you need only have a small quantity at first to plant each tree in to see how they may succeed. But we can scarcely attribute your failure altogether to the soil.

VIRGINIAN CREEPER: *J. Morison.* The plants bearing the names you quote are no doubt the same—Ampelopsis hederacea.

*** Correspondents are specially requested to address, post-paid, all communications intended for publication to the "Editors," and not to any member of the staff personally. The Editors would also be obliged by such communications being posted as early in the week as possible. *Letters relating to Advertisements, or to the supply of the Paper, should be addressed to the Publisher, and* not *to the Editors.*

CATALOGUES RECEIVED.—James Dickson & Sons (108, Eastgate Street, Chester), Catalogue of Farm Seeds, Implements, &c.—James Carter & Co. (High Holborn, London), Illustrated Catalogue of Prize Farm Seeds, &c.—Ewing & Co. (The Royal Norfolk Nurseries, Norwich), List of New Roses for 1875, New Patent Greenhouses, Lawn Mowers, &c.—W. B. Smale (89, Lower Union Street, Torquay), Catalogue of Vegetable and Flower Seeds, Horticultural Sundries, &c.—B. K. Bliss & Sons (34, Barclay Street, New York), Catalogue of Potatos.—Messrs. Sutton & Sons (Royal Berkshire Seed Establishment, Reading), Farmers' Year Book and Graziers' Manual.—Messrs. Downie & Laird (17, South Frederick Street, Edinburgh), Descriptive Catalogue of Florists' Flowers, Stove and Greenhouse Plants, &c.—Thibaut & Keteleer (Rue Houdan, 87, à Sceaux, Seine), General Catalogue of Plants, &c.—C. Pocock (Wincanton, Somerset), Catalogue of Seeds for 1875.

COMMUNICATIONS RECEIVED.—A. Bennett.—A Gardener.—T. B.—J. F. R.—T. S.—W. W.—R. G.—H. G. R.—A. K. (next week).—A. F.—G. T. R.

Markets.

COVENT GARDEN, March 18.

The markets remain much the same as they were last week, very little change having taken place either in home-grown or foreign produce. *Thos. Taylor, Wholesale Apple Market.*

CUT FLOWERS.

	s. d.	s. d.
Azaleas, p. 12 sprays	0 6-	1 6
Camellias, 12 blooms	1 0-	6 0
Carnations, 12 blooms	2 0-	4 0
Cineraria, p. bunch..	0 9-	1 6
Cyclamen, 12 blooms	2 0-	0 6
Deutzia, per bunch..	0 6-	1 0
Epiphyllums, 12 bl.	1 0-	2 0
Eucharis, per doz. ..	6 0-12	0
Euphorbia, 12 sprays	1 6-	6 0
French Lilac, p. bun.	3 6-	9 0
Heliotropes, 12 sprays	0 6-	1 0
Hyacinths, per spike	0 3-	0 6
— Roman, per 12 spikes	1 0-	4 0
Lily-of-the-Valley, 12 sprays	2 0-	6 0
Mignonette, 12 bun.	4 0-	6 0
Narcissus, per doz...	1 0-	3 0
Pelargoniums, 12 spr.	1 0-	2 0
— Zonal, do. ..	0 9-	1 6
Primula, dbl., p. bun.	0 9-	1 6
— single, do. ..	0 4-	0 9
Roses, indoor, p. doz.	2 0-	6 0
— French, do. ..	1 0-	2 6
Snowdrops, 12 bun.	1 6-	4 0
Spiræa, 12 sprays ..	2 0-	4 0
Stephanotis, 12 sprays	9 0-15	0
Violets, per 12 bun...	1 0-	3 0

PLANTS IN POTS.

	s. d.	s. d.
Azaleas, per dozen..	24 0-50	0
Begonias, do. ..	6 0-12	0
Bouvardias, do. ..	9 0-18	0
Cineraria, do. ..	6 0-15	0
Cyperus, do... ..	6 0-12	0
Deutzias, do. ..	8 0-18	0
Dracæna terminalis	12 0-30	0
— viridis, per doz.	12 0-24	0
Epiphyllums, each ..	1 6-	3 6
Ficus elastica ..	1 6-	7 6
Fuchsia, per doz. ..	6 0-12	0
Heaths, in var., doz.	12 0-30	0
Hyacinths, per doz.	4 0-12	0
Lily of the Valley, 12 sprays	3 0-	9 0
Mignonette, do. ..	4 0-	6 0
Myrtles .. do.	3 0-	9 0
Pelargoniums, dble., per doz.	6 0-12	0
— Scarlet, do. ..	6 0-	9 0
Primula sinensis, do.	4 0-	8 0
Solanums, do. ..	6 0-18	0

FRUIT.

	s. d.	s. d.
Apples, per ½-sieve	2 0-	3 0
Chestnuts, per bush.	10 0-20	0
Grapes, English, p. lb.	10 0-20	0
Lemons, per 100 ..	8 0-12	0
Medlars, per doz. ..	....	....
Nuts, Cob, p. lb. ..	1 6-	2 0
Oranges, p. 100 ..	8 0-12	0
Pears, p. doz. ..	4 0-12	0
Pineapples, p. lb. ..	3 0-	6 0
Walnuts, p. bush. ..	16 0-	..

VEGETABLES.

	s. d.	s. d.
Artichokes, Fr., doz.	4 0-	..
Asparagus, English, per bundle ..	8 0-12	0
— French, p. bund.	2 0-	..
Beans, French, p. 100	6 0-	..
Beet, per doz. ..	1 0-	2 0
Broccoli, p. bundle ..	0 9-	1 6
Brus. Sprts., p. bush.	9 0-	..
Cabbages, per doz. ..	1 0-	2 0
Carrots, p. bundle ..	0 6-	0 9
Cauliflowers, per doz.	2 0-	6 0
Celery, per bundle ..	1 6-	2 0
Cucumbers, each ..	2 0-	4 0
Endive, per doz. ..	1 0-	2 0
Herbs, per bunch ..	0 2-	0 4
Horse Radish, p. bun.	3 0-	5 0
Leeks, per bunch ..	0 2-	0 4
Lettuces, per doz. ..	1 6-	..
Mushrooms, per pott.	1 0-	2 0
Onions, young, bun.	0 4-	0 6
Parsley, per bunch..	0 9-	1 0
Parsnips, p. doz. ..	0 9-	1 0
Peas, per quart ..	8 0-	..
Radishes, per bunch.	0 2-	0 4
— black, Turnip, do.	.. -	0 6
Seakale, per bundle	2 0-	3 0
Shallots, per lb. ..	0 3-	..
Salsify, per bundle ..	1 6-	..
Turnips, per bundle.	0 6-	0 0

POTATOS:—Early Shaws, 110s.; Early Myatt's 140s.; Early Regents, 120s.; and Early Dons, 120s per ton.

SEEDS.

LONDON: *March* 17.—An active demand, as might be expected, is now felt for Clover and other seeds. Prices, generally, with the exception of American Red, which is slightly easier, keep very steady. Choice home-grown samples are now become rare. In Trefoils there is a good trade doing at full rates. Alsike is dull at a further decline, but white Clover is in improved request. In foreign Italian a good quantity is selling at enhanced currencies. Fine Linseed is scarce and dearer. In bird seeds there is no quotable variation; Canary seed, however, is in diminished request. A large business is passing in spring Tares, at an improvement occasionally of 1s. per quarter. Stocks in London seem now about used up. Blue boiling Peas are steady in both value and demand. Of the larger descriptions very few are offering. Fine white Mustard and Rape seed are tending upwards. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C.*

CORN.

At Mark Lane on Monday business was dull, but prices were generally supported. Wheat was in small supply, but, being in excess of the demand, higher rates were not established. Barley was inclined to weaken, and malt was almost neglected. Oats were steady, and the value of Maize was unaltered. Beans and Peas changed hands at the rates of Monday last, and flour tended in buyer's favour.—At Wednesday's market there was no improvement in the demand for Wheat, but prices were in most instances supported. Barley was very dull, and scarcely any inquiry prevailed for malt; but Oats were in moderate request at the rates current on Monday. Maize was rather heavy, and very few sales were effected in either Beans, Peas, or flour. Average prices of corn for the week ending March 13:—Wheat, 41s. 4d.; Barley, 42s. 5d.; Oats, 29s. 8d. For the corresponding week last year:—Wheat, 60s. 8d.; Barley, 48s. 4d.; Oats, 28s. 10d.

CATTLE.

At the Metropolitan Market on Monday there was a fair trade in beasts at, on the average, higher prices. The demand for sheep was good, with no quotable alteration in price. Calves sold freely at higher rates. Quotations:—Beasts, 3s. 8d. to 4s. 8d., and 5s. 6d. to 6s. 2d.; calves, 5s. to 6s. 6d.; sheep, 5s. 4d. to 5s. 8d., and 6s. 4d. to 6s. 10d.; pigs, 4s. 4d. to 5s. 4d.—On Thursday trade in beasts was not brisk, but Monday's prices were freely given, and occasionally an advance was realised. Sheep were readily disposed of at from 5s. 4d. to 7s. A few good lambs found purchasers at about 8s. per stone. Choice calves were scarce and dear, and for milch cows prices were decidedly lower.

HAY.

From Whitechapel we learn that, arrivals having been short, demand for fodder had proved good, at improving prices. Prime Clover, 100s. to 120s.; inferior, 85s. to 95s.; prime meadow hay, 90s. to 115s.; inferior, 55s. to 75s.; and straw, 33s. to 40s. per load.—Cumberland Market quotations:—Superior meadow hay, 116s. to 126s.; inferior, 90s. to 108s.; superior Clover, 120s. to 130s.; inferior, 100s. to 110s.; and straw, 40s. to 45s. per load.

POTATOS.

From King's Cross it is reported that there has been a better demand, at the following prices:—York and Lincoln Victorias, 100s. to 130s.; do. Flukes, 100s. to 140s.; York Regents, 100s. to 130s.; Lincoln do., 90s. to 120s.; East Lothian do., 80s. to 110s.; Perth, Fife, and Montrose do., 60s. to 80s.; do. Rocks, 60s. to 65s.; Kent, Essex, and Cambridge Rocks, 60s. to 80s.; do. Regents, 80s. to 120s.; French, 50s. to 55s.; do. seedlings, 65s. to 70s.; Belgian Kidneys, 65s. to 70s. per ton.—The Borough and Spitalfields reports are to the effect that moderate supplies have been on sale, and that for all good and prime qualities a steady trade has been experienced, prices having had an upward tendency. Inferior qualities showed very little change. Regents, 75s. to 115s.; Victorias, 100s. to 135s.; Flukes, 110s. to 145s.; Rocks, 60s. to 75s. per ton.—Last week's imports into London consisted of 4188 bags from Antwerp, 630 from Ghent, 1214 sacks and 233 tons from Dunkirk, 13 bags from Rotterdam, 1096 sacks from Boulogne, 4 from Hamburg, and 188 tons from Dant.

Carnation, Picotees, and Pinks.

ISAAC BRUNNING AND CO. beg to announce that they have this Season a very fine and extensive Collection of the above to offer, strong plants of which are now ready for sending out. LIST of Varieties and Prices, together with Illustrated SEED CATALOGUE, on application.

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The Ship "Surrey," 1089 tons register, to sail on April 26.

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THE

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Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

No. 65.—Vol. III. {New Series.} SATURDAY, MARCH 27, 1875. {Registered at the General Post Office as a Newspaper.} Price 6d. Post Free, 5½d.

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MAIDSTONE ROSE CLUB.
EXHIBITIONS at VINTER'S PARK, MAIDSTONE, On WEDNESDAY, June 30.
For Lists of All-England Cups, and other Prizes, apply to Mr. WILLIAM PICK, Assistant Secretary, Horticultural Society, 51, Marsham Street, Maidstone; or to HUBERT BENSTEAD, Esq., Honorary Secretary, Rose Club, Mill Street, Maidstone.

SPALDING HORTICULTURAL, &c., SHOW will take place on THURSDAY and FRIDAY, July 1 and 2, and not June 30, as originally advertised. Schedules of Prizes on application to
GEO. F. BARRELL, Hon. Sec.

J. LINDEN'S Establishment for the Introduction of New and Rare Plants, Ghent, Belgium.
CATALOGUES of Palms, Orchids, New, Rare, and Decorative Plants of all kinds, Camellias, Azaleas, &c., post free.
Agents—Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London, E.C.

CAPE SEEDS.—Just received, a Consignment, in excellent condition. For LIST, &c., address FLORIST, 4, Mire Terrace, Lower Tooting, S.W.

Centaurea candidissima (Wholesale Price).

WOOD AND INGRAM offer fine summer-sown Plants of the ABOVE, thoroughly established in Thumb Pots, at 20*s.* per 100. Package, 3*s.* 6*d.* per 100, or 2*s.* for 50, not less than which will be sold at the price.
The Nurseries, Huntingdon.

CLEMATIS ROOTS, fit for immediate Working. Price, 3*s.* 6*d.* per 100, or 30*s.* per 1000.
THOMAS CRIPPS AND SON, The Nurseries, Tunbridge Wells, Kent.

Carnations—Named Show Varieties.

WOOD AND INGRAM offer fine Plants of the ABOVE in twelve varieties, one pair of each, thoroughly established in 3-inch pots, at 12*s.* the dozen pairs. Package 1*s.* the first and 6*d.* every additional dozen pairs.
The Nurseries, Huntingdon.

To the Trade.

CARNATIONS AND PICOTEES.—Selected named varieties, very fine plants, 70*s.* per 100 pair, cash.
JAMES GARAWAY AND CO., Durdham Down Nurseries, Bristol

VERBENAS AND GERANIUMS.—Healthy, well-rooted cuttings of Purple King and Melindres splendens (fine scarlet), 6*s.* per 100. Geranium Vesuvius, autumn struck, 10*s.* per 100. Package free. Terms cash.
FIELD BROTHERS, Tarvin Road Nursery, Chester.

VESUVIUS.—Special Offer.—100,000 strong autumn-struck plants, from single pots, 10*s.* per 100, 85*s.* per 1000, package included. Terms cash.
WILLIAM BADMAN, Cemetery Nursery, Gravesend.

Verbenas.

JOHN CARTER, NURSERYMAN, Keighley, can supply healthy well-rooted Plants of Scarlet and Purple Verbenas, from cutting pots, at 6*s.* per 100, 50*s.* per 1000. They have been some weeks in a cool house.
Also LOBELIAS, at 3*s.* per 100.

Verbenas, Verbenas.

JOHN SOLOMON offers White, Scarlet, Purple, Pink, Crimson, Rose and other mixed sorts, good strong spring-struck cuttings, well rooted, at 6*s.* per 100, 50*s.* per 1000, package included. Cash to accompany all orders from unknown correspondents.
Islington Nursery, Park Street, Islington, N.

VICTORIA MIGNONETTE is the best of the red-flowered section yet sent out. Growth very robust; requires to be 18 inches from plant to plant, and blooms till cut off with frost. Deliciously scented. Invaluable for cut flowers. Packet, free by post, 6*d.* and 1*s.* each.
THOS. SMITH, Seedsman, Long Wittenham, Abingdon.

Notice.—Cheap and Good.

A PRICED LIST of the best SPRING-FLOWERING PLANTS will be sent free to all applicants. Apply to DILLISTONE BROS., Nurserymen, &c., Sturner, near Halstead, Essex.

To the Trade.

HOLLYHOCKS, fine named varieties, autumn-struck plants, 70*s.* per 100, cash.
JAMES GARAWAY AND CO., Durdham Down Nurseries, Bristol.

Best Seeds Only.

WM. CUTBUSH AND SON'S CATALOGUE of SEEDS, GLADIOLI, &c., should be had by all Gardeners and Amateurs purchasing really first-class goods at a moderate price. Post-free on application.
Highgate Nurseries, London, N.

Lawns.

JAMES DICKSON AND SONS' Finest LAWN MIXTURE for Forming New or Renovating Old Lawns is finer and in every way superior to all others.
108, Eastgate Street, Chester.

NEW ROSES for 1875.—The Best and Strongest Plants in the Trade, at same prices as offered by the leading Rose firms. CATALOGUES now ready.
WM. WOOD AND SON, Nurseries, Maresfield, Uckfield, Sussex.

NEW ROSES for 1875.—Splendid plants of the best kinds now ready. Descriptive LISTS gratis and post free to applicants.
EWING AND CO., Norwich.

To the Trade.

ROSES, surplus stock of Dwarf, at reduced prices. The plants offered are remarkably strong.
WM. WOOD AND SON, Nurseries, Maresfield, Uckfield, Sussex.

WANTED, to complete a large contract, a quantity of extra-sized IRISH IVIES, in pots. Prices per dozen, 100, or 1000, with sample plant, to
Mr. RANSLEY TANTON, F.R.H.S., Seed Merchant, &c., Borough End London Bridge, S.E.

WANTED, MANETTI STOCKS.—State lowest price per 1000 to
Mr. MARRIOTT, Walsall.

BETTERIDGE'S PRIZE ASTER, originally introduced by CARTERS. Intending purchasers are requested to read Mr. Betteridge's letter, published by us at p. 269 of *Gardeners' Chronicle* for February 27.
CARTERS, The Queen's Seedsmen, High Holborn, W.C.

BETTERIDGE'S PRIZE ASTER, direct from the raiser. See letter, p. 269 of *Gardeners' Chronicle* for February 27.
DUKE of CONNAUGHT. | OXONIAN IMPROVED.
DUKE of EDINBURGH. | DUCHESS of EDINBURGH.
The above collection post free for 6*s.* 6*d.*
CARTERS, The Queen's Seedsmen, High Holborn, W.C.

BETTERIDGE'S PRIZE ASTER, originally introduced by CARTERS. Eighteen splendid varieties, post free, for 3*s.* 6*d.*; twelve splendid varieties, post free, for 2*s.* 6*d.*
CARTERS, The Queen's Seedsmen, High Holborn, W.C.

Eucalyptus globulus (Australian Blue Gum).

JOHN WILSON, SEEDSMAN, Whitchaven, has just received, in fine condition, a Consignment of Seed (hitherto very scarce) of this well-known EUCALYPTUS from Messrs. Thos. Lang & Co., Nurserymen and Seedsmen, Melbourne. Prices on application.

TO BE SOLD, for Cash, 15,000 to 20,000 ASH, from 2½ to 4½ feet, at 40*s.* per 1000; CHESTNUTS, Spanish, 2½ to 3 feet, at 50*s.* per 1000.
T. H., Post Office, Godalming, Surrey.

FIRS, Spruce, from 3 to 5 feet, 20*s.* per 100; from 6 to 9 feet, 12*s.* to 18*s.* per dozen.
ASPARAGUS, Connover's Colossal, 3-yr., 5*s.* per 100, 40*s.* per 1000. Terms cash.
HY. MINCHIN, The Nurseries, Hook Norton, Oxon.

PAUL'S DOUBLE SCARLET THORN.—A few very healthy Pyramids, suitable for potting, having been grown especially for this purpose; also very fine Standards of this and other kinds. Prices, &c., on application to EWING AND CO., Norwich.

QUICK THORNS, all heights up to 3 and 4 feet, the latter well adapted for gapping purposes. Prices on application to
THOS. CRIPPS AND SON, The Nurseries, Tunbridge Wells, Kent.

YEWS.—Many thousands, 3, 4, 5, 6, 7, 8, 9, 10 to 15 feet. All recently transplanted.
ANTHONY WATERER, Knap Hill Nursery, Woking, Surrey.

Cheap.—To Clear the Ground.

YEWS, English, 6 to 12 inches, 6*s.* per 100, 40*s.* per 1000; 1 to 1½ foot, 10*s.* per 100; 3, 4, to 4½ feet, 60*s.* to 70*s.* per 100, nice furnished and good rooted. We can recommend them to the Trade for transplanting.
GEORGE JACKMAN AND SON, Woking Nursery, Surrey.

Herbaceous and Alpine Plants.

THOMAS S. WARE'S Illustrated CATALOGUE of NEW, RARE, and CHOICE PERENNIALS for 1875 is ready, and will be sent on application.
Hale Farm Nursery, Tottenham, London, N.

ORCHARD-HOUSE TREES, Fruiting in Pots.—Peaches, Nectarines, Pears, Apples, Mulberries, and Oranges.
RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

SPLENDID NEW APPLE, "LADY HENNIKER," Sent out by EWING AND CO., Norwich. Circulars on application.

SEED POTATOS to be SOLD, Cheap:—Oxfordshire Kidney, Peach Blow, Yorkshire Hero, Excelsior, &c. Price LISTS on application to
HY. MINCHIN, The Nurseries, Hook Norton, Oxon.

Suttons' Red-skin Flourball Potato.

H. AND F. SHARPE have a surplus stock of the above, which they are prepared to offer at a low figure to effect sales.
Seed Growing Establishment, Wisbech.

CABBAGE PLANTS.—Very fine stocks of the following kinds:—Drumhead, Robinson's Champion, Early Battersea, Enfield Market.—Apply to THE STEWARD, Mr. T. Davies, Tangley, near Guildford, stating quantity required.

To the Trade.

ASPARAGUS, Giant, 2-yr. and 3-yr.—For price apply to
JAMES BIRD, American Nurseries, Downham.

Two-year Asparagus.

JOHN LAING offers the above, in splendid condition, at 3*s.* 6*d.* per 100: CONNOVER'S COLOSSAL, at 5*s.* per 100; cheaper by the 1000. The Trade supplied. Nurseries, Forest Hill, S.E.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS; also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.
Mr. WEBB, Calcot, Reading.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

SALES BY AUCTION.

Specimen Stove and Greenhouse Plants,
Formed by the late J. Philpot, Esq., of Stamford Hill, N.

MR. J. C. STEVENS has received instructions from Mr. Wheeler (gardener) to OFFER for SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., EARLY in APRIL, the well-known COLLECTION of STOVE and GREENHOUSE PLANTS formed by the late J. Philpot, Esq., of Stamford Hill, N., consisting of specimen Azaleas, Camellias, Ericas, Stephanotis, Clerodendrons, Bougainvilleas, Franciseas, &c.
Further particulars in future Advertisements.

North Star Nurseries, Slough.

MESSRS. BUCKLAND AND SONS have received instructions from the Executors of the late Mr. W. R. Bragg to SELL by AUCTION, on the Premises, adjoining Slough Station, on MONDAY, April 5, at 11 for 12 o'Clock, a large quantity of HOLLYHOCKS, PICOTEES, DAHLIAS, and PANSIES, in the production of which Mr. Bragg was unsurpassed; also, BEDDING PLANTS, VINES, Standard ROSES, &c.; together with the Greenhouses, Pits, Handlights, Garden Tools, Horse, Carts, Van, Harness, Stump of Hay, &c.
Catalogues may shortly be obtained at the "North Star," Slough; and of the Auctioneers, Windsor.

WANTED to RENT, a large Private GARDEN with a quantity of Glass, or a FRUIT and FLORIST'S ESTABLISHMENT near London.
ALPHA, Mr. Thomas Frewins, New Street, Henley-on-Thames, Oxon.

To Florists and Others.

TO BE LET, for a Term, GROUND fronting the High Road opposite Kew Bridge Station. Splendid position; 225 feet frontage with a depth of 100 feet or hereabouts. Apply to
W. E. ORAM, 1, Wardrobe Place, Doctors' Commons, E.C., and Stile Cottage, Kew Bridge Station.

To Nurserymen, Florists, and Market Gardeners.

TO BE LET, with possession at Lady-day, the NURSERY GROUNDS, about 3½ acres, with DWELLING HOUSE and GREENHOUSES, situated on the Madingley Road, Cambridge, occupied by Mr. Buttery. Apply to
WISBEY AND SON, Auctioneers and Estate Agents, Cambridge.

A Great Bargain for an Immediate Purchaser.

TO BE SOLD, or LET, a Gentleman's DETACHED RESIDENCE, on the South Coast, with an EXTENSIVE RANGE OF GLASS, well stocked with Grapes, Pines, &c., Coach-house and Stabling.
B. H., *Gardeners' Chronicle* Office, W.C. No Agents.

Victoria Estate, Kansas, U.S.—To Farmers and OTHERS.

FINE STOCK FARMS of 640 Acres and upwards, to be SOLD, Freehold, from 12s. to 50s. per acre. Grass in its natural condition unsurpassed for feeding Sheep and Cattle. For PAMPHLET containing full particulars respecting this Property, apply to
ROBERT W. EDIS, Esq., F.S.A., 14, Fitzroy Square, London, W., Architect to the Estate.

YEWS.—About 2000 well-grown and rooted, from 3 to 4 feet high, 80s. per 100; all recently moved; well adapted for Hedges, &c.
JOSEPH SPOONER, Goldworth, Woking, Surrey.

ALTERNANTHERAS, paronychyoides and magnifica, good strong, sturdy stuff, shaken out of pots, and forwarded free, at 10s. per 100.
WILLIAM HOLMES, Framptoo Park Nursery, Hackney, E.

To the Trade.

ROSES (Surplus Stock of), extra fine, on Manetti, at 25s. per 100; £10 10s. per 1000; Standard ROSES, 75s. per 100; £7 10s. per 500. Also a few Manetti Stock, at 25s. per 1000.
GEO. J. WOOLLETT, Nurseries, Caterham, Surrey.

VINES! VINES! VINES!—Fine Fruiting and Planting Canes—Black Hamburgh and other varieties—to be Sold cheap.
H. POTTER, The Nurseries, Sutton, Surrey.

EUCALYPTUS GLOBULUS.—A very fine sample of seed just arrived. Price on application.
THE LAWSON SEED AND NURSERY COMPANY (Limited), 106, Southwark Street, London, S.E.

Extra Stock.

LARCH.—For Sale 150,000, 2-yr. 1-yr., very fine; also Black Italian POPLAR, 20 to 30 inches. Prices and samples on application to
RALPH ROBSON, Nurseryman and Seedsman, Hepham.

Conservatory Plants—Ornamental Foliage and FLOWERING.

F. AND A. SMITH offer the above, in fine condition. Prices low, and Catalogue with a List of Vines and Seeds upon application.
The Nurseries, West Dulwich.—Established 40 years.

CHARLES B. SAUNDERS, NURSERYMAN, &c., Jersey, respectfully offers choice CARNATION and PICOTEE SEEDS at 2s. 6d. per packet of 100 seeds; fine strong VINES, best sorts, 24s. to 30s. per dozen; Evergreen OAKS, in or from pots, 2 to 6 feet high, 50s. to 150s. per 100.
March 18, 1875.

STELLARIA GRAMINEA AUREA—100 cuttings sent post free for 2s. 6d. This is quite distinct from Golden Feather, and certainly the best yellow carpet-bedding plant ever introduced; quite hardy.
H. CANNELL, New Florists' Flowers and Florist Flower Seed Merchant, Woolwich, S.E.

GIANT ASPARAGUS PLANTS, the best that money can procure, all certain to grow, 2s. 6d. per 100. This delicious vegetable does not require half the expense usually incurred in planting it. See RICHARD SMITH'S SEED LIST for 1875.
Extra strong SEAKALE, 2s. per dozen.
RICHARD SMITH, Nurseryman, Worcester.

New and Choice Ferns.

W. AND J. BIRKENHEAD, having a Collection of many thousands of the most beautiful and choice BRITISH and EXOTIC FERNS, and giving their cultivation special attention, are prepared to supply large or small quantities at most reasonable prices.
CATALOGUES on application. Special quotations for large quantities.
Fern Nursery, Sale, near Manchester.

To the Trade.

ROSES, Dwarf Moss and others, extra fine, strong. Price on application.
Moss Baron de Wassanaer, Comtesse de Mirinais (white), Frederick Sonlié, Gloire des Mousseuses, Lanell, Princess Alice (Paul's), Unique de Provence (white).
AUSTRIAN BRIARS, Harrisonii and Persian Yellow.
Address, WM. WOOD AND SON, Nurseries, Maresfield, Uckfield, Sussex.

NEW ROSES for 1875.—Splendid plants, with magnificent foliage, in forty-three Continental varieties, now ready. LISTS, with raisers' descriptions, post free.
HENRY BENNETT, Manor Farm Nursery, Stapleford, Salisbury.

Pelargoniums for the Million.

JAMES HOLDER'S unrivalled COLLECTION of Show, French, and Fancy Varieties, strong Plants, distinct sorts, at 40s. per 100; 25s. for 50; or 15s. for 25. Hamper and packing included. Extra strong plants at 5s. and 12s. per dozen. Cash. CATALOGUES free on application.
Crown Nursery, Reading.

VINES, extra strong leading sorts, close-jointed and well ripened; SEAKALE, ASPARAGUS, and RHUBARB, extra strong, for forcing; ROSES, FRUIT, FOREST, and ORNAMENTAL TREES, STOVE and GREENHOUSE PLANTS, &c.
Priced Descriptive CATALOGUE, post free.
DICKSON AND ROBINSON, 23, Market Place, Manchester.

Spring Planting.

FOREST TREES, ORNAMENTAL TREES, and SHRUBS, a large stock at moderate prices. CATALOGUES free on application.
THE LAWSON SEED AND NURSERY COMPANY (Limited), 106, Southwark Street, London, S.E., and at Edinburgh.

Carnations, Picotees and Pinks.

CHARLES TURNER can supply the above in all their various classes, and in every variety of colour, in fine health; plants suitable for borders or for blooming, in Pots. The quality of C. Turner's Collection is well known.
CATALOGUES may be had on application.
The Royal Nurseries, Slough.

Verbenas, Verbenas, Verbenas.

WILLIAM BADMAN offers Purple, White, Scarlet, Crimson, and Rose Verbenas—good Plants from single pots, 12s. per 100; rooted cuttings, clean and healthy, 6s. per 100, 50s. per 1000, package included. Terms cash.
Cemetery Nursery, Gravesend.

Home Grown Mangel Wurzel and Turnip Seeds.

H. AND F. SHARPE are prepared to make special offers to the Trade of the above-named SEEDS, all saved from carefully selected stocks, and of the finest quality. Prices very low.
Seed Growing Establishment, Wisbech.

Herbaceous Calceolarias (Neil's Superb Strain).

WOOD AND INGRAM offer fine Plants of the ABOVE, from store pans, at 3s. per dozen, 20s. per 100, post free. Also fine Plants in 5-inch pots, at 6s. per dozen. Basket and package, 2s. for the first and 1s. every additional dozen. The Nurseries, Huntingdon.

WILLIAM POTTEN'S PLANT LIST for 1875 is now ready, which contains one of the largest and choicest collections of Geraniums and other Bedding Plants, and will be sent to all applicants post free.
W. P. can supply the following good plants in single pots:—
Double PETUNIA, King of Crimsons, 2s. 6d. per dozen.
12 other good Double varieties, 3s.
12 vars. good COLEUS, 2s. 6d.
12 select Zonal GERANIUMS, 3s.
12 select Double do., 3s.
12 select Gold and Silver Triclors, 6s.
12 select Gold and Bronze, 4s.
Camden Nursery, Sissinghurst, Staplehurst, Kent.

Snowflake.

THE FINEST POTATO ever introduced; will yield from 300 to 400 bushels per acre of handsome tubers of the most splendid quality and FREE FROM DISEASE. Messrs. DANIELS BROS. have just received a consignment of this magnificent variety direct from the original raiser in America, where it has obtained immense popularity, and which is now being distributed at the following rates, carriage free to any address:—3s. 6d. per lb.; 7 lb., 21s.; 14 lb., 42s.; cheaper by the cwt.
DANIELS BROS., Seed Growers and Importers, Royal Norfolk Seed Establishment, Norwich.

Hollies.

ANTHONY WATERER respectfully invites the attention of Holly buyers to the very fine Stock to be seen growing at Knap Hill. It comprises upwards of Thirty Thousand Plants, from 3 to 10 and 12 feet high, of the finer Gold, Silver, and Green-leaved kinds, affording a choice in size and variety such as can be met with in no other Nursery in Europe. Every Plant has been recently removed, and will be guaranteed.
The Stock of Common Green Hollies alone occupies 5 acres of land, and Purchasers will find them in large numbers of all heights up to 15 feet.
Knap Hill Nursery, Woking, Surrey.

CHRYSANTHEMUMS:—12 new varieties of 1874, 3s.; 12 older sorts, 2s.; 100 Chrysanthemums, including 12 new varieties of 1874, for 16s.; 50s. for 10s.
FUCHSIAS:—6 new varieties of 1874, for 4s.; 12 varieties of 1873, for 4s.; 100 Fuchsias, in 50 sorts, for 14s.; 50, in 25 sorts, for 8s.; 12 varieties, 2s. 6d.
LOBELIA, pumila grandiflora, 1s.; IRESINE, Linden 1s. 6d.; MESEMBRYANTHEMUM, cordifolium variegatum, 1s. 6d. per dozen.
The above sent post free for cash with order.
J. LEIGH, Sandy Lane Nursery, Lowton, near Newton-le-Willows

Surplus Stock.—To the Trade.

B. MALLER, Lewisham, Lee, S.E., begs to offer small HEATHS, good stuff, in small 60's, fit for potting up at once into 48's, price 16s. per 100, as follows:—

500	ERICA SINDRYANA.	
500	,,	GRACILIS VERNALIS.
1000	,,	,, AUTUMNALIS.
750	,,	PERSOLUTA ALBA.
200	,,	CUPRESSIANA.
200	,,	WILMOREANA.

Gladioli from Paris, per Names and Seedlings.

LÉVÊQUE AND SON, NURSERYMEN, Ivry-sur-Seine, near Paris, beg to offer splendid, healthy, and good flowering bulbs of GLADIOLI, to the prices:—Gladioli, seedling, first-rate, 8s. per 100, £3 per 1000; mixed white, 12s. per 100; do. red, 12s. per 100; do. yellow, 24s. per 100; do. rose, 12s. per 100; per names, 100, 10 sorts, 8s. per 100; 25 sorts, 14s. per 100; 50 do., £1 to £2; 100, £2 to £6, and upwards, according to the novelty of the sorts, all in good flowering bulbs. English Cheques or Post Office Orders on Paris accepted for payment.

GERANIUMS:—Mrs. Pollock, Sophia Dumaresque, 3s. per dozen; Lady Cullum, Sophia Cusack, Louisa Smith, 3s. 6d. per dozen; Thos. Moore, Lord Derby, Wm. Underwood, 2s. 6d. per dozen; 12 varieties of double, including Jewel, E. J. Lowe, and Aline Sisley, for 3s.; Dr. Denny's second set, Rienzi, Lord Macauley, &c., for 5s., in rooted cuttings, for 3s. 6d.
PANSIES:—100, in 40 choice varieties, for 18s.; 50, in 25 sorts, for 10s.; 12 varieties, 3s.; Cloth of Gold, the finest yellow, 2s. 6d. per dozen, 16s. per 100; Great Eastern, the finest white, 2s. 6d. per dozen.
CALCEOLARIA, Golden Gem, 5s. per 100, 40s. per 1000.
J. LEIGH, Sandy Lane Nursery, Lowton, near Newton-le-Willows.

To those who wish to make their Garden gay this Spring.—Send for

S. SHEPPERSON'S COLLECTION of superb POLYANTHUSES, 12 vars., 2s., post free; 100 vars., 12s., package and box free. Cash.
SAMUEL SHEPPERSON, Florist and Seedsman, Prospect House, Belper.

CALCEOLARIAS (Bedding).—The six finest sorts in cultivation, all different colours, including the splendid new varieties—Princess Louisa, Golden Gem, Crimson King, Little Gem, &c. Postage or package free for 1s. 3d. per dozen, 8s. per 100, or 70s. per 1000, cash.
SAMUEL SHEPPERSON, Florist and Seedsman, Prospect House, Belper.

To the Trade.

GEORGE GRAY AND SON offer the following, all of which has been recently transplanted:—
HOLLIES, Common, stout, 6 to 10 inches, 40s. per 1000.
YEWS, Common, stout, 6 to 9 inches 60s. per 1000.
BERBERIS DARWINII, 1 foot, 80s. per 1000.
CEDRUS DEODARA, 6 to 9 inches, 20s. per 100.
,, ATLANTICA, 1-yr. seedling, 8s. per 100.
PINUS INSIGNIS, 1 foot, 15s. per 100.
,, MURICATA, 1 foot, 40s. per 100.
,, TUBERCULATA, 1-yr., 8s. per 100.
VOILET CZAR, 5s. per 100.
LIGUSTRUM JAPONICUM, 1 foot, 8s. per 100.
,, OVALIFOLIUM, 2 feet, 8s. per 100.
PEACHES AND NECTARINES, dwarf maiden, of best kinds, 50s. per 100.
PLUMS, Victoria and Green Gage, dwarf maiden, 40s. per 100.
Orders carefully packed in damp material.
Nursery, Chertsey, Surrey.

Verbenas for Sale.

S. BIDE can now supply, for cash, Verbenas, spring-struck, strong, and free from disease of any kind, including Purple King, Scarlet, White, Pink, and many other varieties (of which a list may be had on application), at 8s. per 100, package free. PELARGONIUMS, show and fancy, of the best varieties, 40s. per 100. GERANIUMS, plain-leaved and zonal, strong autumn-struck plants, 10s per 100. CENTAUREA CANDIDISSIMA, struck last autumn, and well established, in large 60 pots, 40s. per 100. AUREA FLORIBUNDA and other CALCEOLARIAS, 8s. per 100. HELIOTROPES, light and dark, 8s. per 100.
S. B. would particularly wish to draw the attention of his numerous customers to his fine stock of VERBENAS for this season, which are the admiration of all who see them; and would request that all orders should be sent to him as early as convenient, as he was unable to supply many who applied late last season—general satisfaction being expressed by all those who favoured him with their orders.
S. BIDE, Alma Nursery, Farnham, Surrey.

PEAT.—A few hundred tons of a SUPERIOR quality delivered at the Blackwater or Farnborough Stations for 17s. a ton. Apply to
W. TARRY, the "Golden Farmer," Bagshot, Surrey.

Fibrous Peat.

BROWN FIBROUS PEAT, best quality, for Orchids, Stove Plants, and Potting, £6 6s. per Six-ton Truck-load. BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, New Holland Plants, &c., £5 5s. per Six-ton Truck-load. Delivered on rail at Blackwater, South-Eastern Railway, or Farnborough, South-Western Railway.
WALKER AND CO., Farnborough Station, Hants.

Sphagnum, or Peat Moss, for Orchids.

FRESH SPHAGNUM MOSS, 10s. 6d. per sack.
WALKER AND CO., Farnborough Station, Hants.

To Propagators and Plant Growers.
The most useful material for the attainment of successful and rapid culture is

COCOA-NUT FIBRE REFUSE.—Price 1s. per bushel, or 6d. per bushel for quantities of 20 bushels and over.
DAGNALL AND TILBURY, Steam Cocoa-nut Fibre Works, Farm Lane, Walham Green, S.W.

COCOA-NUT FIBRE REFUSE.—Five hundred truck loads. Cheapest and best in market. Price on application. From Messrs. Ewing & Co., Royal Norfolk Nurseries, Norwich:—"Your refuse is of first-rate quality." From Mr. E. Hoffamby, The Nurseries, Groombridge, Tunbridge Wells:—"The five trucks refuse arrived. It is highly satisfactory." From Messrs. Cranston & Mayos, King's Acre, near Hereford:—"For plunging and forcing your Refuse is invaluable."—H. WRIGHT, Steam Fibre Works Heneage Street, Brick Lane, London, E.

Rhododendrons.

HENRY FARNSWORTH, Matlock Bank, Derbyshire, has to offer a fine stock of the following, at a moderate rate :—

3-yr. Seedling, fine.
3-yr. Seedling and 2-yr. transplanted.
3-yr. Seedling and 3-yr. transplanted.
4 to 8 inches good stuff ; 6 to 10 inches bushy.
For prices and samples apply as above.

New Potatos for 1875.

JOHN CATTELL with the greatest confidence recommends the following, which have received a First-class Certificate :—
ECLIPSE KIDNEY (Cattell), price 6s. per 7 lb.
RELIANCE KIDNEY (Cattell), price 4s. per 7 lb.
ADVANCER KIDNEY (Cattell), price 4s. per 7 lb.
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BEAUTIFUL SPRING FLOWERS.

PRIMROSES, Double Yellow and White, 4s. per dozen.
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,, Single Mauve, in pots, beautiful, 1s. each.
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A Collection of 100 choice HARDY ALPINE and ROCK and HERBACEOUS PLANTS, showy and free flowering, 20s.
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LIMES, 7 to 9 feet, clean grown.
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LIMES, 12 to 16 feet high, straight stems, girting 4 to 8 inches at 4 feet from the ground, with well-laced heads, and splendidly rooted. A stock of more than 5000 of these fine Trees to select from.
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All being stout, straight stemmed, and finely rooted. Every Tree has been removed within two years.
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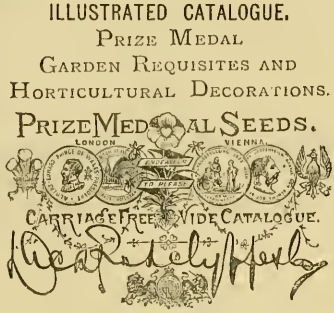

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New Dwarf Silver Variegated Geranium.
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WM. POTTEN is BOOKING ORDERS for the above. For particulars see advertisement in *Gardeners' Chronicle*, January 30. A very favourable report of it may be seen in the *Journal of Horticulture*, November 19, 1874, by Mr. Robson, and February 4, 1875, by Mr. Luckhurst.
Camden Nursery, Sissinghurst, Staplehurst, Kent.

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PEARS, extra fine dwarf-trained, all the leading kinds.
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PLUMS, extra fine dwarf-trained.
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ISAAC BRUNNING AND CO. beg to announce that they have this Season a very fine and extensive Collection of the above to offer, strong plants of which are now ready for sending out. LIST of Varieties and Prices, together with Illustrated SEED CATALOGUE, on application.
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CENTAUREA, candidissima, silver leaf, strong plants, 3s. per dozen, 20s. per 100.
Package included. Terms cash.
Cemetery Nursery, Gravesend.

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WELLINGTONIA GIGANTEA, 3½ to 4 feet, 60s. per dozen; 5 to 6 feet, 90s. per dozen; 6 to 7 feet, 120s. per dozen.
CUPRESSUS LAWSONIANA, 7 to 8 feet, 30s. per dozen, 10 to 12 feet, extra fine, 7s. 6d. to 10s. 6d. each.
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CATALOGUE free on application.

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Is now ready, and may be had on application.

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HARDY ORNAMENTAL TREES, SHRUBS, and EVERGREENS.
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DESIGNS, PLANS and ESTIMATES prepared for Laying-out and Planting New Grounds, and for Improving Park Scenery and Existing Shrubberies and Plantations.

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BEGS TO ANNOUNCE THAT HIS

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H. & F. SHARPE

Invite the attention of the Trade to the following varieties of SEED POTATOS, which they have grown from the finest selected stocks especially for Seed purposes, viz.:—

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" ROBSON'S CHALLENGE,
" DALMAHOY,
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For Prices (which are very moderate), and further particulars apply to
H. AND F. SHARPE, SEED GROWERS, WISBECH, CAMBRIDGESHIRE.

THE HANDSOMEST AND BEST NEW POTATO IS

CARTER'S AMERICAN BREAD-FRUIT.

Indispensable as one of the best Potatos for Exhibition.

CARTER'S

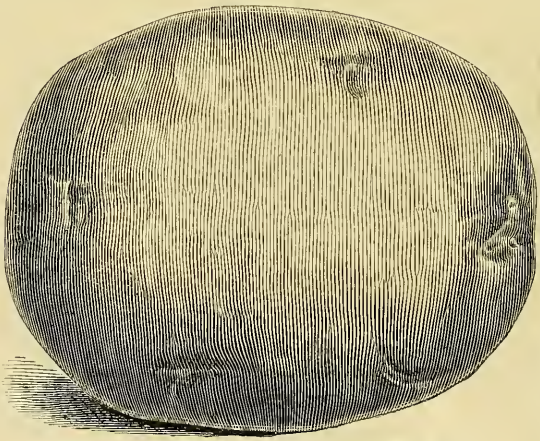
AMERICAN

BREAD-FRUIT.

FOR MAIN CROP.

This is a grand Potato in every respect. Handsome in shape, with very shallow eye. Flesh of fine texture and superb quality, whether baked or boiled. It is a first-rate keeper, and extremely prolific.

An invaluable acquisition to Hotel Keepers, for Public Institutions, &c.



CARTER'S AMERICAN BREAD-FRUIT POTATO.
Per Peck, 6s.; per Bushel, 21s.; per Cwt. 35s.; per Ton, £30.

THE POTATO THAT BEST RESISTS DISEASE

IS

CARTER'S

IMPROVED RED-SKIN FLOURBALL.

Price per Peck, 2s. 6d.; per Bushel, 9s.; Per Cwt. 17s.;

Per Ton, for not less than half a ton, £14.

We again offer a very fine selected stock of this invaluable Potato, which continues to resist the ravages of the disease in a most surprising manner. We have at all times avoided the statement published by some Houses, "that the Red-skin Flourball Potato is the only *disease-proof* variety." We, however, repeat that our Improved Red-skin Flourball resists the disease to a far greater extent than any other variety in cultivation.

CARTER'S Improved Red-skin Flourball was one of the varieties in the great Trial of Potatos made by the Royal Agricultural Society of England last year, and we believe we are justified in stating that it fully maintained its disease-resisting reputation, whilst other varieties were nearly consumed by the disease.

Carter's THE QUEEN'S SEEDSMEN, 237 & 238, HIGH HOLBORN,
LONDON, W.C.

SATURDAY, MARCH 27, 1875.

PALM SUNDAY.

THE lingering of old customs, and the slowness of their extinction, is a fact patent to every observer. We imagine that a belief, superstition, or tradition—the names vary, but they represent the same thing from different points of view—has died out, and suddenly we find it in full force and vigour at our very doors. We are, of course, too civilised to believe in witches—yet the drowning of a poor old man at Sible Hedingham on the plea of witchcraft was not an act of the "dark ages," but of the middle of the present enlightened century. We have abandoned the superstitious religious observances of bygone days; and yet, walking through Covent Garden a few days before Palm Sunday, and noticing the members of the "costermonger" class in our London streets, we observed bunches of Willow twigs with their fluffy yellow catkins exposed for sale in the one, while a spray of the same tree formed part of the "outward adornment" of the other. On enquiry we learnt that they were "Palms," and this reminded us of "Palm Sunday," with which these Willow twigs may perchance have something to do.

Palm Sunday itself is at any rate no mediæval invention, but dates back to very early times. Ecclesiastical writers tell us that in the fourth century the Palms from which the people cut the branches when they went out to meet our Saviour were still to be seen in the valley of Cedron. It was at the beginning of the seventh century that the "Procession of Palms" at Angers, which may be said to have become historical, took place. The late Dr. Neale, in one of his charming little books, gives the narrative of the events which occurred on this occasion; and tells how Bishop Theodulph, having been imprisoned by the king—for Church and State conflicts arose even in those days!—composed for his choir-boys the hymn which is still in use in the Catholic Church upon this day. The dramatic character of the service of the day was well calculated to fix it upon the minds of the people; and so it is that, after 300 years' disuse, the Spitalfields weavers, to quote Mr. Timbs, "to this day emerge from their murky dwellings into the open country of Essex to gather Palm," as many Willows, and especially Salix caprea, are called; while in mining districts the Protestant miners crowd the Catholic churches on Palm Sunday to obtain a "blessed Palm," believing that it will preserve them from danger at their work.

Reference has been made above to a Palm Sunday, which has become historical. Some may be inclined to refuse the term to the event to which we have applied it, but they will not deny it to the discovery of Florida by the Spaniards, under Juan Ponce de Leon, on the Palm Sunday (April 2) of 1513. Both gulf and peninsula owe their name to the day on which the latter was discovered, which was known as "Pascha Floridum."

It would not be easy to ascertain how long the golden catkins of the Willow have been connected in the popular mind with Palm, and have borne the same name, but the use of them is certainly ancient, and appears to have been in a great measure confined to our own country. Hampson quotes an old sermon for Palm Sunday from the Cotton MS., in which occurs a passage saying that, as "we have non olyfe that bereth grene leves we [have] taken in stede of hit Hew [Yew] and *Palmes wyth*, and beroth abowte in procession; and so this day we callyn Palme Sonnenday." Barnaby Googe speaks of the "hallowing" of Willow branches, "that they *Palmes* do use to call;" and Coles, in *Adam in Eden* (1657), says of the Willow blossoms that "divers gather them to deck up their houses on Palm Sunday, and therfore the said flowers are called Palme." It is the Willow which is sold as "Palm" in Covent Garden Market, and which is placed in the porches of churches; while in Kent and other counties, "going a Palming" is a popular custom on the Saturday before Palm Sunday. In Germany also the Willow is gathered, and blessed by the priest in the ceremonies of Palm Sunday, and Goethe records its use in the lines—

> "More northern climes must be content
> With the sad Willow"

as a substitute for the "true Palms," which are used in Rome upon this day. It would appear that in Turner's day Willow only was used in England, and in his *Libellus* (1538) he has a characteristic protest against the "mendacity" of the clergy who used the prayer beginning "Benedic etiam hos palmarum ramos," when only "salignas frondes" were present. According to Sir Walter Scott's novel, *Castle Dangerous*, Willow and Yew are carried even in Scotland upon Palm Sunday; and Brockett says that in the North of England the flowers of Willow are gathered early in the morning of that day, and with them "small pieces of wood formed into crosses, called Palm crosses," are decorated, which are then "stuck up or suspended in their houses." According to Pallas, as quoted by Martyn, it is a species of Willow (Salix vitellina) that is used as a substitute for Palm in the Greek Church of Russia. Among ourselves, S. cinerea and S. caprea are the species chiefly used; and of these waggon-loads from the marshy banks of the lower Thames region are sent to London every year.

So far as ecclesiastical use is concerned, however, it would appear that Yew, rather than Willow is nowadays the chosen representative of the Palm. In most of the London Roman Catholic churches it is branches and sprays of this tree that are blessed and distributed upon Palm Sunday. We have already given an early reference to this employment of Yew, but it seems to have come into more general use of later years than formerly. In the accounts of St. Martin Outwich, London, for 1525, there is a payment for "Yow" on Palm Sunday, but as there is also an entry for "Palme" and "Box floures" on the same date, we may conclude that Willow was at any rate the most common substitute for the tree of which it had appropriated the name. Some have supposed that the planting of Yew trees in churchyards originated in the necessity for obtaining a supply of their branches for the ceremonies of Palm Sunday; but this is an improbable theory.

On the Continent, and especially in France, Box is the favourite representative of the Palm. Any one who has walked through the churchyard of a French village must have been struck by the somewhat unsightly appearance of withered or withering Box branches upon most of the graves; these are placed there on Palm Sunday. A very good account of the use of Box in France upon this day will be found in our volume for 1870 (p. 560), to which it is only necessary to add that it is occasionally, though not frequently, employed in England at the present day as a substitute for Palm. In former times, however, its employment was more general; there is an entry in the *Domesday Boke* of a tenure of land in Shropshire being held on payment of a bundle of Box twigs upon Palm Sunday; and Newton, in his *Herball to the Bible*, gives an account of the serious effects upon "a certaine young man" of the ashes of

Box which had been blessed upon that day, and were administered to him as medicine.

A notice of the ecclesiastical use of the real Palms will also be found in our volume above referred to, where other substitutes for it are also mentioned. Among these, however, there is no reference to the Hazel, which is used with the Willow in Lincolnshire. A writer in the *Stamford Mercury* for April 15, 1870, says:—"Long after the Reformation the common people were tenacious of their belief that such branches gathered on Palm Sunday had peculiar virtues, the old Pagan demons or spirits of evil having no power on that and the two preceding days. I have seen bunches of Hazel and Willow twigs so gathered preserved in constant verdure the year round by placing them in pots of water in cottage windows, and was once told by an aged granddame in South Lincolnshire that they were 'good against thunder and lightning.'"

The ashes which are used in the ceremonies of Ash Wednesday are made from the "Palms" of the previous year, which are preserved until then, and used for that purpose. This notice may be concluded by the following quotation from Mr. Conway, who does not specify to which representative of the Palm his notes refer:—"In Germany, the might of the Wild Huntsman was conquered by a leaf of Easter Palm. In Slavonian regions it is supposed to be especially endowed on Easter Day to protect the field in which it is planted from bad weather. In Germany it is naturally the chief banner of Palm Sunday, on which day—like the Misleto before it—there is hardly any good result that may not be secured by it. If as many Palms as there are members of a family be thrown on a fire, each with a name on it, he or she whose leaf burns first will die first. In Bavaria, one who, during an eclipse of the sun, throws an offering of Palm with crumbs on the fire, will never be harmed by the sun. In a storm, Palm switches laid cross-wise on the table procure safety. In Bohemia the charm against fleas is this: During Passion Week put a leaf of Palm behind a picture of the Virgin. At the first stroke of the resurrection bell—*i.e.*, on Easter morning—take down the leaf, swing it twice, saying, 'Depart, all animals without bones!' There will be no more fleas in the house for that year. Palms are thrown on the fire on All Soul's Day, for the poor souls are that day free from purgatory." *B. M.*

New Garden Plants.

Odontoglossum ramosissimum, *Lindl.**

A species of that very interesting group of Odontoglossa which Dr. Lindley called "Isanthium sepalis et petalis anthesi longe distantibus," which do not make a *furore* by their single flowers, but by the masses of those organs, just as in the case of some of the Epidendra, Calanthes, &c. The panicles are very large, with very numerous stellate white flowers. If I may guess from my very copious wild specimens, there are many varieties, among which—to my taste at least—I would prefer to all others those with deep violet spots on all parts of the flower. Others must have had Ilac, others purplish spots, and these I regard inferior, though they may be very pretty. The crests are, alas! subject to variation. Dr. Lindley found them serrate in Odontoglossum angustatum, and entire in ramosissimum. The first he described from Colonel Hall's specimens, the second from Mr. Linden's, n. 61. I took no notes at Dr. Lindley's, possessing Hallian and Lindenian specimens. Now, one may guess my trouble when my Lindenian plant showed toothed crests, and the good Colonel's plant entire ones! And yet, having examined no doubt the richest materials accumulated in one man's hands, and having studied Dr. Lindley's types, I am persuaded he was very right in separating the two.

Odontoglossum angustatum (lately observed by Dr. Spruce, whose No. 6669 it is) is a narrow spider-like thing, quite easily recognised by the narrow base of the lip, as Dr. Lindley has very well pointed out. It will never be able to match Odontoglossum ramosissimum, having a poor inflorescence of tiny flowers. Dr. Spruce kindly informed me that the sepals are brownish purple, with yellow margins; petals yellowish, with brownish blotches; the crest of the lips whitish. That would not be very tempting for a modern amateur.

Odontoglossum ramosissimum has flowered in Europe in Mr. Linden's establishment, who obtained it from his keen traveller (call him botanic or horticultural, just as you like), Wallis. It has been very beautifully represented on plate xxvi. of Mr. Bateman's splendid work. This author says it "does not exactly answer to the descriptions in the *Folia Orchidacea*, either of O. angustatum or ramosissimum." This is decidedly true, yet the base of the lip makes it a go to O. ramosissimum, as well as the broad petal; and I plead guilty of having then regarded it an anomalous O. angustatum. O. ramosissimum was also discovered by Colonel Hall, then gathered at Meride by Mr. Linden, no doubt under the helping assistance of his half-brother, Mr. Schlim. In the *Folia Orchidacea* it is called, according to Mr. Linden, "a magnificent species;" and Mr. Bateman states, *l.c.*, "it was universally admired at South Kensington." For my part I should like the dark violet-spotted varieties. May they be included in the importation Mr. Bull appears to have made. *H. G. Rchb. f.*

* *Odontoglossum ramosissimum.*—Pseudobulbis ovalibus compressis; foliis lineari-ligulatis acutis elongatis; panicula maxima ramosissima divaricata; bracteis triangulis variæ longitudinis; sepalis cuneatis ligulatis acutis crispis; tepalis bene latioribus crispulis; labello rhombeo acuminato extenso basi cordato subcordatove integre trifido trilobove hinc crispulo disco velutino; carinis baseos oblongo semirhombeis vulgo integris, carinula humillima mediana, falcibus appositis antice utrinque ternis; columna aptera.—*Odontoglossum angustatum*, Lindl. Orch. Lind., No. 90; Bateman, Odontoglossum, xxvi. *Odontoglossum ramosissimum*, Lindl. Folia, i., No. 47.

Oncidium annulare, *Rchb. f., n. sp.**

This is a curious species, that may probably prove a good acquisition, though not just of the very first class. It is a Cystochiloid Oncidium, very near Oncidium serratum and æmulum. The callus of the lip is the chief and peculiar ornament. The crisp toothletted, plaited and folded petals are coherent at their top, and form a ring, whence the name. They would rather appear to be of a warm yellow, with cinnamon dots, and with a cinnamon disk. It is of New Grenadan origin, one of the numerous discoveries of Mr. Wallis, who.dred a branch I possess. I have also specimens from M. Roezl and Chesterton, the latter a present of Mr. Harry Veitch. It is now at hand from Mr. Bull, who would appear to have introduced living plants, since he is impatient to have its name. The plant should be recommended to Austrian amateurs, at least the blackish variety, as it bears the Austrian national colours, black and yellow. *H. G. Rchb. f.*

* *Oncidium annulare*, Rchb. f., sp. n.—Bene affine Oncidio falcipetalo, Lindl.; sepalo summo transverse reniforme crispulo bene unguiculato basi auriculato; sepalis lateralibus subæqualibus paulo longioribus, tepalis unguiculatis, unguibus utrinque auriculatis; laminis tepalorum oblongis complicatis crispulis annulato cohærentibus; labello utrinque basi auriculata ligulato a basi constricto; callo baseos interno utrinque obtuse tridentato, medio obtuse calloso, extus utrinque lamella, incumbente serrata; columnæ auriculis triangulis retusis ascendentibus.—A simili Oncidio æmulo recedit tepalis annulatis, a simili Oncidio falcipetalo tepalis multo latioribus ac callo tote cœlo diverso.

Adiantum Seemanni, *Hooker.**

Though not a new name amongst our garden Ferns, this is in reality a new garden Fern; at the same time it is not new to science, having been described by Sir W. J. Hooker so long since as 1851. This seeming anomaly is thus explained. When publishing his *Species Filicum*, Sir W. Hooker described under the name of Adiantum Seemanni a remarkably fine pinnate species, gathered by Seeman in 1838 in Central America. Some four or five years ago, on the occasion of one of his subsequent trips to Central America, Dr. Seemann gathered fertile fronds of a pinnate Adiantum which he supposed to be the same as that just referred to, and these were either sent or brought home by him, and handed to Mr. Bull, who raised from them a crop of plants, which in the juvenile state passed unchallenged as A. Seemanni, for which Seemann had gathered them. The error was not discovered until Messrs. Veitch & Sons exhibited, under the provisional name of Adiantum Zahnii, a fine pinnated Maidenhair, collected also in Central America by their collector, Zahn, when a closer examination showed that the plant introduced by Seemann was really Adiantum Wilsoni and not Seemanni, while the supposed new A. Zahnii was not strictly new, but the already described A. Seemanni. The mistake was one that might easily be made, since both species have pinnate fronds with large oblique long-pointed pinnæ, and it was only when fructification was produced by the young plants that any tangible materials for their identification were available, and even then they were overlooked until the advent of Zahn's plant led to their closer scrutiny.

Fig. 77.—Adiantum Seemanni (fertile and barren pinnæ and fruit).

Adiantum Seemanni, as will be seen from our illustrations (figs. 77, 78), is a noble species. We are indebted to Messrs. Veitch for fronds from their specimen plant represented by fig. 78, which are fully 2 feet long, with fertile pinnæ 3 inches long and 2 inches broad at the base, while some of the sterile pinnæ are nearly 4 inches long and 2½ inches broad. They have a comparatively slender glossy black stipe, bare on the lower part, and bearing towards the top from four to eight of the magnificent pinnæ already noted, which are attached by a slender petiole an inch long, and are prominently rounded on the anterior base, and sloped off on the posterior side, the colour being a deep olive-tinted green, slightly glaucous beneath. The sori in the more perfect fronds occupy the whole margin except the sloping portion of the base and the acuminate point, which latter, as well as the sterile pinnæ, is incisely toothed; they are very large and prominent, in some places oblong, a quarter of an inch long, sometimes more sometimes less, in other places cohering for a length of an inch or more, chiefly at the upper base.

When shown at the Royal Botanic Society's *fête* in June last under the name of A. Zahnii, the plant was awarded a certificate. The specimen represented at fig. 78 measures 2 feet 2 inches across. *T. Moore.*

* *Adiantum Seemanni*, Hooker.—Caudex creeping knotted, sending down copious woolly roots; fronds ovate, pinnated; pinnæ few, large, 4–6, on long slender petioles, obliquely and broadly deltoideo-ovate acuminate, not lobed, coriaceo-membranaceous; sterile ones closely and deeply incisso-serrated, striated with the copious veins, dark brown-green and glossy above, glaucous and opaque beneath; sori contiguous, short oblong or linear-oblong and elongated, or less combined or continuous, hard and coriaceous; stipes, rachis, and petiolcs black, ebeneous and very glossy.—*Species Filicum*, ii. 5, t. 81 A.

EASTER FLOWERS.

It is no unnatural instinct which prompts the decoration of churches with flowers at Easter; and it is a pity that so pleasing and in itself innocent a custom should be regarded among Church people as the badge of a party. It would probably, however, be easy to show that the custom of church decoration at Easter is no innovation, as some have supposed, but rather a restoration of a custom which was once general and has never really become extinct. Thus, at Berkeley, a village near Frome, the church has always been decked with Yew on Easter Day.

But it is rather with the popular than the ecclesiastical history of Easter flowers that we have now to do, although the one and the other are in the present instance "somewhat mixed." We devoted some space last year (Sept. 19) to a notice of "Easter Mangiants," as Polygonum Bistorta is called in the North of England; and some notes upon "Tansy pudding," an Easter dish of repute in former days, will be found in the same paper. In addition to what was there published regarding the Bistorta and its curious name, the following note, from the *Beauties of England and Wales*, may be given. Speaking of Westmoreland the writer says:—"Till about the middle of the last century garden vegetables, except Onions and a few savoury herbs, were little known, but a mess made of the tender leaves of a fine Bistorta (called here Easter Ment-gions, *i.e.*, sprouts of the Easter month) and groats, mixed with a small portion of young Nettles, leaves of the giant Bellflower, and a few blades of Chives, all boiled together in a linen bag with the meat, was accounted a delicacy to eat with veal in the spring."

Another plant which commemorates Easter in its name is the Pasque-flower (Anemone Pulsatilla), pasque or pask being an old word for Easter, which is the equivalent of the Jewish Passover; indeed, the word which is rendered "passover" in the authorised translation of the Bible, stands as "pasch" in the Douay version. This name was bestowed upon the Anemone by Gerarde, who says he was "mooved" so to name it because it "flowers for the most part about Easter." This was before the revision of the Calendar, and all Easters are not as cold and winterly as the present one bids fair to be.

In *The Festival*, published in 1511, we are told that "it is the maner at this [Easter] daye to do the fyre out of the hall, and the blacke wynter brondes, and all thynges that is foul with fume and smoke shall be done awaye, and then the fyre shall be gayly arrayed with fayre flowers, and strewd with grene tyssles all aboute;" and it is still the custom in some homes to leave off fires on Easter Sunday. In Ireland Easter bouquets are carried about, formed, when the weather will permit, of a round ball of Primroses, with an Anemone or other flower in the centre. Similar bouquets are made in Warwickshire, save that the "Palm" or Willow there enters into their composition.

In France the Daisy is the Easter flower, being known as Paquerette, or Paquette. In Upper Bavaria the peasants make garlands on Easter Day of the sweet-scented Colt's-foot (Nardosmia fragrans) and such other flowers as they can find, and cast them into the fire; this is doubtless the modern form of some pre-Christian ceremony. The great Stitchwort (Stellaria Holostea) is known in some parts of England by the prettty name of Easter Bell.

A curious superstition with regard to planting flower seeds, especially of Stocks, about this time of year prevails, not only in some parts of England, but also in France. In Bohn's edition of Brand we read that in Gloucester it is, or was, believed that if sown on Palm Sunday the blossoms would "be sure to come double." A similar belief attaches in some places to the sowing of Stock seed on Good Friday; while in some parts of France it is customary for the women to take to church on that day in their pockets seeds of Stocks mixed with earth, which they shake up during the singing of the "Stabat Mater," believing that by this means double flowers will be ensured! *B. M.*

Fig. 78.—ADIANTUM SEEMANNI (SPECIMEN PLANT).

STOKE PARK, SLOUGH.

This fine domain, the seat of J. C. Coleman, Esq., is celebrated for its large timber, consisting chiefly of Oaks and Elms, &c., and which have a grand appearance in this extensive park. The mansion, a large well-built structure, overlooks a fine stream of water in the hollow below, which has the park sloping down on either side of it, and there are also about 1000 head of deer, some of a very large size. These add very much to the grandeur of the park, as they bask under the fine old trees and parade the spacious grass carpet. I noticed some fine specimens of Coniferæ on one side of the mansion, also a large collection of Rhododendrons, which when in bloom must produce a very good effect; the flower garden is well planted with bulbs, which are just peeping through the soil: they will be very effective when in flower. In the centre of one of the beds I noticed some fine specimens of Thuja aurea.

Adjoining the house is a large conservatory for foliage and flowering plants, which are looking well. There is here a grand pair of Areca Bauerii, a fine Palm, and one of the best for a cool house, also a pair of the graceful Seaforthia elegans; under these was the noble Latania borbonica, with its shining fan-like green leaves, and at each side of the entrance was a stately Dracæna indivisa. These foliage plants were all in pairs, which produces a grand effect. Underneath are flowering plants of different kinds, such as Camellias, Ericas, &c.; this house is kept gay all the year round. On the west side of the dwelling-house is a fine fernery under glass; in it are some grand specimens, also in pairs. I noticed Cyathea Smithii, 12 feet high; also Cyathea dealbata, the Silver Tree Fern; C. medullaris, 20 feet high, and fronds 15 feet across; also Dicksonia antarctica; below these were Todea superba, T. pellucida, and many other good Ferns. The soil and rocks were covered with Lycopodium. After leaving these fine Ferns you arrive at a corridor of glass, which is heated, and in it are the finest specimens of Chamærops excelsa that I ever saw. There are two rows of fine specimens of different kinds with mirrors at each end, on each side of which are pairs of grand Palms, Dracænas, &c. The Seaforthia elegans are very effective, the stems being 12 feet high; also the Chamærops arborescens—they have good heads on tall fine stems. Mr. Coleman has great liking for these fine plants; no other class of plants can produce the same grand effect. In May and June the large specimen Azaleas are brought in full bloom, and intermixed with the various foliage plants. I also noticed a fine specimen of Imantophyllum miniatum, just coming into bloom; it is a showy plant and produces a good effect with its orange-scarlet flowers: it will grow well in any cool house. On leaving these houses I walked through part of the park, which, on a hot summer's day, must be pleasant, owing to the shade afforded by the grand trees, and the cool and refreshing appearance of the lake, the rising ground on one side, and in the distance a church spire, which always forms a kind of finishing touch to the landscape. Some of the trees are covered with Mistleto.

In the kitchen garden my attention was at once taken by the men's bothies. Mr. Coleman deserves great credit for his consideration of the comfort of the young gardeners; the bothies are quite model apartments; there is a bedroom for each

man, a good dining-room and kitchen, and every other convenience; a woman is provided to cook and do all that is required. Mr. Simpson, the steward, was kind enough to show me over these bothies, and explained to me what pleasure and interest Mr. Coleman felt in providing such accommodation for the young men.

After leaving here we met Mr. Stocking, the gardener, who was kind enough to show me round the houses. The first were a range of span-roofed houses, chiefly for Orchids; there were many in bloom, the most noticeable being two rows of Dendrobium nobile and Wallichianum, with as many as 500 expanded flowers on one plant, all of a good colour. There is no Orchid so useful for decorative purposes as this, and to see it in such perfection is a grand sight. In the same house was Vanda tricolor and suavis with strong spikes; also Phalænopsis amabilis, grandiflora and Schilleriana, with their white and mauve-coloured flowers and drooping spikes; Vanda gigantea, Calanthe Veitchii and C. vestita, all help to make a good display. I was glad to see a few good Ferns intermixed with the flowering Orchids, as they enliven the scene.

The next house was quite gay with Cattleya Trianæ, which was one of the finest varieties I have seen. The colour was good and the flower large, the lower part of the lip beautifully fringed. Cypripedium villosum, Cattleya amethystoglossa. Cœlogyne cristata, with its pure white flowers intermixed with its graceful foliage, is a most useful Orchid, and very effective in ladies' hair and bouquets; Anthurium Scherzerianum, with its showy scarlet spathes, also took part in this house; and near this was the beautiful Adiantum Farleyense. On the whole the Orchids look well, and I have no doubt that they are the foundation of a good collection, as they seem to be appreciated by Mr. Coleman.

The next is a foliage-house, consisting principally of Marantas, Dracænas, Crotons, &c. These are grown for decorative purposes, and they are very useful, especially when they are well coloured, as they are here. We next come to a range of Pine-houses, in which the plants are showing well for fruit; and there are also many good succession plants which are strong and vigorous. In the next houses there is a fine display of Orchids, especially of Phajus grandifolia, of which there were some large plants with numerous spikes of showy flowers. I noticed a fine variety of this, with more white than usual on the upper part of the flower, and the flowers were very large. With these were some fine specimens of Dendrobium nobile, in full bloom, and others coming in succession; also a grand plant of Dendrobium Dalhousianum, showing thirty spikes of bloom. When this is in flower it will be a grand sight, for we seldom see a well-grown specimen of it. Mr. Stocking succeeds well with it, and deserves great credit for its cultivation.

After leaving this house we come to a large span-roofed house filled with fine specimen Azaleas. Azalea Gem is a grand specimen, A. Stanleyana is also large, and well set with buds; A. punctata rosea is a fine showy kind; A. Barkleyana is a splendid specimen; A. Criterion one of the best show kinds; Rhododendron Gibsoni, also a fine plant, and well set with bud. There I saw the finest specimen of Rhododendron Edgeworthii that has ever come under my notice. It is 5 feet high, in robust health, and produced about 1000 flowers last year. An illustration of this plant, when in bloom, deserves a place in the *Gardeners' Chronicle*. There is another span-roofed house, filled with Pelargoniums and New Holland plants. The collection of Ericas seem to be well managed; they are thriving well, and tied out to make fine young specimens. I noticed a fine plant of Pimelea spectabilis. This we seldom see grown well, although it is one of the best for exhibition purposes. The Camellia-house is gay with flowers, and many fine bracts are in blossom.

The fruit houses are a good range. Peaches form a prominent feature here; the crops promise well. Some are set, others coming on. There is also a good range of vineries. The first house was taken up last year, and it is promising well for a good crop now. Mr. Stocking informed me that the same year they were replanted the Vines bore a fair crop of fruit; the rest of the Vines are coming on in succession. Strawberries are grown largely for forcing, and, according to the appearance of the crops, there will be an abundance of fruit. *B. S. Williams.*

FUNGI.

A Review, a Gossip, and a Confession.

Under the name of *Fungi, their Nature, Influence, and Uses*, Messrs. King & Co. have recently issued one of the volumes of their "International Scientific Series." The author of the book is Mr. M. C. Cooke, and it is edited by the Rev. M. J. Berkeley: it contains 294 pages, is furnished with an index, and is fully illustrated.

In a recent number of the *Gardeners' Chronicle* Mr. Berkeley was happily compared with Agamemnon, the great commander-in-chief of the Greeks and King of Mycenæ (μύκης, a fungus). Now we all know that Mr. Berkeley is not only the acknowledged "King of the Mycenæ," but the honoured commander-in-chief of every other sub-genus (and genus) of fungi. For the time being Mr. Cooke takes the part of a trusty lieutenant recommended to the publishers (says the preface) by Mr. Berkeley himself, the latter having "merely suggested such additions as seemed needful, subjoining occasionally a few notes." "I have no doubt," says Mr. Berkeley, "that the same high character will justly apply to this as to Mr. Cooke's former publications, and especially to his *Handbook of British Fungi.*"

When the great Agamemnon thus introduces his officer, anything that may fall from the lips of Achilles (mere King of the Myrmidons) may seem more or less invidious, but as for many years there has been a great want felt for a good and trustworthy introductory text-book of fungi, and now that this want seems for the present to have been supplied, a few words from one who has trifled with funguses for nearly twenty years may perhaps be not altogether out of place.

The work is divided into fourteen chapters, which treat of the nature, structure, classification, uses, and notable phenomena of fungi; on the spore and its dissemination; germination and growth, sexual reproduction, polymorphism, influence and effects of fungi, their habitats, cultivation, geographical distribution, and their collection and preservation: a sufficiently extensive and exhaustive programme, but one that appears to be fully and well carried out. All the best authorities on the various subjects treated of appear to have been consulted, and their observations generally transcribed (often at considerable length), and the source duly acknowledged. The production of a work like the one now under review represents a large amount of laborious, difficult, and critical work, and one in which a serious slip or fatal error would be one of the easiest matters possible; but as far as we are able to judge the new handbook seems in every way to be well suited to the requirements of all beginners in the difficult and involved study of fungology.

As a future edition will probably soon be called for, we think it extremely desirable (if possible) to attach the scale to which all the figures are drawn. Some data of magnification are indeed present, but in too many instances the number of diameters to which the figures are enlarged is omitted. The scale to which things are drawn is often of the utmost importance, for no one (unless well acquainted with fungi) would believe the gigantic sporidium of Sphæria putaminum on p. 135 to be only enlarged 400 diameters, especially after comparing it with the upper figures to the same scale. It reminds one of Dickens' humorous description of the toy "Noah's Ark" in *Our Mutual Friend*, where "the elephant" is described as "leading, and the fly, with a diffident sense of his size, bringing up the rear." Morchella rimosipes, referred to on p. 99 as occurring in France and Bohemia, has also been known as a British plant for the last year or two, though its name may possibly have escaped publication, or been overlooked. The paragraph beginning p. 235, which says—"Of special habitats, we may allude to Nyctalis, of which the species are parasitic on dead fungi belonging to the genus Russula"—is far from correct, as a glance at Fries will show. Berkeley, in his *Outlines* (p. 217), correctly says, "often parasitic on other fungi;" and the fact is that even the British species of Nyctalis grow parasitically on *several* Agarics, including Lactarius, and in certain species (one British) they grow on the naked ground, or on rotten trunks—"ad terram nudam" and "in truncis cariosis," Fries, *Epic.*, nov. ed., p. 463. It is true Nyctalis is defined in the *Micrographic Dictionary* as "a genus of one or two species parasitic on Russulæ"; but this is by an oversight of the writer of the paragraph.

We regret to see the statement again repeated (p. 95) that "the late Mr. Salter at one time lived almost entirely on different species of Boleti, without using much discrimination," because we know that, before Mr. Salter died, he greatly regretted that such words had ever obtained publicity. Mr. Salter was unacquainted with fungi, and during the latter years of his life he made (to say the least of it) some very serious mistakes. It is no secret that the Rev. J. D. La Touche's racy and searching philippic, "Why we should not eat funguses," was written because "my good friend" (*i.e.*, Mr. Salter), "who really seemed well-up in the subject, and who found at every turn some well-known test of wholesomeness or otherwise to guide him, wound up the day by very nearly poisoning a member of my family, for he had, it appears, mistaken Boletus flavus, a violent poison, for the very similar but wholesome and excellent B. luteus." Further on Mr. La Touche says, "I saw with my own eyes my scientific friend eat and swallow an entire B. flavus raw without any apparent bad effects; whereas, a small portion of the same kind, cooked, produced violent sickness in another individual;" and "my friend assures me that he has eaten the highly poisonous Boletus Satanas with no worse effect than a little indigestion the next morning." We think all reasonable people, after reading of Mr. Salter's exploits, will exclaim with Mr. La Touche, "One man has, to use a vulgar expression, the stomach of a horse: can I, an average mortal, calculate on possessing such a treasure?"

Under "cultivation" (p. 253) no mention is made of Coprinus atramentarius, which has now been under cultivation in London for some years, as fully reported in a former volume of the *Gardeners' Chronicle*. We believe specimens were displayed at one of the London fungus exhibitions at South Kensington, and were awarded a prize. We have never been able to appreciate the correctness of the statement (p. 139) that "in the cultivated species we proceed on the assumption that the spores have passed a period of probation in the intestines of the horse, and by this process have acquired a germinating power." Elsewhere (p. 254) M. Chevreul's experiments are referred to, in which Mushrooms are developed from spores merely sown on glass. We have constantly repeated this experiment with success, not only with the spores of the Mushroom, but with other species of Agaricus. Neither, we imagine, do any of the other dung-borne Agarics require the intestines of a horse, for if the fresh spores of Coprinus radiatus or C. niveus be sown upon fresh dung they will in a day or two produce a dense crop of plants and quite exclude the Mushroom; some of these experiments have, we believe, been reported in the *Gardeners' Chronicle*. The cultivated Mushroom being a very common species, it is reasonable to suppose that its spores are abundant everywhere in the air, and horse-dung being also everywhere, too, the spores at once find a suitable nidus, and infest the dung; but if we once admit that the "intestines of a horse" are necessary to the Mushroom, then we must conclude that all the other dung-borne fungi require the same equine apparatus to "acquire a germinating power."

A few typographical slips require correction, as Cortinarius violaeus (p. 91), Agaricus geotrupes (p. 86), &c. Before taking leave of an excellent book we will make a few remarks on the last chapter, and on the study of fungi in general. Under "collection" of fungi (p. 287) Mr. Cooke describes the outfit of a collector, which must include, says the author, "an ordinary collecting box," or "open shallow basket; a large clasp knife, a small pocket saw, and a pocket-lens." "A great number of the woody kinds," says Mr. Cooke, "may be carried in the coat pocket and foliicolous species placed between the leaves of a pocket-book. It is a good plan to be provided with a quantity of soft bibulous paper. In collecting moulds (p. 289) we have found it an excellent plan to go out provided with small wooden boxes corked at top and bottom," and the "pill boxes" are afterwards not forgotten. Some of our foremost collectors never go out without a rake, a trowel, a small axe and hammer, or even a ladder; when these items are added (together with a hank of string) the enthusiastic fungus collector stands confessed. Some of our readers may exclaim, "Then, thank Heaven, I am not a Fungologist!" But Mr. Cooke says on his last page, "The prospects of new discoveries for the industrious and persevering are great. All who have as yet devoted themselves with assiduity have been in this manner rewarded. The objects are easily obtainable, and there is a constantly increasing infatuation in the study." As regards this study and its "infatuations" it is satisfactory to know that (p. 266) "Ireland is comparatively unknown, no complete collection having ever been made, or any at least published;" so that there is a good chance for any enthusiast who feels inclined to pass a year or two in the woods and bogs of the Emerald Isle—he need only add a shillelagh to his accoutrements to make his outfit complete. Of the illustrations we may say they are generally good, though very unequal in merit—some are new, whilst a good many have been before published elsewhere, as in Mr. Cooke's *Handbook*, &c.

Of late years we have come to the conclusion that the blandishments of fungi are dangerous, the "infatuation" referred to by Mr. Cooke, we know, is strong, and, like the sweet song of the Sirens, it too often (like that song) makes the hearer forget all else and die of hunger. Therefore our advice would be (especially to young men) that if the craze is once upon you, stick to one section of fungi only, or for a certainty you will be inundated. It is all very well for men of leisure and ample means, for the clergy, and for professors and doctors at museums and universities, to study the whole family, but the number of species is so large that no one can hope to master all unless he devotes the whole of his time to the subject. The general literature of fungi is difficult, very expensive, and in too many instances carelessly compiled, so that for a beginner to do any real work he must go over the ground himself. Here is an instance. There are two Agarics—one Agaricus murinaceus, the other Hygrophorus murinaceus, Fr. Berkeley (*Outlines*, p. 100 and p. 203) states they are "quite different"

(as we know them to be), and says the first is figured by Sowerby (t. 106); but Fries (*Epic.*, p. 333) says the *last* is Sowerby's plant and not the first. Now if we turn to Cooke (*Handbook*, p. 27), he says the two plants are "very different," and quotes Berkeley's reference to Sowerby for the first, and Fries' reference to the last; so that, if we follow the latter author, the plants are "very different," and yet quite *the same*, for the reference is not confined to Sowerby, but there is another to Bulliard (t. 520), under *both* plants. With one other instance we will conclude. Berkeley, describing Agaricus clypeolarius (*Eng. Bot.*, p. 8), says it is *inodorous*, but in the *Outlines* (p. 94) it is described as *sweet-scented*. Now, as odours are often of great importance in fungi, we naturally turn to Cooke (*Handbook*, p. 15), and we see under A. clypeolarius, first line, it is described as "fragrant," in the ninth it is "sweet-scented," whilst in the last line of the same description the same species is said to be "inodorous."

When it is remembered that there are so many other useful occupations which bring "reward" of a different nature from the "reward" of merely finding some minute fungus, because nobody ever looked for it before, or perhaps ever will again, that it becomes a question whether fungology is not better as it is—confined to the attention of a few. When one looks over "Outlines" and "Handbooks" of "fungi," and observes the vast number of minute species, and the involved and distracting terminology, one might almost be excused for saying, "Well, if this is fungology I'll go fox-hunting;" and the worst of it is that, countless as are the numbers of species already described, yet every month other armies come into the field, till one almost exclaims with Macbeth in his despair, "The cry is still, *They come.*" They are nearly all pygmies, pygmies innumerable, whole armies of whom might be held in the hand as Hercules held the dwarfs of the Upper Nile; they come in such shoals that, to use Chaucer's words in "The Millere's Tale," "Half so gret was never Noes flood." They are so similar in size and habit that one has to use all sorts of powers of the microscope to distinguish their differences; they are like the "Ghost Melody" in the "Corsican Brothers" played for a week, or Beethoven's "Turkish March" from the "Ruins of Athens," played without ceasing for a fortnight. We must confess that after many years study of fungi our feelings are very much the same with those expressed by Goëthe's *Faust* in his opening soliloquy—that the "reward" is in no way commensurate with the labour of the study. Berkeley, indeed, well says that "few exercises of the mental powers can be more improving than a diligent study of such a genus as Agaricus." The same may be said of whist and chess. But apart from the vital phenomena of fungi, and a knowledge of those species which decidedly affect our health or food, we confess that we consider the knowledge of the plants themselves (as mere species) to be little more than a difficult "mental exercise." *W. G. Smith.*

THE VIOLA,

For Town and Suburban Gardens.

It may rightly be assumed that the proper degree of importance attached to anything depends wholly upon the amount of benefit derived therefrom. Applying this rule to the subject of the following remarks—and we presume that it would be difficult to touch upon a vein more interesting, or indeed prolific of blessings appertaining to the temporal enjoyments of those whose lives are spent in towns and cities than the delight these gardens, both small and great, afford—just suppose what a wilderness London would be deprived of its splendid parks and public gardens, without mention of the countless multitude of green spots which afford relief to its vastness of stone, brick, and plaster facings. Magnificent buildings it has in abundance, and many of them moulded in architectural completeness, which are both the wonder and admiration of all who have the judgment and taste to admire such, but were those multiplied to a number comprehending examples of all the master conceptions displayed in the art that the world ever knew, and those grand monuments were reared on the spaces now devoted to pleasure ground and garden purposes, they would supply but poor compensation for the loss of the healthful pleasure derived from the city gardens and parks, however unpretending they may be.

Such being the writer's estimate of the importance of town and villa gardens—the floral furnishing of these may be left in the hands of those who have proven themselves well qualified to manage the matter—what the writer proposes doing at present is to draw the attention of those concerned to the Viola as a genus well suited for garden embellishment, in towns or elsewhere, and for certain purposes we are safe in asserting they stand unequalled by any other plants. For edging beds or borders, filling in scroll-work, and forming a ground in dwarf panels, they are indispensable, especially when distinct bright colours are wanted. Where the garden is damp and shaded, and therefore ill-adapted to the perfect flowering of Pelargoniums and other more tender popular favourites, the Viola ought to have a place in quantity. Unfortunately with the Viola, as with most other kinds of plants, a great number of worthless varieties exist. Although honoured with high-sounding names and testimonials calculated to lead the most alert astray by this dishonest practice, we have looked on all new sorts with suspicion until time and trial prove their qualifications. The following sorts we commend in confidence to our readers:—V. cornuta Magnificent: this is a deep mauve, furnishing large handsome flowers of the true Viola type, and an abundant bloomer. V. cornuta Perfection is a bright mauve, as a bloomer unsurpassed by any all through the summer. V. Sensation is one of the very finest darks in all respects, and V. Admiration will long sustain a good character as a deep mauve. Amongst whites Purity ranks high, forming dense regular tufts of foliage smothered with well-formed white flowers. Nor is V. White-bedder a shade behind, only it shows more blue in its eye. Amongst yellows, to form a dense mass all the year round, Golden Perpetual cannot be approached, but its flowers must not be compared to those of V. lutea major, which also forms a dense uniform line. V. Lady Susan claims attention also when displaying her golden petals; but we consider the greatest novelty among the selfs to be Princess Teck, as it is so distinct from all in colour, which is very pale violet suffused with mauve; this is a most abundant flowerer, of vigorous compact habit of growth, seen in flower early and late. V. Tory is a very dark sort, and I have it from good authority that it is one of the best of new kinds. Speaking of fancy varieties there are a few worthy of notice, and V. Butterfly numbers amongst them. It is a gaily marked sort, and produces a sparkling effect alongside of others: ground colour yellow, the superior petals stamped or blotted shining bluish purple, surrounded by a border band of orange-yellow. V. Magpie is equally dissimilar and novel, its ground colour maroon-purple, showing large lengthy angular spots of white filling the centre of each segment of the corolla, and with a deep clear orange eye; a profuse bloomer, of densely compact growth. V. Lothair is a fine hybrid cross with a fancy Pansy, the colour dense blue, nearing indigo, furnished with a faint dark centre blotch; habit good and profuse, and continuous in its production of flowers. V. Lady Mathison must not be forgotten; though not a fancy, it is peculiar in its shade of mauve, and altogether first-rate. *A. K.*

PLANT GOSSIP.

Regel's *Gartenflora* for January contains, among other things, not the promised revision of the species of Rheum, but a figure and description of, and some historical notes on, Rheum palmatum var. Tanguticum (to which we have alluded before, p. 179), by Maximowicz. Although he does not dispute the fact that Rheum officinale of Baillon, figured in the December number of the *Botanical Magazine* of last year, yields a commercial Rhubarb, he contends that the drug known in England as Turkey Rhubarb, which came to us through Siberia by way of Kiachta, was the produce of the plant he describes. We say came, because the trade from that source has been destroyed, not, as Maximowicz says, in consequence of the attempt of some of the tribes to overthrow Chinese rule, but, as related in Fluckiger and Hanbury's *Pharmacographia*, in consequence of the very strict supervision exercised by the Russian Government. In the work just named a very full history of medicinal Rhubarb is given. Maximowicz's plant was collected by Przewalski, in 1872-3, in the vicinity of Lake Koko Nor, North-West China. It is, or was, extensively cultivated in that district, and the wild plant was also collected. An account is given of the method of its cultivation and preparation, but this part adds little to our knowledge of the requirements and conditions necessary for the profitable cultivation of Rhubarb. The plant figured agrees in all respects with a specimen in the Kew Herbarium labelled "Rheum palmatum, from Pallas," and also with another from Dr. Lindley; and there seems little doubt that the account given of its previous introduction about 125 years back is correct. The Russian officials stationed on the frontier were instructed to obtain seeds or plants of the genuine Rhubarb, if possible; and in 1740 they succeeded in obtaining a quantity of seed, though they had to pay a high price for it. But the "heathen Chinee" was too crafty for them, the plants raised from this precious seed proving to be nothing more than the well-known Siberian R. undulatum. However, in 1750 the true plant was procured, and from Russia it spread over various parts of Europe, including Britain, so that after all we have, according to Maximowicz, been seeking for a plant we already possessed. He goes on: "Let it be admitted that we now possess two species which furnish a superior quality of Rhubarb, still R. palmatum has the advantage of being the genuine plant that produced the drug whose reputation dates from the time of the Arabian and Greek physicians." Speaking of the cultivation in Europe of Rhubarb for medicinal purposes, Maximowicz says that R. palmatum has proved rather unprofitable on account of the principal root decaying, and thus leaving only the less valuable lateral ones; and he adds that to a certain extent this has been the case with other species. So far as this country is concerned, we do not think these remarks are applicable. There is certainly a difference in the hardiness of the species. R. officinale was rather severely injured by frost at Kew last spring. We know nothing respecting the constitution of R. palmatum, but R. Rhaponticum, undulatum, and others are hardier than R. officinalis. In Otto's *Hamburger Gartenzeitung* for February, a writer, referring to the article from which we have gleaned the preceding notes, gets into a sad confusion with R. officinale and R. palmatum Tanguticum, which he speaks of as the same thing. Through getting hold of this journal first, we were very near doing the same thing; but the figure in the *Gartenflora* being so unlike the R. officinale we had seen, we looked further, and discovered that Maximowicz had not united the two plants; and that we had correctly read the first notice of his plant which we reproduced at p. 179.

—— In the *Hamburger Gartenzeitung* for February there is a short article entitled "Die Köstritzer Georginen," Köstritz Dahlias. The writer complains that a certain Dahlia grower of Altona, named Hamann, enumerates in his catalogue of 194 varieties only nineteen of German raising. From this he observes it would almost appear that German gardeners had paid little attention to this flower, and that the varieties raised were far inferior to the English and French ones, whereas it is not so. The two principal German cultivators and raisers of Dahlias are Christian Deegan and J. Lieckmann, both of Köstritz. These gentlemen, we are informed, have succeeded in raising a strain of varieties equal, and in some respects superior, to the best English varieties. Whether our author writes with authority we know not, but we only extract a few of his remarks for the consideration of those specially interested in this flower. We are told that a careful examination of the English and French Dahlias reveals the fact that the raisers' principal aim has been largeness of size. It is admitted that our Dahlias are well filled, and many of them marvellously pretty in colour. German gardeners, on the contrary, have striven more especially to improve the shape of the flower, and the result is they have surpassed everybody else in this particular. Coming to colour, great purity and decided tints are claimed for the German varieties. From the diversity of form displayed by German varieties it has been found desirable to classify them as Ranunculus, Aster, Chrysanthemum, Rose, &c., flowered. Only one English variety, Keynes' Crimson King, in respect of shape, was worthy to take a place by the side of its German sisters! Is this really true? If so our raisers must be sadly deficient in enterprize and taste. Another desirable result has been attained—a dwarfer more compact habit, and with it the property of earlier flowering. Thus we are told that the English varieties do not flower in the climate before the middle of July or beginning of August, whereas the best German varieties are in full flower by the middle of June. Doubtless the Germans are able to raise, and have raised perhaps, as good varieties as some of our best; but it appears to us that the writer of the article from which we have quoted has rather overshot the mark in his unbounded admiration of German, and depreciation of foreign varieties. True, we do not know what English varieties he selected for comparison.

—— We learn from the *Bulletin de la Société Botanique de France* that M. Roumeguère has published a paper upon a confusion in the flowers which are distributed by the Academy of Floral Games at Toulouse. It contains an unpublished letter by Lapeyrouse, who protests against the long established error of distributing the flowers of Columbine under the name of Eglantine. Gouan is the only author who gives this name for the Aquilegia, and it is thought that he may have done so from having seen the flower distributed by the Academy under that title. Another plant to which attention is directed is the Amaranth, the plant representing this in the Floral Games being our "Love-lies-bleeding" (Amaranthus caudatus). Lapeyrouse thinks it more probable that the founders of these Games would have chosen the yellow everlasting (Helichrysum Stœchas), the Amaranthus luteus of some sixteenth century botanists, as a symbolic and poetical emblem. This plant is very common on the chalky soil of the mountainous regions of central France, and was used in pagan times for crowning the statues of the gods. In Portugal it is still employed in the decoration of churches. The Floral Games of Toulouse date from 1333, when they were founded by a lady of Toulouse,

named Clémence Isaure — at least so tradition affirms, although Murray says that her very existence is not a little doubtful, as, although her statue is preserved in the Capitole, there is no mention of her in the archives of the town. The Société des Jeux Floraux has, however, adopted her as its patron and founder, and on every 3d of May, after visiting the church of La Dourade, in which her tomb once stood, prizes are distributed for the best original compositions in verse and prose upon a given subject. The prizes consist of golden and silver representations of the Eglantine and Amaranth, as above mentioned; and also of the Violet, Lily, and Marigold. A golden Violet is the prize bestowed upon the author of the best poem. These Games were discontinued during the Revolution, but were revived in 1808, and are still celebrated with considerable splendour.

—— Some of the finest bulbs of Lilium auratum now being imported to this country, previous to being packed for dispatch are thoroughly encased in moist clay, and then dried in the sun, or by some other means. This keeps the bulbs plump and fresh, and their value is enhanced on arrival in consequence. The bulk and weight of an importation is in consequence much increased, but it is stated the augmented value of the roots repays the trouble. Prices do not nearly rule so high as they did some time ago, though the larger bulbs go at fairly good prices. So many thousands of bulbs have been imported in recent years that it may be thought our cultivators must be nearly overdone in the matter of this splendid Lily; on the other hand it is asserted that 70 per cent. of the bulbs perish: some have put the loss even higher.

—— Orobus vernus is now an attractive object in the flowering plant-house at Kew, growing in pots and forced into bloom. Treated in this way it forms a nice shrubby habit of growth, and flowers as freely as in the open border. The flowers are most charming in hue when they have aged somewhat, then the purple and rose tints become suffused with blue, and yield a pleasant aspect of colour. It does especially well in a warm south border where the soil is light, rich, and deep, and there is some shade at times during the day.

—— One of the finest specimens of Aucuba japonica we have seen stands in a sheltered corner of a small garden attached to the residence of W. Sowerby, Esq., in the Royal Botanic Society's Garden, Regent's Park. It measures about 50 feet in circumference, and about 8 feet in height; and is beautifully clothed with foliage to the ground. At the present time it is a most attractive object, being thickly studded, especially on the exposed side, with its rich coral-red berries. Mr. Sowerby has a small male plant in a pot, which, when in flower, he stands on a wooden post almost in the centre of the bushes, and so causes an abundant fertilisation with very little trouble.

—— Rhododendron Countess of Haddington may now be seen in great beauty in the large conservatory in the Royal Botanic Society's garden at Regent's Park. The plant is not a large one, but has between eighty and ninety trusses of its beautiful white and delicately rose tinted flowers fully expanded; and is an object of great interest. This same conservatory is very gay just now, the large specimens of Rhododendron arboreum and kindred forms, and large Camellias and Azaleas, being in full bloom, to say nothing of Acacias and the usual description of bulbous and other spring flowering plants. A fine specimen of the South African Aloe Salmdyckiana is also flowering on a six-branched spike. Its orange-scarlet flowers are very striking. The spring show to be held here on Wednesday next promises to be very successful.

—— The following Orchids were in flower a few days ago in Mr. William Bull's houses:—Dendrobium lituiflorum, Odontoglossum Roezlii, Oncidium sarcodes, rather scarce, and distinguished by its handsome branching spikes of yellow and crimson flowers; Dendrobium infundibulum, Cypripedium Harrisianum, Odontoglossum ramulosum, Pilumna fragrans, Oncidium cucullatum, various Lycastes, including L. Skinneri var. rubella, the flowers of which are more deeply tinted with rose than the typical plant, and several forms of Phalænopsis, which we shall notice more fully hereafter.

—— It has sometimes been objected that certificates should not be given to fine forms of the Cyclamen persicum, on the ground that they cannot be propagated: the old practice of dividing the corms being well nigh abandoned by cultivators. On the other hand, cultivators like Mr. Henry Little state that any one variety, especially if artificially fertilised with its own pollen, will reproduce itself with almost unvarying exactness. The first position is unsound and impolitic, because it leads to the inference that new plants and flowers should be recognised only so far as they possess a commercial value and can be put into circulation. The second position is mainly a correct one, but it is not always reliable, unless great care can be taken to isolate the plants to be propagated by seeds, and then not to be absolutely depended on. An illustration in point was furnished in Mr. H. Little's fine collection of Cyclamens at the last meeting of the Royal Horticultural Society. Mr. Little fertilised with its own pollen a pure white variety of excellent qualities, and obtained from it some sixteen or so seedlings. All but one were reproductions of the seed parent, with slight variations, and this was of a pleasant pale pinkish rose hue, in other respects an exact counterpart of the seed parents. Mr. Little supposes some fugitive pollen from another variety with coloured flowers affected the colour of this member of the progeny, but it is perhaps open to doubt whether such a surmise is correct.

—— The Orchid-houses at Messrs. Veitch & Sons' Nursery are fast becoming interesting to visitors on account of the many species coming into flower. Passing through them a few days ago, we noticed already in flower two remarkably strong plants of Phajus grandiflorus, Dendrobium lituiflorum, with over 100 flowers; Vanda Cathcartii, Dendrobium fimbriatum oculatum, D. Wardianum, two plants with ten spikes of flowers, mostly three in a bract, a sight in itself; Cymbidium eburneum, a fine variety; Cypripedium Argus, a very free-flowering plant; Dendrochilum glumaceum, a very fine specimen; Angræcum sesquipedale, with five flowers; Vanda suavis, Veitch's variety, with sixteen flowers on one spike, ten on another; Vanda cœrulescens, Dendrobium crassinode, various Phalænopsids, and Odontoglossums Alexandræ, triumphans, gloriosum, Andersonianum, Roezlii, Phalænopsis, and the new O. madrense, a very beautiful introduction in the style of O. maxillare, and originally sold for it at Stevens'.

—— From our advertising columns it will be seen that the remarkably fine collection of Azaleas, stove and greenhouse plants, &c., formed by the late J. Philpot, Esq., Stamford Hill, and so successfully grown by his gardener, Mr. J. Wheeler, are about to be sold at Stevens' Rooms.

—— Many persons are now found cultivating the charming Cyclamen persicum, and as the best way to keep up a yearly succession of plants is to raise a batch of seedlings every year, the importance of fertilising with a view to gain improved types is at once seen. The best time to fertilise the blossoms of the Cyclamen is during the early part of the month of March, but it may be done as late as April. The later it is done, however, the less the chance of obtaining the desired result, as all flowering plants are more or less fertilised by the agency of insects during the late spring and summer months, and the access of any of these to the flowers may upset all the calculations of the operator. Crossing should be done when the sun shines, and the first business is to select the parent flowers. The pollen parent should possess undoubted good qualities, that it is desirable to transmit to the progeny—such as large blossoms, fine shaped, or vividly-coloured flowers. The operator should take hold of the stem between the thumb and forefinger of the left hand, just below the flower, with the thumb-nail of the right hand rap against the side of the bloom, and the pollen will be found lodged on the thumb-nail of the left hand. The seed parent should possess a good habit of growth and well-marked foliage; these qualities are indispensable, and the pollen should be applied to the blossoms, fertilising not more than six, which are ample to produce seed — probably Mr. Little would not impregnate more than two or three. The operation of applying the pollen is one requiring to be done with some care—the stigmatic organs are extremely delicate, and will not admit of any rough usage. The pollen should be gently applied to the stigma, and it will be found that at least a small portion has adhered, which is all that is required. Some growers are of opinion that it is not advisable to cross the ordinary white form of C. persicum with a deeper-coloured flower, except to obtain variety; the aim should be rather to keep them distinct, and improve each variety separately. If a flower combines good shape and high colour, but an indifferent habit, it may be used as the pollen parent, crossing with it another coloured flower possessing good dwarf, regular foliage; and the result will be, in most instances, an improved habit, combined with fine quality of flowers in shape and colour. Flowers emitting an agreeable perfume should be crossed one with the other, in order to increase and perpetuate this desirable property. The seed parent should not be overloaded with pods—not more than six blossoms on a large plant should be allowed to seed; if a greater number are retained there is danger of the seed being small, and the plants obtained from it, in all probability, will be found wanting in that vigour which is at all times an important item in obtaining seedlings. After fertilising the flowers intended to carry seed, all others should be removed, and the plants placed in a rather shady part of the greenhouse, still having as much light as possible.

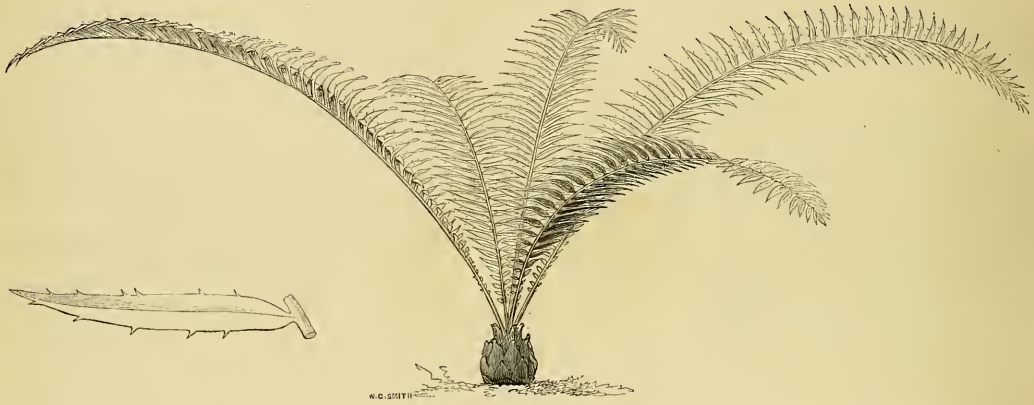


Fig. 79.—Encephalartos villosus.

THE GENUS ENCEPHALARTOS.

The following conspectus of the known species of this genus is abridged from a recent pamphlet published by Dr. Regel, and kindly forwarded by the author. The references are to De Candolle's *Prodromus*, xvi., part ii., pp. 530 *et seq.*, where the synonymy of the several species is given.

A. Leaf-segments linear, revolute at the margins, acute and spiny at the apex.

1. E. CYCADIFOLIUS, *Lehm.* (*D.C. Prodr. l. c.* 531): leaf-segments quite entire, 3—4 inches long, about ⅛ inch wide, 3—5-nerved.
   α *glaber:* trunk glabrous; petiole and rachis slightly tomentose, ultimately glabrous = E. cycadifolius, Lehm. Cycad., p. 13; Zamia cycadifolia, Jacq. Fragm., t. 25, 26.
   β *Friederici-Guilielmi:* trunk woolly at the top; petiole and rachis at first covered with dense tomentum, ultimately subglabrous = E. Friederici-Guilielmi, Lehm. Cycad., p. 8, tab. 1—3; E. Ghellinckii, Lemaire, in Ill. Hort. 1867, p. 80, and 1868, t. 567.

B. Leaf-segments linear, flat, acute, and spiny at the apex.

2. E. PUNGENS, *Lehm.* (*D.C. Prodr.* 533).—Not known by Dr. Regel.

C. Leaf-segments linear-lanceolate, acute, and spiny at the apex.
   (α) *Leaves deep green.*

3. E. VERSCHAFFELTII, *Regel:* leaf-segments quite entire, seven times longer than broad.
4. E. ELONGATUS, *Miq.:* leaf-segments entire, or 1-toothed near the apex, fourteen times longer than broad (D.C. Prodr. 533).—Not known by Dr. Regel.
5. E. VILLOSUS, *Lem.:* leaf-segments spinous-toothed, fourteen times longer than broad; teeth subulate, erect, or slightly appressed; Ill. Hort. 1867, p. 80, and 1868, t. 557. Trunk covered with ash-coloured tomentum at the apex; petiole and rachis at first loosely tomentose, ultimately glabrous; leaves bright green, about 8 inches long, and ⅞ inch broad.
   (β) *Leaves glaucous.*
6. E. LEHMANNI, *Lehm.* (*D.C. Prodr.* 531.)
   α *typicus:* leaf-segments entire.
   β *spinulosus:* leaf-segments spine-toothed.

D. Leaf-segments lanceolate or elliptic-lanceolate.
   (α) Lower leaf-segments spine-pointed, upper ones obtuse or hooked.

7. E. LONGIFOLIUS, *Lehm.* (*D.C. Prodr.* 531.)
   α *typicus:* leaf-segments lanceolate, flat = E. longifolius, var. angustifolius and var. Hookeri, D.C. Prodr.—Zamia longifolia, Jacq. Fragm. t. 29.—E. caffer, Hook. Bot. Mag., t. 4903
   β *revolutus:* leaf-segments lanceolate, revolute at the margin.
   γ *latifolius:* leaf-segments elliptic-lanceolate, revolute at the margins, and 1—2 toothed, rarely quite entire; about 3 inches long, ⅝ inch wide = E. Almasianus, Hort. Paullowsk.
   (β) Leaf-segments all spine-pointed.
   * *Leaf-segments green, entire, or bluntly toothed.*
8. E. CAFFER, *Miq.* (*D.C. Prodr.* 532.)
   α *integrifolius:* leaf-segments glabrous, quite entire.
   β *unidentatus:* leaf-segments glabrous, usually one-toothed.
   γ *brachyphyllus:* rachis and under surface of the leaves covered with cobweb-like pubescence.
   ** *Leaf-segments green, acutely lobed and toothed.*
9. E. LANUGINOSUS, *Lehm.:* leaf-segments 1—4 lobed, and acutely toothed at the lower margin, oblong or elliptic-lanceolate = E. lanuginosus, Lehm., Cycad. p. 14.—Zamia lanuginosa, Jacq. Fragm., t. 30, 31. —E. horridus β lanuginosus, Miquel.—E. horridus latifrons, Miq. Monog., p. 59.
   *** *Leaf-segments glaucous.*
10. E. HORRIDUS, *Lehm.:* leaf-segments prickly-lobed and toothed, lobes frequently spreading; D.C. Prodr. 532.—Zamia horrida, Jacq. Fragm., t. 27, 28.—E. horridus trispinosus, Hook. Bot. Mag. 5371.
   **** *Leaf-segments green, lanceolate, spinous-toothed, teeth subulate, erect.*
11. E. ALTENSTEINI, *Lehm.*
   α *typicus:* trunk glabrous, leaf-segments dense, spinulose on both sides, 1—3 toothed, rarely entire, about 6—7 inches long, 1¼ inch wide = E. Altensteini, Lehm. Cycad., tab. 4 and 5.—Zamia spinosa, Lodd. Cat.
   β *paucidentatus:* leaf-segments 1—3 toothed, or entire = E. Murumi, Vriese.
   γ *distans:* leaf-segments 3—4, distant = Zamia vernicosa, Hort. J. Versch.
   δ *parvifolius:* trunk glabrous, leaf-segments about 3 inches long, scarcely ⅜ inch wide, 2—4 toothed on each side = Zamia elegantissima, and Z. Van den Heckei, Hort. J. Versch.—Encephalartos Vroomii, Hort. J. Versch.
   ε *eriocephalus*, Vriese: trunk woolly above, otherwise as in the type.

Excluded Species.

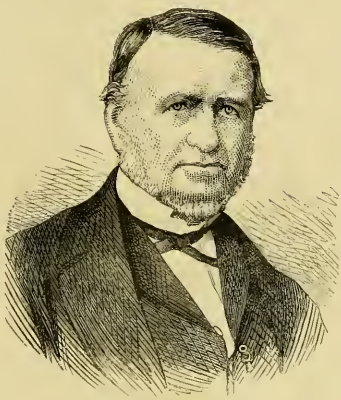
E. TRIDENTATUS = MACROZAMIA MIQUELII, *A. D.C.*

BRITISH GARDENERS.—XIV.

JOHN HALLIDAY.

Mr. John Halliday, whose portrait accompanies this notice, though occupying one of the more prominent positions filled by the gardeners of Scotland, is one of those quiet, unassuming, but worthy men of whom comparatively little is heard by the outside world, but who yet contrive to plod on successfully, absorbed in the duties of their avocation. Different circumstances may in different cases conduce to this end, and what these may be in the present instance we need not stay to inquire. Suffice it to say that the visitor to the gardens at Scone Palace in Perthshire, the seat of the Earl of Mansfield, and which are under Mr. Halliday's management, will find in them a good example of North Country gardening.

Mr. Halliday was born on December 27, 1806, at Craigielands, Moffat, Dumfriesshire. In 1826 he entered as an apprentice in the gardens at that place, and remained as a journeyman until March, 1831. He then became a journeyman in the famous gardens of the Duke of Buccleuch at Drumlanrig, in the same county, where he remained for about two years, and then went South; and after having been employed for a few weeks in the Duke of Devonshire's garden at Chiswick, he entered as a labouring gardener in the Horticultural Society's garden at Turnham Green,



which was then in its heyday. Here he remained until July, 1837, when he was appointed head gardener to Lord Sondes at Elmham Hall, Norfolk, and which situation was held by him till July, 1842, when he left, and was employed in Messrs. Lee's nursery at Hammersmith for about a year.

The next situation upon which Mr. Halliday entered was as head gardener to General Lord Lynedoch and Heers, Lynedoch, Perth, which situation he held for about two years, when he left to take charge as gardener and forester at Fornham Hall, Bury St. Edmunds, the seat of Lord Manners, with whom he served in these capacities until the close of 1851; and from thence he went to his present situation, Scone Palace, Perth, the seat of the Earl of Mansfield, on January 1, 1852, where he occupies the posts of gardener and park forester, and is besides manager of the gasworks, clerk of charities, &c.

Nearly forty years ago Mr. Halliday invented a flower-pot, designed so that a trellis could be more expeditiously affixed to it than to an ordinary pot. For this Mr. Loudon marked him amongst the inventors of improved horticultural appliances, and the pot was, we believe, figured in Loudon's *Gardeners' Magazine*, though we have not that work at hand to refer to. It appears that on lately asking a Glasgow potter to make a few for him he was met by the objection that the plan was patented.

A very successful Peach and Fig house, erected at Scone in 1860 by Mr. Halliday, from "a walking-stick and gravel sketch" by his noble employer, and which is the subject of an illustration at p. 1293 of our volume for 1871, still continues to answer perfectly. It is an elliptical quadrant, 8 feet 4 inches wide, and 15 feet 9 inches high, furnished with planted-out trees on the back wall, and otherwise furnished with trees in pots; and usually the crops are so plenteous that Peaches at Scone are "nothing accounted of," like the gold in Jerusalem in the days of King Solomon. The entire skeleton of the roof of this house is of cast iron, a point on which Mr. Halliday claims some originality, and the advantages of which he considers to be that when once erected and finished it is too firm to be swayed or shaken by any hurricane ever likely to bear upon it. Mr. Halliday mentions that there have been several imitations of this house in the adaptation of materials, if not in structural form, and as one of the outgrowths from this nucleus, he points to Messrs. Downie & Co.'s Winter Garden in Edinburgh.

THE BIRCH ROD.

"Buy brooms, besoms, fie buy them noo;
Fine Heather rinsers, better never grew." *

The London stable besom is a wisp of Heather tightly bound with a sort of wooden hoop, and it has, moreover, a rustic handle some 3 or 4 feet long secured by a cotter-pin driven through the hole of the besom and through the handle, so that no amount of drying or shrinking can ever allow the besom to get loose upon the handle, or in the least degree to turn, still less to tumble out, which, without this cotter-pin, it certainly would. When the besom is worn to the stump the little faggot still remains as a well-seasoned fire-lighter, and the besom's tail or handle, when not wanted for fuel, becomes a useful prop or stake for any drudgery where such a truncheon is wanted. The London garden besom is composed of birch rods, and those gardeners who buy their besoms ready made seldom buy handles, but only the faggots of birchen twigs, and content themselves with one handle for fifty or a hundred brooms.

Everyone thinks he could dig if he only tried, and even plough with very little practice, but surely anybody could use a besom and sweep; and who ever heard of any one rehearsing his or her part in getting grass or withered leaves into a wheel-barrow to make the garden "besom sweet"—an expressive term used in the North to denote the absence of loose litter. The mowing machine has lessened the labour of the birchen besom, but there are many other items besides mown grass that still need the birch rod in gardens. When lawns or pleasure grounds have been neglected, and the grass got coarse and tall, with rotten twigs from overhanging trees littering about, it is needful to mow it with the scythe and gather the swathes with a wooden rake, and thoroughly brush the stubble with the birchen besom to prepare it for the mowing machine. Now we have in Manchester a regiment of professional sweepers who turn out very early in the morning when the streets are empty, dressed in sober blue gowns, a sensible sort of livery well calculated to hide poverty as well as dust and mud. When these men attack a street they do it boldly, beginning in the middle. A., armed with a brush about 18 inches wide, sweeps about 3 feet wide, and leaves the issue for B., who does the same for C., and by the time that the fourth man, D., comes on the scene, the sweepings will have reached the water table, and half the street will be swept; but the swathe is still in the gutter, and not swept into heaps, which is done by a fifth man, E., and eventually the dust-cart, with its driver and his assistant, comes and clears the street. We had years ago brushing machines, and have some now that sweep the dust, &c., into iron carts, but these threw the sweepers out of employment, and were abandoned. Our streets are now well swept, and our iron carts on lofty wheels are still in use, and attest to all the world that we have not left that scheme untried. Now this style of sweeping is just what would be done in a garden if no system were adopted to do it with less than half this labour, for it must be evident to any one that the filth in the middle of the street will certainly make every step dirty between the centre of the causeway and the gutter, whereas if it could be dealt with at one sweep the greater part of the street would be cleaned by a right-and-left stroke, and this is the great difference between street sweeping and lawn sweeping. A nice slender handle is got, 9 feet long, and on this is mounted a birchen besom, not a round faggot, but, as it were, five little wisps of Birch twigs laid side by side like the fingers of one's hand; and when these come out of the hands of the maker they are kept pressed flat by a door and heavy weights, so as to be ready for use when wanted, and with this kind of besom a man strikes right and left, and lays bare a swathe about 20 feet wide—that is to say, he alone sweeps clean the whole width of a street, and those that follow sweep the swathes into heaps ready for the hand-cart or grass-barrow. The sweeping at Alton Towers in my time was done by women, who on "red letter days" wore a Swiss dress to hide anything like poverty, and in this livery

* Old Scotch ditty.

they took up a position for effect; and on one occasion, when a scion of Russian royalty visited the Towers, these sweepers received him with open besoms, meaning the birch, as he passed. I never bought besoms, but always made them, and the tools for this kind of manufacture, though simple, are little known. A common stirrup for the foot is attached to a cord, and this cord is tied overhead, so that when the cord is put once round the loose Birch twigs it confines them tightly by means of the stirrup with the maker's foot straining on it, and now is the time to make one tie to the besom. I found tar cord best for binding, but some prefer wire, as being cheaper; either will do; but when the besom is worn out, the cord is easily cut, that it may be used as a fire-lighter, whereas the rusty wire is troublesome to get rid of.

Many years ago it was the fashion to make baskets as well as besoms in the foul weather of winter, but this branch of industry in the craft seems to have died out, and I question if I am not one of the one hundred that could make a vegetable basket of peeled Willows fit to be seen. I may mention here that the best way to get at the better style of basket-making is to buy a neat basket, and quietly take it to pieces, and replace the twigs a few times. Nothing ever set up my boyish pride so much as when I saw my abilities in the art of basket-making; and, although besom-making may be useful and profitable, no one could glory in it—it never could be respectable. *Alexander Forsyth.*

CONIFERS FROM COLORADO.

Some good cones and foliage of an interesting Conifer (Abies concolor) have recently been received at the Kew Museum. Its history has been given by Mr. Andrew Murray at p. 105 of the present volume of the *Gardeners' Chronicle*, and Mr. Murray's opinion as to its close resemblance to P. grandis we readily endorse. The cones referred to above were sent by Dr. Engelmann, some from the gorges in the foot-hills of the mountains in Southern Colorado, and the others from Southern Utah. Of these Dr. Engelmann thinks there are two forms, differing in shape of cone—one described as pointed, and the other retuse, and also differing in their bracts and scales. One of these cones had fallen to pieces on its journey, therefore we are not able to speak on that point; but so far as the bracts and scales are concerned we must confess ourselves as being unable to distinguish between them. With regard to the "question of which is Douglas' Abies grandis and which amabilis?" quoting from Dr. Engelmann's letter to Dr. Hooker, he says, "I should like to know whether any of the different forms have yet borne fruit in England;" and he states that a tree with very dense, dark green foliage, white on the lower side, which he saw in the Edinburgh Garden under the name of amabilis, and another at Dropmore, where it was called grandis, are undoubtedly the true amabilis. It is singular, Dr. Engelmann says, that none of the forms of grandis should have fruited in England, while in Colorado it fruits at the age of twenty-five years.

The following list of Colorado Conifers, with the altitude of each species, from the pen of such an authority as Dr. Engelmann, may be valuable to some readers of the *Gardeners' Chronicle*:—

Abies grandis.—Altitude from 8500 feet to the tree limit.

A. concolor.—Between the waters of the Platte and Arkansas; between 6000 and 7000 feet.

Tsuga Douglasii.—6000 to 10,000 feet.

Picea Menziesii.—In valleys near mountain streams; 6000 to 8500 feet; never forming forests.

P. Engelmanni.—In valleys, and especially on mountain slopes, scattered, or in extensive tracts; 8500 feet, to timber line 11,500 feet.

Pinus contorta.—Extensive forests on mountain slopes; 9000 to 10,500 or 11,000 feet; in valleys running down, scattered as low as P. Engelmanni.

P. ponderosa.—Lower down at the base of the mountains than any other Pine; at an elevation of about 5000 to 9000 feet.

P. aristata.—9000 and, more especially, 10,000 feet to timber line, and in scraggy bushes even above it, up to 11,500 or 11,800 feet.

P. edulis.—Only in Southern Colorado, from Pike's Peak southward to between 6000 and 7000 feet.

P. flexilis.—9000 to 10,500 feet, probably not up to 11,000 feet, in valleys coming down to 8500 feet.

Juniperus communis.—Up to 9000 or 10,000 feet elevation.

J. virginiana.—Up to 9000 or 9500 feet; over the territory in the southern part (Colorado Springs to the Arkansas) in very unusual forms, short trunks, broad flat heads, &c.

J. occidentalis.—Only from Pike's Peak southward, with Pinus edulis, especially on the Upper Arkansas River.

Foreign Correspondence.

Bangalore.—The following notes may serve to give some idea of our horticultural work:—

Canna indica.—There are two kinds that grow to perfection at Bangalore, and attain a great height. Planted in ordinary soil, it is quite usual to see them from 5 to 6 feet high, and if carefully grown in rich soil it is not unusual for them to attain a height of 9 to 10 feet; a few have been correctly measured as just exceeding 11 feet to the top of the free-growing spike of flower. The dark bronzed leaf variety is perhaps the quickest and strongest grower, and the freest seeder. Massed together against a blank wall, they make an excellent screen, and have been used extensively in this way with great effect. The green and bronzed varieties were alternately planted in this manner to hide a newly-erected stone wall 8 feet high. They were put in about five months ago as divided roots, the plants being then on the average only 1 foot high. The growth during the rainy season in the new soil was most rapid, and at the end of five months they ranged generally from 8 to 9 and 10 feet in height, with magnificent undergrowth, and with single specimens 11 feet as above. One variety has a bright green leaf, and the other a dark olive-green leaf, with a bronze fringing and reflection, and with markings down the veins of the same colour. The back of the leaf is a lighter and more decided green, and the deep fringing or edging is of a brighter and warmer bronze, while the back of the petiole is of a sorrel colour, as attempted to be shown in the accompanying nature-printed specimen. The plants show a disposition to sport, which will be carefully encouraged, and there appears to be every probability of a new and distinct variety being produced. They are so common in Bangalore, and grow so freely, that when the Lal Bagh (which up to about two years ago had been allowed to become greatly overgrown) was being cleared out, it was found that the Cannas had increased so much that, after giving away as many as would be accepted, the remainder were carted to the refuse heap. At that time amateurs would not grow them, on the plea that they were "so common," and it took a long time to make known their real value as foliage plants. The flowers are formed on long upstanding spikes, many of them being distinct in colouring. Four kinds are particularly recommended, the orange, the deep yellow, the glowing crimson, something after the colour of a freshly-opened Géant des Batailles, and the pale primrose. The last, as may be readily understood, is from the plants with the light green foliage.

Coleus.—These foliage plants are now in great beauty at Bangalore; they are in leaf all the year round, and with care make most effective beds of good and varied colour even in the hottest weather. There are many distinct varieties, and in addition to this, leaves of different colours and shape may often be seen on the same plant, as their disposition to sport is most noticeable. A few years ago there were only two ordinary kinds, but since the introduction of new seed all the best varieties have become thoroughly acclimatised, and are propagated without any trouble whatever. Masses of well selected colour in flat or raised beds, or in groups arranged around some old stump, or effectively placed in some ugly re-entering angle, or in long lines staged up one behind the other, and interspersed with other foliage plants, are now quite common, and make a brilliant show. The native gardeners have learned the value of a display of this kind, and arrange them with considerable taste. "The Golden Bedder" and the "chryso-purpurea," as they are locally called, are among the most effective, and large beds of these, intermixed with Iresine Lindeni and Herbstii and Cineraria maritima, and backed up again with the green and white Graptophyllum and the free-flowering Cannas, have an imposing appearance. In the very hot weather—viz., March, April, and May—the growth is a little stunted, but with plentiful watering, and with care that they shall never be alternately wet and dry, the plants appear to revel in the sunshine, and certainly display their colouring (though so newhat different to that of the wet season) in a charming manner. Many of them suffered from the late extremely wet season, but this was due rather to ill-drained ground than to anything else, for in better drained localities the growth was very luxuriant, and during any break in the monsoon the dark purple and the deep crimson varieties apparently took a fresh start. In the case of the first-named this was especially noteworthy, for the young leaves that were pushed forth so abundantly were covered with a light plum-coloured down that gave them a most velvety look. I endeavoured to dry some of the leaves, but gave it up after many failures, as I found the colour faded completely out after a few days, though at first it seemed to be permanently fixed. The figured leaves that accompany this were nature-printed in green ink and then roughly coloured, but they do but scant justice to the originals. Advantage has been taken of the disposition of the plants to sport, and the best kinds of the most distinctive colours have been closely grouped together in the hope that some new varieties may be raised from the seed which has been carefully saved from this rough group-hybridising process.

Grevillea robusta.—This tree has been introduced into Bangalore within the last eight years or so, and appears to have become fairly established. Its habit of growth and Fern-like foliage, with its Aspen-like colouring, make it a desirable acquisition in landscape gardening, where the generality of the indigenous tree foliage assumes such a compact dome-like shape. This is specially noticeable in the Mango and Ippé (Mangifera indica and Bassia longifolia), that are so abundant everywhere. Besides being ornamental the wood of the Grevillea is hard and good, and, if properly trimmed when young, the tree grows up in a comparatively short time, tall, straight, and shapely; but it is very necessary to attend to the pruning, otherwise the leading shoot is apt to bifurcate. They are very easily raised from seed, and have been freely distributed throughout the province. To give an idea of their growth the following facts will be found interesting to any one seeking information on the subject.

Exactly three years ago three hundred seedlings, varying from 1 to 2 feet in height, were transplanted from the pot nursery into pits prepared for them in the park attached to the Government House at Bangalore. They made very rapid growth the first year, not so much the seecond, but again appeared to recover and to thrive better during the present year. They were planted rather too closely at first, and have had to be thinned out a little, and those remaining are, in consequence, now looking well and vigorous; their average height is 20 feet, with an average circumference of stem of 11 inches, computed from 100 measurements of trees of all sizes one yard from the ground line. The little plantation forms a distinct feature in the grounds, which have been greatly improved and modernised within the last three or four years by the present Chief Commissioner of Mysore, who takes a great interest in the matter. When the tree was first introduced from Australia it was called the Silk Oak, but considering this to be a possible misnomer, and with reference to the silvery colour of the back of the leaves, the name of "Silver Oak" was gradually substituted, and is that by which it is now locally known. At the same time the word Oak is equally a misnomer. From their graceful foliage when young they would answer well for any decorative purposes, and would be admirably adapted for a change in table ornamentation. A young Araucaria Cunninghami or A. Cookii looks also very well, and the beauty of the Poinciana regia for a similar purpose is very striking. The Tinian Pine, Casuarina muricata, makes a suitable novelty. *J. P., Dec. 8, 1874.*

Forestry.

The cutting and clearing of timber and all kinds of underwood should now be proceeded with as expeditiously as possible. All Larch required for posts and other rustic work with bark on, should at once be cut off the root, because in a few mild days the sap will be up, after which it becomes daily less applicable and suitable for such purposes. The sap rises sooner in the Larch than in any other species of forest tree, and also continues in it longer in the liquid state than in any other. It is, therefore, the first tree that can be properly peeled, and also the last in the season that permits the operation being performed. With some the circumstance of posts in certain situations readily acquiring a mossy coating and hoary appearance is of itself sufficient recommendation for their general adoption. Palings and fence-posts of all descriptions, which are desired to maintain their rusticity for a protracted period, with the bark in its natural and perfect state, should be cut before the sap expands the bark; for if the latter result occurs before the tree is cut, the bark in a short time separates from the wood, thereby destroying the very effect that was wished to be preserved in the appearance of the posts. If, however, it is at any time imperative to use posts, cut while the sap flows, the best means of preventing the bark from falling off, or becoming ragged, is to make an incision in the bark longitudinally, deep enough to reach the sapwood underneath. This, with due precaution to lay the posts in a drying position for a short time before using them, induces the bark to adhere with considerable tenacity for many years. I would here mention that my own experience for many years confirms the opinion that posts of any kind of wood endure much longer when put into the ground in the round state with the bark unbroken, than they do with the bark taken off, charred, and otherwise artificially treated by tarring, &c. It would be well for such as are interested in the maintenance of telegraph posts to make the experiment of putting in each alternate post with the bark on, and the other charred, tarred, &c. This, if done with the

same kinds of wood through a long line of telegraphic route, would do more to convince those who have only limited opportunities of proving the case than many pages of printed matter would, however well authenticated or forcibly written. All wood to be used as fuel should be cut before the rise of the sap. Those who burn wood solely as fuel testify that it burns stronger, clearer, and brighter when cut in winter than in summer. In the county of Sussex, where some parts are well wooded, wood as fuel is extensively used, and comparatively cheap. It is all cut in the winter season, in the form of cord-wood, stacked up to dry, and kept free from rain till about twelve months old, when it is considered in its best state for fuel, and of the highest value for such purposes. What applies to one does so to all descriptions of wood—Pine, Fir, and hard woods, not even excepting Oak; while it burns very bright and clear after being pulled or flayed (as it is) for the sake of the bark, it is nevertheless true that Oak burns with stronger heat, and is more durable, when cut in winter, and dried as other woods are for fuel, without peeling. The spray of Birch is extensively used in some parts of the country for lighting fires, but more generally for brooms for streets, stables, and other purposes of sweeping. For these and most other purposes it is necessary that the Birch be cut before the sap rises, at least to such an extent as to swell the bark of the young shoots. All descriptions of wood, for whatsoever purpose, and when the beauty and smoothness of the bark is to be maintained after it is dry and dressed, should specially be cut before the sap rises. Any one who duly appreciates a good Hazel walking-stick, and can discern its marks of beauty, well knows that unless cut before the sap rises the bark on being seasoned so far contracts and shrinks as to detract greatly from its richness and beauty. Hazel, therefore, Sloethorn, Holly, Bird Cherry, and Birch, all of which as walking-sticks have their bark preserved on, and which constitutes one of their greatest features of beauty, should be cut before the sap rises. Holly, which is extensively used for whip-handles, and Elder for tops of fishing-rods, together with the two common varieties of Heath, which are used for brooms and general purposes, should all be cut before the flow of the sap; and even Broom for thatching houses, and Whins for heating ovens, or burning lime, tiles, bricks, &c., should, in order to produce the best results respectively, be all cut before the rise of the sap. *C. Y. Michie, Cullen, March* 15.

Notices of Books.

The Pinetum. By George Gordon, A.L.S. Second edition. H. G. Bohn, Henrietta Street, Covent Garden. 1875.

In laying down Mr. Gordon's new edition of the *Pinetum*, after as careful perusal as one can be expected to give to a book of reference, we can find no terser terms into which to condense our judgment than those used by Sir Walter Scott in concluding one of his novels—"There are many things ower bad for blessing and ower good for banning, like Rob Roy." It is impossible to give it unqualified praise, and still less can we refrain from giving it a great deal. It is too late in the day to recommend it as a book of great usefulness and convenience to practical men. It has been in their hands for upwards of fifteen years, and the best proof of its answering its purpose is that it is now out of print and a new edition has been called for. This second edition is the answer to the call. The volume is considerably augmented, more so, indeed, than the mere increase in thickness would indicate, for a considerable amount of space which was occupied in the first edition by descriptions of Roezl's pseudo-species, and which it was one of the chief objects of the little supplement (published in 1862) to cancel or correct, has been freed from them, and the space thus acquired has been left free for other matter. Other improvements in the way of omission might be pointed out. We are glad to see that age has sobered the sharpness of Mr. Gordon's pen, and that the little exhibition of temper in the supplement at Abies Alcocquiana, where we were told in a note that the specific name was "botanical pedantry for Alcock, a man's name," is now removed. Dr. Lindley's title to name a species after Sir Rutherford, or Sir Rutherford's title to have a species named after him, in the only way that scientific custom allows botanists to do it, is no longer sneered at. The additions seem chiefly to consist of horticultural varieties, besides the few novelties which have been described since 1862. The work also being arranged in alphabetical order, although its scientific appearance is thereby detracted from, is especially handy and convenient for those who rather desire a speedy reference than an elaborate and careful diagnosis.

Putting aside minor blemishes, which may be more differences of opinion than actual errors, the great faults of the book seem to us to be two—one of principle, and the other of execution. The former can hardly be charged against Mr. Gordon as a crime, seeing that it is one that is shared by every author who has yet written upon Conifers, and by most monographers in general. It is the fault of leaving the reader to do the most important portion of the author's work. The author gives a succession of stereotyped descriptions of species all according to the card, so like each other that, with the exception of two or three words, the description of one would apply as well to another, but no help or distinctive table is given by which the reader is guided to the distinguishing points of difference between them. Let the reader turn to any part of the *Pinetum* and he will find that if he means to find out any species by the description he must go over every description in the group to which it belongs and compare it with his plant, going over time after time exactly the same characters common to them all. We thought of giving an example or two, but it is unnecessary: every reader knows the grievance of which we complain. We maintain that the author who pours out such descriptions pell-mell by tilting up the shafts, as it were, leaving the reader to sort and select the contents of the cart for himself, is guilty of a serious wrong, which he has no right to inflict. To save his own time and labour he wastes the time of who can say how many men in the future whose time, in all probability, may be more valuable than his own, and we should hail with enthusiasm any device by which every author should be obliged to do his own work, and sort his own rubbish. If Mr. Gordon had made his descriptions clear and easily comparable with each other it would in some degree have atoned for his following this too general plan, but we can scarcely say that they are, and this arises from the other fault to which we alluded, viz., the mode of execution.

To understand this it may be necessary to premise that Mr. Gordon appears to unite two curious and somewhat inconsistent attributes. He is eminently a practical man, and appears to have a thorough knowledge of the plants that he has had the opportunity of studying when growing in the open ground; and on what he so knows we can place the most entire reliance, at all events as to the fact of their being distinct or otherwise; although even then we are not always sure of the soundness of his acumen in discovering what are the essential points of difference in species or varieties which he yet can perfectly and truly recognise as distinct; but this sort of *flair horticole* seems wholly to fail him when he comes to books or dried specimens. Now one of the great faults we find in his descriptions is that he jumbles up together these two different kinds of knowledge all in one lump, and gives out the whole as of equal value, and to all appearance from his own knowledge, and without the slightest hint as to the sources or value of the different pieces of information on which it is founded; so that while on one part of it (that within his own knowledge) we would place the most implicit confidence on his statement, on the other (what he has got from books or other sources) we would not place any reliance at all. Whatever be the cause, he seems to be totally destitute of the faculty of weighing or comparing evidence, or estimating the respective value of authority. The reader may say, how can we tell thus confidently that he has worked up different things together in this way? It is very easy. The authors who have written upon Conifers are not very numerous, and it is easy to trace back the phrases used to their original authors. There is necessarily a great deal of compilation in such a work. Where a species has not been introduced the author must go back to the describer, or to the most recent compiler who has taken his materials from him, and so the repetition goes on until the plant is introduced and then we have fresh information, and if Mr. Gordon gets it he sticks it in among the original description, even although it be contradictory. A contemporary last week, in noticing this work, seems to have been puzzled by the contradictory statements regarding the Stone Pine (Pinus Pinea), where in one line it is described as "a low tree with a round bushy appearance, from 15 to 20 feet high," and in another as attaining in Greece "a height of 50 to 60 feet;" the fact being, that in the former line he is giving the result of his own observation on the tree in this country (which is exactly as he puts it), and in the other the information he has got from books or at second-hand.

There is another point on which we find ourselves often at variance with him. He reckons many so-called species as distinct which we consider only varieties or synonyms of other species. But this is matter of opinion, on which he is as well entitled to hold his own opinion as we are, and we only allude to it to caution his readers against assuming that every species that appears in his book is necessarily to be taken as a good one. The book being obviously more intended as a practical one than a scientific one, it can scarcely be reckoned a disparagement to it to say that its scientific merit is not great.

There remains to be noticed a new feature in this edition, viz., an index of popular names, compiled by Mr. Henry Bohn, the publisher. We have gone through this index with some care and more curiosity to see how it really was, and fairness compels us to say that we only found one trifling slip in the application of the names (Morinda for Picea Pindrow instead of for Abies Smithiana), and that we found a great deal of learning, especially in Chinese and Japanese names, which we confess ourselves quite incompetent to criticise. Mr. Bohn's is something more than a mere index of popular names. A portion of it is composed of translations—as, for instance, Balfour's Pine for Pinus Balfouriana, Menzies' Spruce for Abies Menziesii, the funeral Cypress for Cupressus funebris, the tetragonal Libocedrus for Libocedrus tetragona; and the same is carried into other languages, as Dicht blätterege Kiefer for the recently introduced Japanese Pinus densiflora. The advantage of having these names for intercourse with those who either at home or abroad do not understand Latin, will amply make up for the somewhat too restricted title of "popular names."

—— In Mr. Markham's *Progress and Condition of India* we are candidly told that the Government farms have failed to effect the objects for which they were established. That they would show little if any profit is no more than might have been expected, and it might have been supposed that the natives would learn something from their management. But the natives understand the climatal conditions and soils of their country much better than was assumed, and successfully raise crops where their would-be teachers fail miserably. True, their practice is based upon empirical experiments, and is wasteful, and therefore they must be taught by some means. Hence it is now suggested that their system should be mastered in the first place, and for that purpose intelligent natives should have the management, under superintendence, of the farms. It is as well to acknowledge it when we are wrong, though rather humiliating to have to change places, and, after going to teach, remain to be taught. Doubtless many other lessons in Indian administration might have been learnt in a similar manner. The following anecdote, related by Mr. Markham, gives some idea of a native's view of the question. When the commissioner visited one of the model farms devoted to Cotton-growing experiments, he got the old head of a village on one side and said, "Now, Patelljee, tell me really what you think of all this." The Patell replied that the English gardener was an intelligent young man; that he worked hard, and was not quarrelsome, and that, considering that he knew nothing about it when he came, his Cotton was not much worse than theirs. In this country we frequently hear the remark, when practical matters are under discussion by farmers, "Ah! that may answer very well with you, but it won't do on my land." And those who could teach the routine of cultivation from the experience of a lifetime, if under the same conditions, would certainly err, and probably not manage their neighbour's adjoining farm so well as he whom they have censured. True, there are certain fundamental principles to be observed, but all the rest must come by actual practical experience. This fact is too often lost sight of by writers, and the practical reader throws aside a book that professes to teach the most minute details of all operations on a general plan, without reference to local conditions.

THE FIRST PRIMROSE.

A sweet little Primrose has bloomed since last night,
Unfolding its charms at the first ray of light;
A tear-drop just rests on its bosom so fair;
Methinks 'tis because it is all alone there!
The sun with its warmth will soon dry up such tears,
And bring some companions to chase away fears.
Ah! dear little flower, thou'rt welcome to me,
I've watched for thee daily, thy blooming to see;
And now thou hast shown thy bright innocent face,
Thou'lt not remain long, but to others give place.
And why should we sigh at things fleeting away,
That do their own duty as long as they stay?
I speak now of mortals, as well as of flowers,
These give us pure pleasure, the *duties* are ours.

M. A. Baines, in "Charing Cross Magazine.

HORTICULTURAL EXHIBITIONS, 1875.

April.

4.—Special Exhibition of the Royal Horticultural Society of Antwerp.
7.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.
21.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.
22.—Royal Horticultural Society of Ireland. Spring Exhibition. Sec., A. Balfe, 28, Westland Row, Dublin.
27.—Manchester Botanical and Horticultural Society. Exhibition of Auriculas, &c., in the Town Hall. Manager, Bruce Findlay.
28.—Royal Botanic Society, Regent's Park. Spring Show. Sec., W. Sowerby.

May.

1 to 10, inclusive.—Royal Botanic Society, Regent's Park. Mr. William Paul's Special Show of Roses, Pelargoniums, &c.
1 to 24.—Royal Botanic Society, Regent's Park. Special Exhibition of Clematis, by Mr. G. Jackman.
7 and 8.—Exhibition of Plants and Flowers in the Kibble Conservatory and Royal Botanic Garden, Glasgow. Manager, Robert Bullen.
12.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees. Pot Rose Show.
14 to 21.—Manchester Botanical and Horticultural Society's Annual National Exhibition, at the Garden, Old Trafford. Manager, Bruce Findlay.
17 and 18.—Halifax Floral and Horticultural Society's Annual Exhibition. Sec., Leonard Kershaw, 20, Gladstone Road, West Hill Park.
20.—Royal Horticultural Society of Ireland. Early Summer Exhibition. Sec., A. Balfe, 28, Westland Row, Dublin.
22.—Crystal Palace Great Flower Show. Sec., F. W. Wilson.
26.—Royal Botanic Society, Regent's Park. Summer Exhibition. Sec., W. Sowerby.

THE

Gardeners' Chronicle.

SATURDAY, MARCH 27, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

Monday,	Mar. 29	Show of Hyacinths, Tulips, Azaleas, Camellias, &c., at Messrs Cutbush & Son's Nurseries, Highgate, London, N. (eleven days). Mr. W. Paul's Special Show of Hyacinths, Tulips, Roses, &c., at the Royal Horticultural Society's Gardens, South Kensington (six days).
Wednesday,	Mar 31	Royal Botanic Society, Regent's Park, Exhibition of Spring Flowers.
Thursday,	April 1	Meeting of the Linnean Society, at 8 P.M.

It is a healthy sign of the times that the project of establishing an Indian Institute in London should once more be brought forward for discussion. No one can doubt that such an Institute, properly organised, would prove very beneficial, not to the mere handful of students only, but to the toiling millions of India also. Wallich and Royle, Wight and Falconer, Cleghorn and Brandis, and a host of others (botanists whose names shed as great a lustre on our rule in India as those of the astutest statesman or the ablest soldier), have, and some continue to do so, laboured with the view of making known and of developing the products of India, to an extent which is little short of marvellous.

When people talk of the enervating effect of the Indian climate, they overlook the fact that as hard or harder work is done in India as is ever accomplished at home. The field is, indeed, ample—it offers opportunities and inducements of no ordinary kind to men of energy and talent. The establishment of an Indian Institute at home would go far towards systematising and co-relating the efforts of individuals, and, it may be, of neutralising the effects or loosening the bonds of red tape.

One of the most important departments of the proposed Indian Institute would be the Museum. There are some of us who have watched the fortunes of that Museum with much interest, whether, as of yore, in dingy rooms in Leadenhall Street, or as now, or lately, at the very top of the new India Office in Whitehall, access to which involved a journey comparable without much hyperbole with that to India itself! When reached, however, the adventurous visitor was pretty sure to be amply repaid, and pretty sure to wonder why so excellent a collection should be starved in the manner it was.

The publications, too, which have issued from this department, though we suspect but little known to the general public, sufficiently attest the importance of the Museum and the desirability of extending and improving it.

The vegetable products capable of being turned to good account in India are numberless. But a small fraction of them are developed to anything like the extent they might be. Some indeed, as Indigo, Cotton, Tea, and lately Cinchona, have assumed commercial importance, but the gums, the resins, the oils, the caoutchouc, the fibres, and other matters alluded to in Dr. Cooke's recent list, all require fuller knowledge on the part of our own manufacturers and on the part of the native and European cultivators.

The India Museum should be the centre where all desirable information on the commercial products of India should be readily accessible, just as the museums and herbaria at Kew are the centres of scientific knowledge in all matters relating to foreign, Indian, and colonial vegetable products. The Museum is only one of the departments, the value of which would be increased by an Indian Institute, such as is proposed, though naturally it is one which primarily interests us. Our gardeners and farmers might possibly learn somewhat from their Indian brethren, quite independently of the natural products.

We may give a curious illustration of this, but it is only one out of many—in the case of a drill for field use, simpler, and as efficient, all things considered, as the more elaborate and far more costly implements turned out as novelties by our manufacturers centuries after the native farmers had adopted the simple contrivance just alluded to.

The India Museum is designed to represent as fully as may be the various aspects of India in a manner most convenient for reference, study, and research, by the student, the scientific man, the merchant, the manufacturer, and the artist. The idea is, that each class of visitors should have the opportunity of seeing and studying that class of articles, and of acquiring that kind of information, which they would seek out in the country itself if they had the opportunity of visiting it. The main heads of arrangement, then, are, first, the country and its resources, and next the people and their material condition. Under the former head, physical geology, natural history, agriculture, forestry, and manufactures would be comprised; under the second, ethnography, history, legislation, and domestic and social economy. The library, to a large extent, should be classified in a similar manner, and, of course, also with special reference to its rich stores of manuscripts and other literary treasures. To secure the extension of, and the full benefit from, Museum and library is one of the main objects of the proposed Institute. While the Museum would be as a specimen or a diagram, and the library as a text-book, the Institute would be the lecturer or demonstrator to explain and show the proper way to use the Museum and library to the best advantage. Any reader desirous of further information on this important subject should peruse a pamphlet of Dr. Forbes Watson's lately published, and he will then not be surprised to learn that the Chambers of Commerce of the United Kingdom are memorialising the Government to provide proper accommodation for the housing and extension of the India Museum, now temporarily lodged at South Kensington, but which it may be hoped may find permanent accommodation nearer to the India Office.

—— The following letters have been sent to us for publication:—

"Royal Horticultural Society, South Kensington, S.W., March 12, 1875.

"Sir,—I have the honour to make an application to your Excellency on behalf of this Society with reference to the colony of Fiji.

"It is obvious that the territory newly annexed to Her Majesty's dominions must possess plants of great importance to horticulturists, and on behalf of this Society, which has long been engaged in the acquisition of foreign specimens, I have to submit to your consideration the great service which would be rendered to science if an association could speedily be formed there for the purpose of collecting such plants.

"I have further to state that it would be esteemed a great favour to the Society if your Excellency would afford facilities for the transmission to it of specimens of indigenous plants, should any collection be made.

"I feel certain that the importance which the subject has for those engaged in the study of natural history will be considered by you sufficient excuse for this communication.—I have the honour to remain your Excellency's most obedient servant, "W. A. Lindsay, Sec.

"His Excellency the Hon. Sir Arthur H. Gordon, K.C.M.G., Governor of the Fiji Islands, &c."

[Copy.] "4, Mount Street, March 18, 1875.

"Sir,—I beg to acknowledge the receipt of your letter of the 12th instant in behalf of the Royal Horticultural Society.

"It will give me much pleasure to afford every facility in my power for the furtherance of their views, and I hope at no lengthened period after my arrival in Fiji to have the honour of again communicating with the Society on the subject.—I have the honour to be, sir, your obedient servant, "Arthur H. Gordon.

"To W. A. Lindsay, Esq., Secretary to the Royal Horticultural Society."

—— We have received the first of a series of bulletins concerning the proposed International Exhibition of Horticulture at Amsterdam in 1876, containing an account of the steps taken in Holland and elsewhere, and from which we extract the following particulars:—

1. That the exhibition be held in the spring of 1876, about the month of April, on a much vaster scale than was taken as the basis for the previous exhibition in 1865.

2. That besides the usual horticultural productions and appliances, an exhibition of colonial vegetables be added, which would greatly enhance the importance of the display, especially to foreigners.

3. For the adequate realisation of this idea, to call in the energetic aid of Government to bring together such a collection, and to endeavour to gain the assistance of scientific men, to secure for the collection the intended completeness and importance.

4. To invite foreign Governments to send in, on their own account, similar collections from their respective colonies.

5. To arrange the display in such a manner as, by combining the floras of various countries, to offer as clear a view as possible of the vegetation of the whole globe.

6. To give as accurately as possible a full survey of the species of plants and of the varieties proceeding therefrom, as also the modifications to be observed in these varieties, in order to illustrate the progress of horticulture.

7. To hold a congress simultaneously with the exhibition.

8. Moreover the relations were determined between the Exhibition Commission and the Palace of Industry Company.

9. The financial concerns were regulated, and—

10. A provisional plan was projected for erecting extensive supplementary buildings to the Palace of Industry, and for preparing the adjacent grounds.

The managing committee was further charged with all the necessary preliminaries for the exhibition, especially with the drawing up of a provisional programme or prospectus, and also with the care of issuing bulletins in the Dutch, French, German and English languages, and distributing the same as widely as possible, in order to give the greatest possible publicity to the cause of the exhibition.

It has been further determined that the articles to be exhibited should be distributed under the following heads, not exceeding ten in number, comprising:—Cotton, madder, indigo, gutta-percha and india-rubber (Caoutchouc), ætherial oils, fatty oils and fats, materials for paper manufactures, Dutch cereals, Tobacco and Peruvian bark.

The committee opines that the limited number of these articles will conduce to the completeness and perfection of the display; while not only a number of sorts, probably from various regions, might be required, but that, moreover, the sending of plants of the objects, as also of drawings, tools, or implements, books, &c., relating to the articles displayed, might be insisted on.

In this way a collection might be brought together well worthy the attention of professional men, offering an opportunity of exchanging opinions and diffusing the results of their debates.

Besides the exhibition of such chief articles, secondary ones might be added, such as vegetable wax, cachou, sarsaparilla, resins, copal, vanilla, grass-plaiting (Marrum grasses), &c., which though of minor importance, might be made of considerable interest.

The Commission for the regulation of the exhibitions of vegetable productions consists of the following gentlemen:—C. A. J. A. Oudemans (Chairman), F. W. Van Eeden, H. F. R. Hubrecht, W. F. R. Suringar. The managing committee comprise the following persons:—J. H. Krelage (Chairman), C. Glijm, C. A. J. A. Oudemans, C. J. Van der Oudermeulen, G. F. Westerman, H. Groenewegen (Secretary).

—— Professor Reichenbach's address for a short period is Herbarium, Royal Botanic Garden, Kew.

—— At the end of September next a Great Fruit Show will be held at Ghent, on which occasion the Pomological Society of France will, as an exceptional thing, cross the borders of France and join its forces with those of Belgium. English pomologists have also been invited.

—— The accompanying illustration (fig. 81) of Gleichenia rupestris gives an admirable portrait of a specimen measuring 7 feet through, grown by Mr. Thomas Baines, and sketched by Mr. Smith before it was sold—we believe, to Mr. Williams—at the dispersion of Mr. Micholl's collection last year. Mr. Williams, in his *Select Ferns*, states that the species is rare in cultivation. It has a dense and symmetrical habit; the fronds are from 2 to 6 feet in height, dichotomously branched; the branches pinnate; the pinnæ broad and pinnatifid, not pouched, rich deep green in colour above, very glaucous beneath; the stems of a reddish purple. It is an evergreen species, and very handsome. A native of New South Wales.

—— In *L'Illustration* for March 20, M. Philibert Audebrand announces that the famous Isabelle has ceased to be the Official Bouquet-Girl of the Paris Jockey Club. They first *blackboulded* (blackballed) her, and then sent her about her business. The fall of a queen would not have made more ado. Of course you know why. One year with another, Isabelle made an income of 10,000 francs by selling Roses and Carnations to the handsome gentlemen of the horsey world. Living amongst flowers, and coming in contact only with persons the most *comme il faut* possible, one would fancy that she could not help having her heart in the right place. But it so happened that her aged mother, now past work, asked her prosperous daughter for a morsel of bread, that is, for a trifling money allowance. On the florist's refusal there was an appeal to justice, and Isabelle was condemned to pay her poor parent an annuity of 600 francs a year. Thanks to Messieurs the barristers, the thing grew into a scandal; at that point the Club thought fit to interfere. Isabelle, in consequence, has lost the privilege of flowering the gentlemen riders' buttonholes. "Eh! dame," said one of them, "the Jockey Club did right to show her how firm is its seat on principles of duty." This shooting star, now extinguished, was one of the prominent figures of the day. At La Marche or Auteuil spy-glasses were pointed at Isabelle, as an acknowledged celebrity. She has her place in the *Dictionnaire des Contemporains*, being a sort of approach to a great man. The *demi-monde* took note of her looks; the tip-top dressmakers studied her toilettes; the chronicles recorded her sayings—for the *bouquetière* had her witty moments, neither more nor less than Mdlle. Suzanne Brohan. Another item of her originality consisted in showing herself in the weighing inclosure adorned with the colours of the last winning sportsman. Persons given to superstitious fancies could not help covering their eyes with their hands the last time she made her appearance on that stage. She wore a scarf of sinister aspect—black and yellow—the colours of Saltarella, M. Edouard Fould's mare, colours which are also those of Prussia. "Take care, Isabelle," they said to her; "that unlucky scarf will bring you into trouble." Ye sensitive souls, who always pity the unfortunate, do not, nevertheless, bestow too many tears on the dismissed flower-girl's mournful fate. If we may believe the rumours which circulate in the side scenes of sporting life, the Jockey Club's *bouquetière* retires to a country house with some 200,000 francs of savings—a fortune sufficient for ten philosophers. Mention is also made of a well-filled casket, containing divers brilliants, presents received in the evenings of grand Derby days. There should also be a ring bearing in form of device the almost prophetic words, taken from *Les Saltimbanques* (the part of Odry), *Tout n'est pas Jasmin dans la vie*—"All is not Jessamine here below."

—— We are informed that the Vineyard Nurseries, Garston, near Liverpool, were purchased at the sale on Tuesday last by the Cowan Patents Company, Limited, who intend to use the property for the purpose of exhibiting their system of heating in full working order, while at the same time endeavouring to maintain the well-earned fame of the Vineyard, and, if possible, to increase its reputation.

—— In the *Journal of Botany* for March is given an extract of a paper, published by Nordstedt in a recent number of the *Botaniska Notiser*, entitled "Do the Leaves of Drosera Eat Flesh?" In this essay the negative side of the question is taken up, and the results of a chemical examination of the mucus of Drosera leaves are given, the author considering that this mucus is "analogous to the slime resulting from change of the external parts of cellular membranes in some Algæ, and not a secretion from the cells." The paper is well worth the attention of those who are investigating the phenomena presented by "carnivorous plants." The following explanation of the disappearance of meat placed upon the leaves of Drosera will give a good idea of Professor Nordstedt's method of treating the subject:—"If a living insect settles on the leaf the mucus will adhere to its body, and be mostly disentangled from the glands. It is thus in no way surprising that insects cause the hairs to converge. But what is the effect of a dead insect or a bit of raw meat? If you take a little slice from the middle of a large piece of fresh meat and place it immediately on a leaf of Drosera on a warm day in summer, after an hour or less you will see that the hairs have converged around it. On examining the meat and the hairs with the microscope you will find that a numerous swarm of bacteria are already present; the meat has begun to decompose. During the putrefaction ammonia is formed, and it is not surprising that the cells in the knob and upper part of the stalk are already influenced. If, however, the meat be previously placed in septin or amycos-septin

Fig. 81.—Gleichenia rupestris (7 feet 1 inch through).

[What are these?] to impede putrefaction, it remains unaltered, and the hairs do not converge. That the meat mostly disappears when it becomes rotten is not very surprising: the bacteria consume it; but that the leaf has absorbed it through the cells of the glands, whose contents are contracted and dead, must be considered to be out of the question." The author considers one cause of the deflexion of the stalk of the gland to be found in the fact that the spiral vessels usually, if not always, lie nearer to the inner side of the stalk.

—— The PRESTON FLORAL AND HORTICULTURAL SOCIETY will hold an exhibition of plants and cut flowers, fruits, and vegetables, in the Miller Park, Preston, on July 28 and 29.

—— Among plants suitable for culture in a sitting room the CYCLAMEN stands in the foremost rank, and as this is the season of the year when this valuable decorative plant is at its best, it is well to call attention to the fact. One of our leading amateur cultivators of the Cyclamen, Mr. B. HOOKE, of Bradfield, Berks, thus writes respecting its value for house culture:—"One property of the Cyclamen consists in its being one of the most easily grown of any of our winter favourites. It has a compact habit, lively marked foliage, exquisite fragrance in the flowers of some of its varieties, long continuance in bloom, and to these must be added its greatest recommendation, viz, that of being, of all flowering plants, the best adapted for indoor decoration. I have frequently had it in my sitting-room, and with most ordinary care it will flourish as well, or almost as well, as in a conservatory. The only attention it demands is to have its leaves brushed over every morning with a soft camel's-hair brush dipped in a little lukewarm water." We ourselves, as also many indoor gardeners, can endorse this statement; and, on the other hand, neglect will not affect it injuriously as quickly as it will many other plants cultivated indoors. The simple process of the daily washing of the leaves works wonders in the way of preserving plants in living-rooms; it is but a small attention, but the necessity of constantly paying it cannot be too strongly insisted on.

—— We lately received from Mr. W. PARKINSON, of Ripon, Yorkshire, one of his PATENT STUDLEY ROYAL LAWN-MOWERS, with a request that we would try the same, and report the results. We have done this, and are enabled to say that on a piece of lawn that had not been mown since last autumn it made exceedingly good work, cutting close, evenly, and without ribbing. It was a 10-inch machine, the knives, on the Archimedean principle, being very strong, and the driving power in the centre of the drums or hind rollers instead of at the side. It is a very compact machine, and strongly made, but required more muscular exertion than some other machines of a similar size. The wicker-work basket which does duty for a collecting-box is not substantial enough for the ordinary treatment which mowing-machines receive, and the single handle may be objected to by those who have banks and slopes to keep in order, insomuch that it is always a difficult operation to steady a machine when the operator is too far from his work.

—— We have before us the first part of a new edition of the *Deutschlands Flora*, a work in quarto, to contain 500 coloured plates with letterpress (in German) descriptive of wild plants of Central Europe. The edition is to be revised by Dr. ERNST HALLIER, of Jena. The figures are good, but with too few botanical details, and no scale of magnitude.

—— The LEEDS HORTICULTURAL SOCIETY'S twelfth annual summer exhibition will be held on June 9, 10, and 11.

—— The staple article of export from SWEDEN AND NORWAY is TIMBER—the produce chiefly of coniferous trees. The wood is sent out of the country in various states of preparation—sometimes in the form of mouldings, or even complete joiner's work. A large proportion of the whole exports is sent to England under the name of "planed goods." The average annual quantity of wood exported from Sweden and Norway during the ten years ending in 1872 amounted to 881,500 tons, but in the year 1873 it rose to 1,250,000 tons, of the aggregate value of about £3 050,000 sterling. Besides the timber exported in bulk, a very large quantity is reduced to pulp for paper-making, several thousand tons of which are now annually exported.

—— In the island of Key West, Florida, an important industry has become developed during the past seven or eight years, namely, the MANUFACTURE OF CIGARS. In 1867-68, when the manufacture was first introduced, about eighty persons were employed, who turned out in the course of the year about 150,000 cigars. At the present time there are seventeen manufactories in full work, in which 1200 men, women, and children are employed making, picking, stripping, counting, labelling, and boxing. The makers, who are nearly all Cubans, are paid by the thousand, the average earnings of an ordinary workman being from three to four dollars per day, but some of the best hands earn as much as nine dollars. The number of cigars manufactured during the year 1874 amounted to about 21,144,075.

—— Until recently the PRINCIPAL PRODUCE OF SYRA, one of the islands of Greece, has been breadstuffs and wine; recently, however, other branches of cultivation have made rapid strides, for it has been found that the soil and climate are eminently suited to the cultivation of vegetables. Consequently most of the vineyards and a large proportion of the corn-fields have been converted into gardens, which now produce a great quantity of vegetables, which are chiefly exported to Constantinople, where a very good market is always found. In 1872 the value of vegetables so produced amounted to £15,500, which, it was anticipated, would have been doubled in succeeding years had the country not been visited by severe drought.

—— We are glad to learn that the authorities of the British Museum have secured by purchase Mr. W. G. SMITH'S unrivalled collection of drawings of BRITISH FUNGI.

—— One of the CURIOSITIES OF COMMERCE is the growth and traffic in Oranges. The thought frequently occurs to many how the fruits can be sold at the low price they are to be remunerative to the growers, when the gathering, packing, and expenses of freight are considered. In St. Michael's, Azores, an island always noted for its Orange crops, a large company has been formed, consisting of many of the principal proprietors of plantations; and this company alone shipped in one year as many as 36,000 large boxes. The island suffered from a severe drought in 1873, so that in some parts the fruits dried up and were worthless. Many trees perished for want of moisture, and were consequently cut down, and it was found that not more than half a crop would be produced. These fears, however, were not confirmed, for during the season from November, 1873, to April, 1874, upwards of 270,000 boxes of Oranges were exported to Great Britain.

—— The cultivation of CAROLINA RICE IN INDIA, which was commenced in 1868, seems at present to be only partly successful, that is, it has succeeded moderately in some parts and less satisfactorily in others. Nineteen barrels, containing 1725 lb. of seeds, were sent out as a first experiment; and in 1872 200 barrels were received by the Indian Government, and the seed was widely distributed. The superiority of the Carolina over the native Rice is generally acknowledged, but it is said to require a higher system of cultivation and a deeper surface-soil, as it throws its roots to a much greater depth. A fair crop of native Rice may be obtained off land with a surface-soil of 3 feet deep, but Carolina Rice requires deep ploughing, plenty of manure, and good drainage. The question is, whether the extra expense of cultivation can be covered by the increased value of the crop.

—— A very voluminous and interesting report, elsewhere alluded to, on the MORAL AND MATERIAL PROGRESS AND CONDITION OF INDIA during the year 1872-73, has recently been issued. As might be supposed from its title, the matter comprised in its pages is very varied, ranging from legislation, finance, taxation, education, cultivation of useful plants, to forest conservancy, meteorology, &c. Under the head of agriculture we learn a good deal about the natural resources of the country: the cultivation of indigo, for instance, has, it appears, increased in Bahar, while its area has diminished in Bengal. In Maldah alone there are twenty working indigo factories. More than half the exported product is from Bahar, and almost entirely from the districts on the north side of the Ganges—Tirhut, Champarum, and Sáran. In 1872-73 the export of indigo from Calcutta amounted to 162,860 maunds, of the value of £2,704,408. The cultivation of Tea and Coffee has been extended in the hill districts, many hundreds of acres of tangled underwood and forest trees having been cleared for planting Tea and Coffee plants. A special chapter is given to forest conservancy and the training of forest officers, both of which are now being well looked after by a systematic administration; though we are reminded that forest conservancy has had to struggle against numerous difficulties, arising from the immemorial practices of the natives, as well as from natural causes. The two worst obstacles to progress are jungle fires and the cleaning and burning the jungle for cultivation. In the spring the leaves and grass of the deciduous forests dry up, and everything becomes inflammable. The smallest spark is sufficient to create a conflagration, and fires are intentionally made every year either for cultivation or to cause fresh tender shoots of grass to spring up as fodder for cattle. The report, which occupies some 236 pages, is worth the perusal of those interested in the welfare of India.

—— A new publication is before us in the form of a monthly sheet, entitled *Revue des Jardins et des Champs*, edited by ANATOLE MASSÉ, nurseryman, of La Ferté-Macé. We find in one of the numbers a recommendation of Bambusa mitis as an ornamental plant, which is quite hardy in the north of France.

—— JABORANDI, the newly-introduced diaphoretic and sialogogue, has been a source of interest lately both to the botanist and to the chemist—to the botanist on account of its source being comparatively unknown, and to the chemist on account of recent experiments as to its physiological action. Both these subjects have been discussed in the two numbers of the *Pharmaceutical Journal* for the 16th and 23d of January, from whence we learn that the term Jaborandi is given to several plants in South America which possess somewhat similar properties. There seems to be little or no doubt, however, that the drug recently introduced into this country consists of the leaves of a species of Pilocarpus; but two forms are said to have been received in Europe, one of which comes near Pilocarpus pennatifolius, Lem., and the other, though clearly belonging to the same genus, has not been identified with regard to its species. From a quantity of Jaborandi recently received from Pernambuco by a large firm of London druggists, Mr. E. M. HOLMES has been enabled to publish a description, and to give a figure of a leaf and fruits in the *Pharmaceutical Journal* for January 23. With regard to its physiological action a very interesting account is given in the same journal for January 16 by Mr. MARTINDALE, of experiments made upon himself, which fully bear out the efficacy of the drug.

—— We are glad to learn from the *Builder* that it is proposed to construct a PUBLIC GARDEN at the east end of the churchyard of St. George's-in-the-East, London, a district where such a garden would be a great boon.

—— We understand that Mr. LAWRENCE, late gardener at Farnham Castle, is still open to an engagement, but we may hope soon to hear that so good a practical gardener has met with an appointment worthy of his high character and ability.

—— The CARDAMOM (Ellettaria Cardamomum), a plant belonging to the Ginger tribe, is well known on account of its aromatic seeds being used medicinally in this country. The spontaneous growth of the plants in the Indian forests is very well described in a recent report on the products of India. In the hill districts, chiefly on the western slopes of the mountains of Coorg and Mysore, at an elevation of from 2500 to 5000 feet above the sea, the Cardamom forms an important product. In February the growers proceed to the forests, and mark one of the largest trees on the steepest declivity. The ground at the foot of the tree is cleared of brushwood, and the tree is felled at about 12 feet from the ground. It falls down the side of the mountain head foremost, carrying a number of smaller trees with it in a great crash. Within three months the Cardamom plants begin to show their heads all over the cleared ground. During the rains they grow 2 or 3 feet, and twenty months after the felling of the tree, when the Cardamom plants are the height of a man, the ground is thoroughly cleared of weeds. In the following April the fruit-bearing branches shoot forth, and become covered first with clusters of beautiful flowers, and then with capsules. In the following October the first crop is gathered, and the harvests continue good for seven years, when they fall off. Then another giant of the forest is felled, and the process is renewed. The gathering in, entailing a walk of several miles through wet underwood covered with leeches, is very hard work. In Coorg the Cardamom forests are rented out for 30,000 rupees a year. In Mysore the yield is valued at £17,000. Instructions were given in 1871-72 for the demarcation of such tracts of jungle as were favourable for the growth of Cardamoms, and coffee planters are beginning to turn their attention to its cultivation.

ORNAMENTAL PIECES OF WATER.

AMONGST the various adaptations of natural scenery which may be brought into play in landscape gardening, a well-managed piece of water is always effective. Some care, however, is requisite, or the result is anything but desirable. It would not be difficult to find an instance where years of attention and much outlay have only produced a series of stagnant ponds, closed in with thick masses of bushes and overhanging trees, the effect on the visitor is gloom and depression rather than any enjoyment, and in all probability a thorough chill also from the permanent shade and damp.

Another beautiful, but often very objectionable, arrangement is a Water Lily pool quite close to the residence. The pool is all very well in the early summer—the flowers expand, and their silver or golden cups are charming amongst the dark green leaves; but as summer goes on, with it comes decaying vegetation, and a falling surface of water, and with them smells from the uncovered surfaces, that, if not always dangerous, at least are better away, and in some cases where (possibly without the knowledge of the neighbouring resident) the ornamental pool is also a portion of the course of the house drain, the mischief may be very serious. Similarly (in a flat country) a stream of varying height allowed to meander about close to a house too often brings fever in its train, and a small quantity of water wandering in this way gently on past the outskirts of a town, and then through garden and pleasure ground, where the owners and their friends stroll or sit on the brink, is more likely than not to affect the health seriously. A very beautiful effect, depending in part on the extreme purity of the water, may be given by the adaptation of a small disused limestone quarry. Here I have seen a little pool of clear water of a deep sky-blue lying at the foot of the surrounding rocky walls, rising sheer up out of it in sharp, clean-cut cliffs, and surrounding the pool so as to give in miniature the appearance of a rocky lake, and in reality as lovely a little bit of scenery as could be desired, with the advantage that though some of the water was necessarily always in shadow, the observer on the brink might enjoy the sunshine at pleasure. In this case the pool was only occasionally depending on wet seasons, but a small outlay in stopping cracks between the stones through which the water escaped would have secured it as a permanent ornament. Where the limestone crops out on the surface an imitation may easily be made of the larger workings, having an excellent picturesque effect even on the very smallest scale, from the sharpness of the rock and the clearness of the water (perfectly free from weeds) contrasting with the rich vegetation around.

Where the very tiniest stream is attainable on sloping ground, it gives scope for almost endless variety of arrangement. To give a single example—with the aid of a little masonry at distances, it may be backed up so as to form a succession of pools, with little waterfalls between: perhaps in one place just the water falling over a row of large stones placed across the stream, with a few water plants above them; in another, a higher wall, with the top row of stones projecting, so that the spray of the dropping water might keep some specimens of Ferns, or whatever might be preferred, in constant luxuriance. A small cascade, falling into a natural basin fringed with appropriate plants, is always a beautiful object; and where the water is required for domestic as well as ornamental purposes (if the basin can be overhung by picturesque bushes or Ferns), it is almost as pleasing to the eye if it is surrounded by a border of neatly trimmed and squared stones as with vegetation, the formal lines contrasting well with the picturesque surroundings, and at the same time securing a neat, clean edge to the little pool.

In a very shallow piece of water, a row of large stones, apparently placed as stepping-stones, look well—the stones, of course, being so placed as not in any reasonable probability to cause an accident, for however shallow the water may be, it is anything but agreeable to be suddenly wet through and very dirty. One may know the pond is not deep, nevertheless the moment of immersion seems endless, and by the time the luckless sufferer has struggled to land with sodden dress, boots full of water, and a general sprinkling of duckweed, he is apt (judging by what I am thankful to think is a solitary experience) to wish very sincerely that safety as well as beauty had been studied in the arrangement of ornamental pieces of water.

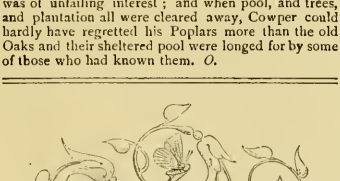
In small naturally formed pools much might be added, both to their beauty and interest, by introducing many of our wild flowers in appropriate situations. The Trollius europæus, or Golden Ball, is very ornamental for a growth close to the edge of the water, so are a few clumps of the very common Caltha palustris or Meadow Bouts in spring, and the tall purple Loosestrife in summer or autumn.

In the water itself there is no reason that the Water Lilies, as is so often the case, should hold sole possession. The Butomus umbellatus, or flowering Rush, with its rich umbels of rose-coloured blossoms rising high above the water, is very beautiful. The Sagittaria sagittifolia, or common Arrowhead, is striking from its peculiarly shaped leaves, and the white water Crowfoot, and little white Frogbit, with its fairy cups floating on the surface like a Water Lily in miniature, are all ornamental additions. The large Forget-me-not hardly needs to be recalled to memory, but Snowdrops are less commonly adopted as ornamental growths in such situations, and they will thrive to perfection planted on the very tiniest islands a few feet across in a small running stream. The Giant Campanula is another wild flower of great beauty, when seen in full luxuriance of its native growth, as on the Greta banks near Rokeby, or many years ago in the neighbourhood of Chepstow; and the kind of mixture of low bush and tall grass often seen by a small pool, is just the locality in which its purplish blue bells show to great advantage.

Sometimes, from the accidental grouping of old timber and thick bushes, rough bank and smooth sward, the banks of a pool chance to be so arranged as to be a favourite resort of birds, reptiles and insects, delightful to the naturalist as well as the lover of the picturesque, and such a pool once destroyed is so difficult to replace that a description of one, which for years was a favourite resort, may be acceptable to some naturalist readers.

The pool was placed in a row of old Oaks, standing on greensward in front of a plantation, and was of small size, and almost square in shape, but so varied by surroundings as not to convey the idea of a formal outline. One side was merely used as an approach for fetching water; another was chiefly overgrown, even into the water, by tall and thick-tangled bushes, making an almost impenetrable shelter for birds or small animals, above or below; and a third side, which had been somewhat infringed on by a field-road, had been protected by a quantity of large logs, formed of useless stumps sawn off the butt end of trees, which, rolled into the water, gave hiding places for the newts, and foundation for a lovely growth of Forget-me-not.

The fourth side, however, was the head-quarters of the visitors—here a hollow old Oak, over-hanging the pond, gave sheltering nooks, as the case might be, to an owl, a hornet's nest, or any other object of interest or alarm to be expected in such a place, and a shady recess in the bank beneath gave room for a tiny black bay, where a hamper sunk in the water brought up endless matters for inspection. On the sunny side of the tree, on the dry hot smooth bank, was a basking place for snakes, and a nesting ground for wasps, and the broken bank, running irregularly into the water, was exactly to the taste of the water-insects for an occasional airing, and the water-scorpion would bask and unfold in the sunshine till the reddish under-wings would glow with almost tropical colouring in its enjoyment of the heat. With the addition of the luxuriant growth of the water plants, the vigour of the fish, and the occasional four-footed visitors which might be surprised there by a quiet watcher, the pool was of unfailing interest; and when pool, and trees, and plantation all were cleared away, Cowper could hardly have regretted his Poplars more than the old Oaks and their sheltered pool were longed for by some of those who had known them. *O.*



Home Correspondence.

Home-grown Tobacco.—Tobacco is one of the gardener's greatest aids to successful cultivation, and is an article almost indispensable in every garden in some form or other. Insecticides we have in any quantity, all good and useful enough in their way, but none can take the place of Tobacco, or compare with it for extirpating green-fly. For destroying the various forms of scale, mealy-bug, &c., the insecticides are more efficacious, but, unfortunately, even weak solutions of most of these disfigure and injure paint if syringed on, and their use in this way should therefore be avoided. Infusions of Tobacco are much the safest and cleanest, and if mixed with any of the insecticides for syringing fruit trees on the open walls it will be found much better than using entire solutions of insecticides containing such a large amount of alkaline matter, a slight overdose of which often causes injurious effects on the tender foliage. As yet we have no substitute for Tobacco for fumigating purposes, and it is in this way it is found of so much value, as its fumes insinuate themselves into every curled leaf and crevice, carrying destruction to the insect pests lurking therein. Its use in this way entails a very considerable outlay in most places, and is often one of the heaviest items for garden requisites. Having used large quantities of home-grown Tobacco, I can strongly recommend it as the best substitute for the manufactured article, and but little inferior to it if properly grown and harvested. If more attention were paid to its cultivation in gardens we should be able to fumigate less grudgingly than is done when supplies are obtained at a dear rate from the tobacconist. The best variety to grow for the above purpose is Nicotiana virginica. This is a very large-leaved variety, much resembling those of the Jerusalem Artichoke in colour and form, but considerably larger and longer. The seed should be sown towards the end of April, and be placed in slight heaps to induce it to vegetate. As soon as the plants are up and sufficiently large to handle, they should be pricked out about 2 inches apart and replaced in gentle heat for a few days, after which they may be gradually hardened off for planting out towards the end of May. A rich open piece of ground should be chosen for this purpose, and the plants should be placed in rows a yard apart and 2 feet plant from plant. When sufficiently high to require support they should either be staked singly or tied to a line of string or thin rods run down the row and supported at intervals for that purpose. No more attention will be required beyond a watering now and then, and keeping the ground clean till the lateral shoots begin to show themselves. These should be pinched out from time to time, so as to concentrate the whole energies of the plant in a limited number of main leaves. These should be confined to from ten to fifteen, according to the strength of the plant and the quality of the ground. As soon as they show sufficient leaves they should be stopped, and not allowed to flower, or the leaves will become impoverished and not attain a large size. By the end of September they will be fit for harvesting, and should then be gathered from the stalks and hung in an open airy shed to dry. If placed outdoors for this purpose the leaves dry too rapidly and become sunburnt and crumble to pieces. As soon as the midribs have lost all moisture they should be packed away in boxes, and stored in some nice dry place for use. Treated as above, there can be no reason why home-grown Tobacco should not be nearly as good for fumigating purposes as that which is imported. The fermentation and sweetening process undergone by the manufactured article can in no way add to its efficacy for garden use. *J. Sheppard.*

Seedling Lilies.—Can any of the readers of the *Gardeners' Chronicle*, who have been successful in raising Lilies from seed, oblige me with one or two-year old seedlings of the following species, as I wish to figure them in the first part of my *Monograph* of the Lilies:—L. Humboldtii, Washingtonianum, canadense (or any of its varieties), philadelphicum, Thunbergianum, tigrinum, candidum. The last two are so easy to increase by other means and so rarely ripen seed, that I am afraid the seedlings may be difficult to obtain. It is not generally known how much the different kinds of Lilies differ in the early stages of their existence. Several may be distinguished when in their first year's growth, and it has been shown by Professor Duchaitre of Paris that distinctive characters can be found in the seedlings of such nearly allied species as L. giganteum and cordifolium. I should also be glad to know if L. testaceum ever ripens seed in England, and, if so, whether it comes true from seed, as it is supposed to be a plant of hybrid origin. I believe Lilies might be hybridised much more easily than is supposed, and though it is a tedious process to raise most of them, it would be well worth trying experiments on such species as monadelphum, tenuifolium, Brownii, or giganteum. *R. J. Elwes, Miserdine House, Cirencester.*

The Royal Horticultural Society.—There are two facts which somewhat affect Mr. Bull's arguments in your issue of March 20. Mr. Jas. Veitch and Mr. Lee were on an old Council [But this is long, long ago. Eds.], and no one can deny that they were excellent representatives of the class of "professional horticulturists." On looking at my photograph of the members of the committee of the memorable "International Horticultural Exhibition," I find that the seven more central figures in the front-rank were not professional horticulturists, in the sense used by Mr. Bull. I had not the opportunity of seeing the working of that committee, which certainly carried a great exhibition and Congress through very difficult circumstances to a thorough success, and, therefore, I should like to ask whether the two most central front-rank figures in the picture (Sir Daniel Cooper and the late Sir Wentworth Dilke) had not very much to do with the success achieved. I make these remarks only that we may keep on sound ground—not to say a word against professional horticulturists being on the Council. I have long thought that one or two representative nurserymen, selected by their brethren, would much strengthen the Council. As I am writing, would you allow me to air a notion which I think might be useful when the Society is being reconstituted, as it will have to be? I am the more anxious to do so as the opinion of an old, experienced, practical, friendly adviser is adverse, in the fear of its causing the introduction of desultory conversation and reconsideration of matters already about settled. The notion is that, in addition to the present members of Council (not too many to ensure a quorum at all seasons), we should have four or six extra members from the country, say more than fifty miles from London, and that one attendance of these should count as equal to three of the nearer town ones. The effect would, I think, be to strengthen our tie to the country, and to bring in the services of some first-class horticulturists who cannot afford the time or cost of

regular attendance. *George F. Wilson, Heatherbank, Weybridge Heath, March* 20. [Those on the spot would naturally carry their views against those of the more distant or non-attendant members of Council, if they happened to be opposed; and therefore we think the addition proposed would be of no practical advantage so far as securing better management. Eds.]

—— Since I had the pleasure of last addressing you I have informed myself of the numerical strength of the several classes or parties, so to speak, who, divided against each other, and, indeed, against themselves, have been, and are working on the ruin of that great Society which it was their bounden duty to support. I was happy to find that the number of those who remain attached to a Legitimist policy, and ready to support the few leaders of horticulture proper which are left to us, is greater than I expected; indeed, I cannot otherwise account for the singular transaction which occurred with regard to the report at the anniversary meeting when that document was virtually condemned, together with the framers thereof. On that occasion the Council were saved from resignation, not upon the merits of the case, but by the charming manner and high gentlemanly bearing of their chairman. After this occurrence I own to having cherished a shadow in the form of a hope that something of the following kind might have been effected—to wit, that a fusion between the old independent horticultural party and that of the local Fellows might result in the formation of a Council containing a good proportion of the former. That these two parties (in Council) having agreed to act honestly together might have together gone to the Commissioners and so entered into arrangements of such a nature (upon the basis of cancelling the lease) as to leave all parties in the possession of their desired privileges. The thing is, I believe, still possible in some shape or another. Should anything feasible of this kind turn up, I and my friends will be ready to give it our support. If not, and the Council stick to their policy of making use of the usurper's power to retain the lease and starve the Society, then I counsel, on the part of my brother horticulturists, a firm, compact, and persistent opposition to an evil and selfish influence. *R. Trevor Clarke, Welton Place, March* 23.

The "50 per Cent." Reduction at South Kensington.—The total amount of the money offered as prizes in the Society's schedule for the recent spring show was £126 6*s.*; the total amount actually awarded in accordance with the prize list, owing to the smallness of the competition, was £25 5*s.*, exclusive of medals. This would represent a clear saving of £100 on this show alone, and if the same average saving is to be the case all through the season, it will certainly not be less than £1000. Is it not, then, really hard, indeed I may say absolutely mean, towards the few exhibitors who, under much discouragement, came up to the scratch so well on the 17th, to reduce this small amount by one half, that is, making it the ridiculously small sum of £12 12*s.* 6*d.*, thus making a total saving on the show of £113 13*s.* 6*d.*; for without doubt, had things been more prosperous, medals would still have been awarded. So far from any reduction being made, I think the Council ought to mark its approval of the spirit of the few exhibitors of the 17th by adding at least 50 per cent. to their prize money, instead of making a large subtraction from it. *One Concerned.*

Lee's (Hammersmith) Early Kidney Potato.—Now that the season is at hand for planting, I would strongly advise all who have not yet given this variety a trial, to do so. I have grown it now two seasons, and have no hesitation in pronouncing it the best early Potato I know. I consider it much superior to the favourite Ashleaf, inasmuch as it is with me quite ten days earlier than that variety, of equal if not better quality, and far excelling it in productiveness. I feel sure one trial will suffice to place it high in the estimation of those who value a really good early Potato. *John Brown, Gr. to Earl Howe, Gopsall Hall, Atherstone.*

The Culture of the Verbena.—This once popular plant, sharing the fate of many other florists' flowers, has become much more neglected than it should be, for its adaptability to greenhouse decoration, and the ease with which it could be grown in small pots, with a close neat habit, was clearly demonstated by the late Charles J. Perry. Mr. S. Bide, of the Alma Nurseries, Farnham, is a very successful cultivator of Verbenas, and his plan of propagating is this:—The cuttings are taken in September from clean planted-out plants, and are struck either with a little indoor bottom-heat or in a dung bed. They are wintered in stores, with a cold bottom, in narrow span-roof houses, with only sufficient heat to keep out frost. Spring cuttings are taken off early in February, first giving a little heat to the stock pots to start the plants into growth. Moderate drainage is used, with ordinary good potting soil, and a little sand on the surface. Care is taken both in September and February to use clean cuttings from a healthy stock, and then but little fumigation becomes necessary. There is a disease peculiar to the Verbena, called by some "black top," which should have immediate attention. This is the discoloration of the top of the cutting or young plant, and it should be immediately pinched out, as it is a contagious disease, and of a destructive nature. The store pots of spring cuttings are plunged in sand and sawdust mixed—sufficient of the former to give more solidity to the sawdust, underneath which is tank bottom-heat. The admirable health of a very large stock of Verbenas shows that this treatment is efficacious. Another plant, the Centaurea candidissima, is cultivated extensively here, and with little trouble. Cuttings are taken off in September, slipping them off with a bit of heel, only removing the ragged part. These go into 60-pots singly, or three in a larger size, and are placed in a cold frame under a north wall until December, when they are removed into a cold frame with a south aspect. *D. H.*

Double Cinerarias.—No doubt many, like myself, would be glad to see the double Cinerarias, for they have been persistently advertised and figured, and their fine, perfectly and evenly double qualities, and their beautiful colours, strongly praised. I was tempted to purchase a 5*s.* packet of seed from a large London house last autumn, and I send you a sample of the flowers I have had. A worse strain of singles I have not seen for a very long time. *George Pain, Holland House, Weston-super-Mare.* [The flowers we received were simply wretched, but still better than the Cauliflower-like monstrosities shown by Mr. Bennett. Eds.]

The Fruiting of Young Pine-apple Plants.—For Mr. Bond's information, as sought at p. 375 in your last week's issue, I give you the shortest instance which I have recorded of suckers fruiting here. Amongst a batch of strong ones which were started the last week in February, two Charlotte Rothschilds and one Smooth Cayenne showed fruit in June, and were cut on November 28 following—the Charlotte Rothschilds weighing 7 and 7¾ lb. respectively, and the Smooth Cayenne 8¼ lb. These were grown in pots, and had one shift out of the sucker-pot into 12-inch ones. *Geo. Thos. Miles, Wycombe Abbey.*

Sulham Prize Pink Celery.—It may be of interest to some of your readers to know that Celery can be kept good in the ground till the end of March, if they only get the right sort to grow for that purpose. For years I have been trying to get a good Celery that would stand good all through the winter. I have grown most of the sorts in cultivation, but never succeeded in getting one to my mind until now that I have grown Suttons' Sulham Prize Pink. I find it to be all I could wish for in a late Celery; it has stood this very severe winter without any protection whatever, and is now good and fit for table. I believe it to be the very best pink Celery in cultivation. It is of medium growth, stiff close habit, remarkably solid, crisp, and juicy, and of fine flavour. This is a desideratum that has been long wanted, and I think Messrs. Sutton & Sons deserve great credit for introducing this valuable late Celery. With this I send a few heads for your inspection. *Alex. Ingram, Alnwick Castle Gardens, March* 22. [The specimens received were remarkably good for the time. We have heard other growers highly praise this variety. Eds.]

Wild Daffodil.—I suppose difference of soil is the cause of the differing experiences of Messrs. Crewe and Barr and of "C. W. D." My own experience, I regret to say, accords with that of "C. W. D." I have repeatedly transferred to my garden bulbs of the wild Daffodil, some from Devonshire and some from this neighbourhood (North Wilts), and have found them turn double after a couple of years. Two clumps only, out of half a dozen each, remain single out of the lot; these have been planted some six or seven years. *R., March* 22.

Orchids at Rangemore.—In walking through the fine gardens of M. T. Bass, Esq., M.P., of Rangemore, I was very much struck with a few specialities which I think worth mention in your correspondence column. The first was a fine plant of Phalænopsis Schilleriana with leaves a foot long, having two spikes fully 3 feet long, beautifully branched and flowered to one half their length. This had been in bloom since the middle of January, and the blooms were (March 12) without spot or blemish. Oncidium Barkerii, with four spikes, on which I counted sixty-two flowers, the others over fifty each. Dendrobium Pierardi, with growths 6 feet in length, in a basket suspended from the roof, being one mass of flowers the full length of the growths, making one of the prettiest sights I had seen for a long time. In the cool house, in a 6-inch pot, was a plant of Lælia anceps, with seven spikes of three blooms each, all open—a beautiful sight. Also, in a 7-inch pot, Lycaste Skinneri, with twenty-five fully expanded blooms, as perfect a model as a well-trained Pelargonium. I never saw so fine a specimen before in so small a pot. Of Odontoglossums, Alexandræ and pulchellum were good. Of the former I measured one bloom 4½ inches across; one had fourteen beautiful flowers on one spike, and on another, not quite open, I counted eighteen flowers on one spike, the largest number I remember having seen. I was the more pleased at seeing these fine examples of cultivation, as when I passed through this fine establishment three years before they had only begun to get a few imported Orchids together, and how remarkably well they have done the above will testify. Those I have mentioned were only a few among many beautiful things. *G. L. Burton.*

Manchester and South Kensington Contrasted.—At Manchester we have a schedule, at South Kensington a squabble. But—no, I will not follow out the contrast, but leave it for each reader to fill in at his leisure. On reading the sayings at South Kensington—for, be it noted, there have been no doings—and the schedule of the Manchester Society for their forthcoming Whitsuntide show, it is impossible not to exclaim, Look on this picture and on that, but especially on that! And yet there are those with both pictures before them that invite growers from Manchester to Kensington in aid of horticulture. Well, Kensington has coolly cut 50 per cent. off the prizes of exhibitors. Allow me to set in contrast what Manchester is doing. In round numbers it is offering over a thousand pounds in prizes at the Whitsun-week show. But to descend to particulars:—For twenty plants, ten foliage and ten in flower, there are three prizes, one of £30, a second of £20, and a third of £12. For sixteen Orchids the prizes are £16, £12, and £7. For eight stove and greenhouse plants in flower the prizes are £10, £6, and £4. For eight stove or greenhouse Ferns, £8, £5, and £3. For twenty-five hardy Rhododendrons in flower, £15, £10, and £5. For twelve Roses in flower in pots, £25, £15, and £10. For eight show Pelargoniums in flower, £8, £5, and £3, and the same prizes for the same number of Fancies and Zonals. For collection of Clematis, £12 and £8. For twelve new or rare plants, £12, £7, and £5. And so on throughout the schedule. And be it noted these liberal prizes and the spirited management that has lifted the Manchester Society out of its financial difficulties, has established its prosperity and enabled it to render such splendid service to horticulture. *D. T. F.*

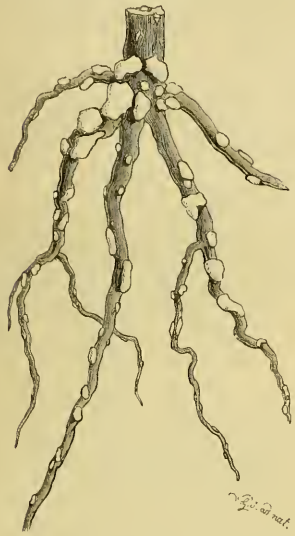
Madresfield Court Grape.—I can fully endorse the high recommendation Mr. Smith has given at p. 375 of the Madresfield Court Grape. I can also add this to its other good qualities—that I kept it this year, and sent it to table in good form on February 1, and after our Black Hamburghs were cut at the end of November it succeeded them in splendid condition. It certainly requires closer and more constant attention with regard to damp in the bunch than thicker-skinned varieties, such as Lady Downe's, Gros Colman, and others; but for its superiority of flavour it is well worth all the extra attention it may require. I know in some places it has proved troublesome through cracking, but if it is liberally supplied with water until it has nearly done colouring, and after that the roots are protected from wet and the air of the house is kept as dry as possible, the complaints of its cracking would be very few. I consider it and Venn's Black Muscat (which I have once tasted at South Kensington) the two finest Black Grapes with Muscat flavour at present grown. I would not advise Mr. Martin (p. 312) to graft it on the Frontignan, it being a very free-growing kind, whereas the Frontignans are not. *J. Ridout, Woodhatch Lodge, Reigate.*

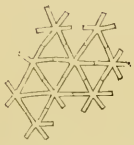
Some Remarks upon the Fickleness of a British Climate.—Where so much of the success or failure of a British gardener in his cultural efforts depends on the state of the weather, it naturally forms an anxious part of his duties to make the atmosphere his study, and take observations of local signs of coming changes, in addition to that of marking the ups and downs of the mercury, for to be forewarned is to be forearmed. Such signs of rising storms and sudden changes of temperature as are common to the observation of shepherds and others accustomed to be much in the open air, are not unfrequently better guides as to what is coming than the best regulated barometers. To prognosticate what sort of weather is to take place in this country at any stated period, is only like leading the weak-minded and uncautious on to rotten ice. Meteorologists, by their constant observations, have assisted science to a certain extent in deducing periodical changes that our climate is subject to, such as the cold atmospheric dips that take place about the beginning of February, March, and May, &c. These falls of temperature are more or less severe, according to the position of the wind in the locality at the time in various parts of the kingdom, and more especially in such places as are low and moist, or what may be properly termed within the hoar-frost level. It is now pretty well understood that our climate has its periods or cycles of heat and

cold, running generally in successions of two and three years at a time, rarely extending to a fourth—hence the general impression formed that the present winter was to be one of no ordinary severity, the three previous winters being all remarkable for their mildness, and no less remarkable for the varied characters of summers which followed them. The first, 1872, will be long remembered for its heavy rainfall and low temperature; while 1873, although greatly exceeding in average of rainfall, was a warm, growthy, and productive summer; whereas its successor, 1874, was one of great drought and extreme heat. Thus we see that these three mild winters were followed by summers differing very much in character and results. It is, therefore, evident that no one can foretell what sort of a summer it is to be by the winter preceding. Some faint and obscure light as to the sort of weather that may be expected to prevail through the spring months—that is, from the end of March to the longest day—may be gathered from noticing the position of the wind a week before and a week after the vernal equinox. This is no new theory, as from a number of years' observations I have found the prevailing winds to come from the same direction during that period; but as regards the state of the weather during that time it can only be guessed at by its usual character when the wind has been out of the same quarter at a corresponding period—thus an east wind in March and April is generally dry and cold from blowing over the continent of Europe. A north wind here is a good deal softened by the influence of the Gulf Stream washing our northern shores, and in consequence of which we have frequently a moist atmosphere from that quarter; whereas in the South of England a north wind through the spring and summer months is commonly a dry and cold one, unless counteracted by the sun shining through a cloudless atmosphere. The varied effects of the north wind at the opposite ends of our island are accounted for by its blowing over a large tract of land, and thus giving strength in its dry and arid course. I am not one of those who believe that our summers are fixedly growing colder and the winters warmer, although the seasons are liable to great fluctuations, often following each other in cycles, influenced by causes not yet ascertained. Contrast, for instance, the summer of 1874 with those of 1872, 1866, and 1860, and again the winter of 1873-4 with that of 1860-1. With such a wide range of temperature in so short a time, it is easy to conceive that all the extremes hitherto reached in our island climate will recur again. This place is situate on the south shore of the Moray Frith, in latitude 57° 38′, and the subjoined jottings, taken out of my pocket-book, 1874, will serve to show what our climate is in the far north. Roses flowering nearly all the winter; Mignonette lived through the winter unprotected and flowered through the following summer; Apricot blossom, on south aspect, fully expanded on February 6—some fruit on same wall perfectly ripe on July 22, and exhibited at a flower show as an instance of the earliness of the season; early purple Plums ripe on east aspect the last week in July; Walnuts also ripened sufficient to send in for dessert, April 12; Damson and other standard Plums white in blossom, April 25; Lilacs and Horse Chesnuts in flower, do.; Common Hawthorn on May 2; cuckoo heard on April 24, and swallows seen on April 25. *J. Webster, Gordon Castle.*

Diseased Palm Roots.—Some time since I was requested by the Editors to examine and report on some diseased Palm roots supposed to be affected with fungus. On examination, however, I was unable to detect any fungus but an hypertrophy or overgrowth of the cellular tissue bursting through the rind and producing the appearance shown in the figure (fig. 82.) The tendency of the enlarged cells to form a stellate growth, similar to that of the well known star-shaped cells of the Rush, is also shown in the drawing—the cells in the centre of the figure being those of the Rush. The cause of this unusual formation is at present unknown. *W. G. S.*

The Eccentricity of Growth.—I enclose a sketch of a section of an Oak tree that grew over an orchard, shooting out of the hedge nearly horizontal. The pith is very much out of the centre, as is usual in horizontal growth; but the curious part of the section is that the heart has been formed without reference to the rings of growth, and has a kind of independent rings of its own. The black pencil marks give some of the rings of growth, the black ink spot representing the pith. The red lines show the rings of the heart, which seem inclined to follow the line of the bark. *H. R.* [Similar instances are often seen. Eds.]





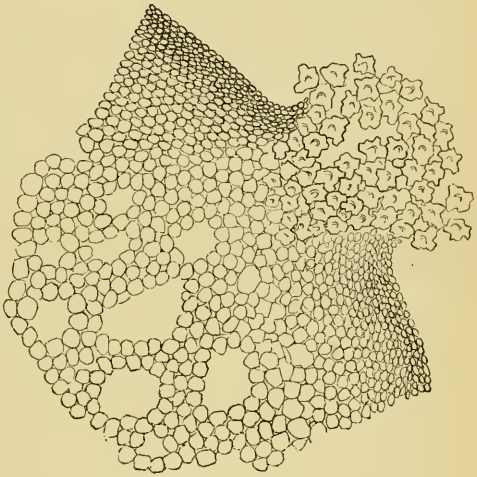


Fig. 82.—Diseased palm roots, natural size; and transverse section, showing diseased tissue, enlarged 100 diam.

Fringed Petals versus Rounded Petals.—At the meeting of the Royal Horticultural Society on the 17th inst. I exhibited a box of seedling Primroses before the Floral Committee, and one of them, a large sulphur-coloured variety, with an orange centre, was remarkable for the dimensions of its blossoms. I think perhaps it might have obtained an award but for the unhappy Primrose—beautiful in spite of its defect—having fimbriated edges to the petals; at least, I inferred as much from a remark I heard come from a member of the Floral Committee. The rule laid down by the speaker was, that a common Primrose must have smooth edges to the flowers to entitle it to a Certificate. By the side of my box were some Chinese Primroses, and here, in order that the flowers should possess properties that would commend them to the attention of the Floral Committee, the petals must have fimbriated edges. Are not these artificial distinctions too slavish and intolerant in their character for the present day?—and must they continue to bind the Parliament of Horticulture to the observance of laws as unalterable as those of the Medes and Persians, and often very capriciously administered? Like Mr. Barron, with his pretty fringed Petunias, which considerably enhances their decorative value, I mean to originate a race of large, bold, fringed common Primroses; and whether the Floral Committee recognises them or not will be a matter of small moment to me, or to those who love these beautiful spring flowers for their own sweet sakes. I cannot be one of those who seek to limit the improvements in natural productions according to the ideas of an uninteresting and shackled uniformity. *Richard Dean, Ealing, W.*

Abies Douglasii.—If this valuable free-growing Conifer were only better known it would, I think, be much more sought after for planting extensively both for ornamental purposes and for the production of timber than it at present appears to be. It is seldom one meets with it in any quantity, and this is to be regretted, taking into consideration the highly ornamental character of the plant, and the excellent quality of its timber. Many of the Fir tribe, such as Spruce, and others comparatively worthless, are still planted to the exclusion of one possessing every good quality. This fine Fir ought by this time to be plentiful in this country, having been discovered as far back as 1796, but to Douglas must be accorded the merit of having introduced it to England, and his name could not have been associated with a more worthy representative of the many choice things among Coniferæ introduced by that enterprising traveller. The tree is of free and rapid growth, keeping pace with the Larch in that respect where it has slight shelter and the same favourable conditions as to soil, &c. In growth it always assumes an upright conical form, sending out its branches horizontally. These are set very thickly with foliage of the most healthy green colour, forming a dense mass if the tree is growing where it obtains plenty of light and air. The colour of the young shoots is of a light silvery green, thus contrasting very favourably with those of older growth, affording a glow of light and deep green at once striking and beautiful. The wood of the Douglas Fir is very firm, heavy and solid, containing an abundance of resinous sap, indicating at once the lasting qualities and value of the timber. Now that we hear so much of disease in Larch plantations, it may be worth while to give more attention to a plant that has all the good qualities of the Larch, and may ultimately in a great measure supersede it. Here it does not appear at all particular as to soil, as one planted in stiff clay about eighteen years back is now 50 feet high and in the most luxuriant health, while others in soil varying from this to a loose gravelly mixture are equally healthy and robust, quite keeping pace with the Larch with which they are planted. As to the Larch disease, I am of opinion that it is often brought about by the careless manner of planting in ground containing dead roots of fallen timber, and by burying the *débris* and rubbish of old plantations when trenching the land previous to planting. This prac-

tice is very faulty and injudicious, as vegetable matter buried in this way is sure to lead to the formation of fungus, and once this attaches itself to the bark or roots of plants, be they small or large, their fate is soon sealed, as it will kill the giant of the forest as well as the puniest plant. Too much care cannot be taken in grubbing up any roots that may have been left in the soil after felling the timber. The practice is too common among planters of leaving these in, and this cannot be too strongly condemned, as it is a sure source of disease and decay. As to the leaves, dead sticks, and other vegetable matter, so long as they remain on the surface they can do no harm; indeed in that position they are a positive benefit, forming, as they do, the mulching plants stand so much in need of. In summer they are great conservators of moisture, as the ground is never dry if protected by a slight layer of leaves, and the hungry roots are attracted to the surface to feed on the rich decomposing matter, and take up the moisture they would search for in vain at a lower level. In winter, what can more effectually protect the roots of plants from frost than a layer of leaves? Nature is very wise and bountiful, and by following her teaching we shall not err; but if we reverse the order of things, and bury beneath the soil that which should remain on the surface, a train of evils will be sure to follow. On the surface this accumulation of vegetable matter is subject to all the atmospheric changes, and the conditions are not favourable while in that position for the development of fungus spawn. Buried beneath the soil it is soon robbed of the moisture that hastens decay, by the absorption of the surrounding soil, and being away from the influence of air and atmospheric changes the conditions are directly favourable; and, once the fungus starts, it speads with the greatest rapidity, seizing hold of every root and atom of vegetable matter that comes in its way. As soon as it fastens itself on the roots and bark of plants their growth is impeded, their energies become paralysed, till at last they sicken and die. For years we have had a continuation of dry summers exactly suited to develope fungus on all decaying vegetable matter buried beneath the soil, as the conditions required are a certain amount of dryness, accompanied by the necessary warmth; and the result has been wholesale destruction among valuable trees from a cause little suspected or credited. Elms, and such like trees, that have always a quantity of loose decomposing bark on their roots and round the collar, have been the most affected; and every tree I have seen taken down that had died previously, or was on the point of doing so, showed unmistakeable evidence of having been brought to that state by fungus on the roots, as they were white with it. No doubt the scorching seasons hastened their end, but the real cause has, in my opinion, been the debilitating effect of this insidious and little suspected enemy working quietly beneath. May not this have been the cause of the decrepitude and decay going on with the trees in the London parks, and to which you called attention some time back? Water is inimical to the spread of this pest, and had it not been for the excessive dryness little harm could have resulted, as it would not have had time to spread itself over the roots before being checked or killed. *J. Sheppard.*

The Hardiness of Fuchsia Riccartoni.—Last summer I planted out against a low west wall, in a very cold, exposed, and sunless position, a plant of this Fuchsia, some forms of the Gum Cistus, and Clematises. As the Fuchsia had no protection during the severe wintry weather in December, I concluded it was hopelessly destroyed. Certainly all the forms of the Gum Cistus, excepting the common one, were hopelessly destroyed; Clematis patens (azurea grandiflora) was cut down to the ground, but the Fuchsia not only survived but is rapidly breaking into growth almost from every part of the wood left from last year. I am of opinion that this Fuchsia might be much more generally planted for outdoor decoration, either to grow in the bush form or against trellises and walls; in either case it would be a beautiful object during the summer. *R. D.*

Dendrochilum glumaceum. — Has any one noticed the singular change in perfume of this plant? I enclose you spikes cut some days since, when they had their usual perfume. Now you will notice that they smell like curry-powder. *W. T. P.*

Drosera capensis. — When the collection of plants at Manley Hall was disposed of just two years ago, among the East Indian Orchids were a number of plants of a Drosera, which we knew under the name of capensis. It is very possible there are many now in various collections in different parts of the country, and others may have noticed the peculiarity and short duration of its flowers. I have been fortunate in again getting one or two of them with some Orchids, purchased from a local nurseryman, and last summer one of them threw up a spike of flower. It is certainly very interesting to watch this as it gradually developes itself, growing about 8 inches high before any flowers appear, and then one morning at about 7 A.M. a bright rosy pink flower would burst, which would keep very pretty till 10 A.M., then gradually fold itself up again and be seen no more. Generally one flower would open on each successive morning, remaining open just about three hours, but sometimes two flowers would be out together, and at other times it would be two days before one opened. I have had as many as thirty flowers on a spike, which would represent about as many days as it would be flowering. Without any artificial aid the flowers were fertilised, and by the time all the flowers had opened a quantity of small black seed would be found enclosed in the majority of the dried flowers. By sowing these as soon as ripe, I have succeeded in raising a quantity of young plants. I have also increased it by cutting the stem through as it grew, and each piece, with a root to it, would always throw up one or more young plants. *W. Swan, Fallowfield, March 22.*

Lisianthus princeps.—There exist some plants in the rich stores of Nature which have the privilege of an exceptional and peculiar beauty, such as Lisianthus princeps, and Lasiandra lepidota. This can only be appreciated fully in their native country. The traveller who beholds such an extraordinary sight forgets for a moment his troubles, his fatigue, and sacrifices; everything around him breathes delight and satisfaction—the rich spot that has attracted him from afar appears sacred, and when he leaves it he goes blessed with the precious remembrance, feeling himself encouraged on his painful pilgrimage. I wish to speak here particularly of Lisianthus princeps. I was so fortunate as to meet this noble plant, not only in a full flowering state, but also with abundance of seeds, the latter being the more pleasant and important to me, as I knew the difficulties which had hitherto been experienced in growing this plant, so long known (about twenty-five years) and aspired after: various efforts to establish it from roots, from stems, and even from seeds, having proved without result. The plant grows in the Cordillera of the State of Santander, Republic of New Grenada, at an elevation of 10,000—12,000 feet, where it displays in a low and sometimes frosty temperature a magical aspect, an ornament contrasting strongly with the desert-like regions around. The plant differs in several ways from the general character of Lisianthus. It is rather a climber than a shrub, and its flowers are so particularly elongated as not to permit an easy comparison with its congeners. The fruit, too, shows a special variation, being a dry one, while all others known to me are invested nearly throughout with a glutinous substance, which has a smell very much like that of Apples. The plant, it seems, does not prefer any particular soil; any, being a good fertile one, will suit it. The atmosphere is laden often by thick fogs, and rough winds prevail; the position was never a sheltered one—I always found it in open places. The flowers are irregularly funnel-shaped; and the great multitude of them (several hundred at a time), profusely spreading, produce an indescribable effect. The time of flowering is December and January, a time that will best suit growers of cold-house plants. In regard to colour, I have to acknowledge here the existence of two different forms, the one being a variety of the other, and each produces the same high effect. The one originally known is bright orange-tinted red, changing towards the ends into yellow and dark red; the other variety was found in a distinct locality, and about 80 miles distant from the former; it is vermilion-coloured, with the base clear white. The five-lobed limb of each is green, on the first one clear, and on the second one dark green. *G. Wallis.*

SPRING FLOWERS.

Messrs. James Veitch & Sons' show of spring flowers, now on view at their Chelsea nursery, is, we think, the most attractive they have had. The display will be found in a large span-roofed house, the outside staging of which is devoted exclusively to Hyacinths, Tulips, Crocus, and Narcissi, one side holding Hyacinths only, while at the entrance is a charming group of Clematis. Amongst the new Hyacinths we noted the following as being the best:—Duchess of Edinburgh, single, flesh-pink; Disraeli, single, lavender-blue, fine bells; Masterpiece, single, nearly black, a close compact spike—the best of all the dark varieties; Princess of Wales, semi-double pink, and a tall spike; Queen of Naples, single, and of a bright shade of rose, a close compact spike; and Gladstone, single, lavender-blue. Of the older sorts there will be found excellent specimens of (single reds) Charles Dickens, La Joyeuse, Garibaldi, Linnæus, Macaulay, Fabiola, Von Schiller, Princess Alexandra, Prince Albert Victor, and Vuurbaak. Single whites: Snowball, Grandeur à Merveille, Mont Blanc, and La Grandesse. Single blues: Blondin, Leonidas, Lothair, King of the Blues, Grand Lilas, Charles Dickens, Princess Mary of Cambridge, and Baron von Tuyll. Single yellows: Ida, Bird of Paradise, and Grand Duc de Luxembourg. Single lilac or mauve: Czar Peter, Adelina Patti, De Candolle, and Haydn. Double reds: Lord Wellington, Noble par mérite, and Koh-i-noor. Double white: La Tour d'Auvergne. Double blue: Laurens Koster. The best Tulips as exemplified by Messrs. Veitch's collection are Proserpine, Wouverman, Vermillon Brillant, Fabiola, Keizerkroon, Rose Lusanthe, Belle de Lyons, rectified; Chrysolora, one of the finest pure yellows; Mollière, Rose aplatie, Roi Pepin, Pottebakker White, finest of pure whites; Joost van Vondel, dark crimson, with a few white pencillings; Bride of Haarlem, cerise-red, with white stripes, forces well; Rose à Merveille, rectified; Cottage Maid, pink, with white featherings, excellent for pot culture, but not so good out-of-doors; Cerise Grisdelin, crimson, edged with sulphur; and Salvator Rosa, double rose. Of new Polyanthus Narcissus the most prominent varieties are La Magnifique, creamy yellow, with orange cup; and Bonteus, white, with citron-yellow cup. Of the older forms, Queen of the Netherlands, Lord Canning, Bazelman major, Gloriosa, Golden Era, Newton, and Sulphurine will be found in admirable order.

Amongst the Crocuses not yet in general cultivation are L. Innocence, pure white; Dandy, blue, with light edge, dwarf and good; Grand Alexander, blue, very fine; General Havelock, fine deep blue; Mr. Peabody, very dark blue; Mrs. Beecher Stowe, pure white; Miss Nightingale, white, faintly striped with mauve; and Princess of Wales, closely resembling Sir Walter Scott, white striped with lilac. We have by no means exhausted the list of varieties worthy of cultivation as shown by Messrs. Veitch, but can say no more now than that visitors to the nursery during next week will find, in addition to the bulbs, a fund of interest amongst the Orchids, Cyclamens, Camellias, &c.

—— On Monday next Messrs. James Cutbush & Son, Highgate, will open their annual exhibition of Hyacinths, Tulips, Crocus, and Narcissi, &c., at the home establishment on the top of Highgate Hill. They have an excellent stock of all sorts of spring flowers well forward into bloom, and we may be sure the exhibition will not be allowed to blush unseen during the Easter holidays. The exhibition will be open for eleven days.

—— On Saturday (this day) Mr. William Paul, of Waltham Cross, will open his annual exhibition of spring flowers in the western arcade adjoining the conservatory in the Royal Horticultural Society's garden at South Kensington. The show will remain open until April 3, and will be well worth visiting, if we may judge from Mr. Paul's previous achievements in this direction.

Natural History.

Our Common Toad.—The gardener has few better friends than the poor despised toad. A friend fond of Rose culture had a favourite Tea Rose, but he was constantly plagued with the greenfly, so much so that two years since the handsome bush was almost destroyed; last year they again began to appear in a few of the lower branches, but in a few days, to his great joy, as suddenly disappeared, and the Rose afterwards was very healthy. This was soon explained by his finding, close to the stem, a large toad embedded in the soil, his head only above ground. Many naturalists have been puzzled to account for the strange assertion of these reptiles being found in solid blocks of stone alive, and when discovered, apparently in a vigorous state, but dying soon after they were liberated from their "living sepulchre." Jesse records one as having been found in a mantelpiece. "A wet spot had always been observed in a freestone mantelpiece, which afterwards cracked at that place, and, upon its being taken down, a toad was found in it dead." Recently the workmen in a saw-mill near Liverpool are stated to have found one in an old Elm trunk, and I have a record in my notebook of one being discovered in the stem of an Apple tree, but this was just beneath the bark. Several instances can be cited where brickmakers have dug them out of clay-beds several feet below the surface soil, though these are not so well authenticated as those of toads found in red sandstone blocks.

It is not an unusual occurrence for them to climb up the boughs of aged fruit trees, in damp or rainy weather—probably they do so in search of insect food; they may thus be often tempted to secrete themselves in some decayed crevice, and, in the course of time, be completely imbedded—first in the bark, afterwards, as years roll on, in the wood. In dry seasons they are almost torpid. But how do they live when entombed in either solid stones or wood. Dr. Townson, by many careful experiments, clearly demonstrated the fact that the amphibia do not receive liquid nourishment by the mouth only, but have the power to absorb water through the skin. He found that a frog placed on a sheet of blotting-paper absorbed nearly its own weight of water in an hour and a half. This

might account for their living, probably, in some instances, for centuries, until they were again brought to light, and, in the case of the one found in the mantelpiece it must have been killed by the gradual drying of the stone, when placed so near the fire, as was proved by its cracking so soon.

This theory seems to have been confirmed by the experiments of a gentleman who placed a toad in a flower-pot, securing it so that no insect could enter, and buried it sufficiently deep in the soil to protect it from frost; after the lapse of twenty years he took it up, and found the toad much larger and healthy. On the other hand, Dr. Buckland conducted a series of experiments by enclosing toads in plaster of Paris, trees, &c., but found they all died within two years; he came to the conclusion that it was simply impossible for them to live without food for a longer period than two years. In the experiments by this celebrated naturalist it is just possible that they might have, by the glass, &c., by which they were enclosed, been deprived of all moisture, for it is proved, beyond doubt, that they cannot live without moisture.

We have still lingering amongst us the foolish notion that this despised reptile is poisonous; some believe they can bite, although I have never yet met with any one who asserted this positively who had seen their teeth; agricultural labourers believe they have the power to spit poison. They are certainly not a pleasant looking reptile [Look at their beautiful eyes]; this may cause them to be shunned, more than the more highly-favoured frog. They can secrete an acid liquid from the large tubercles scattered over the skin; from this dogs do not care to bite them, but, beyond this, they are as harmless and inoffensive as frogs.

In old medical works we have an antidote for the poison of the toad, which is remarkable for the number of its ingredients—I wonder whether any of our modern pharmacists would undertake to prepare it? This wonderful remedy is to be compounded as follows:—"Take of Plantain and Black Hellebore

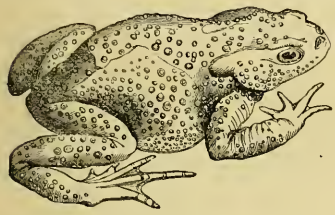


Fig. 83.—THE COMMON TOAD (RANA BUFO).

roots, with powdered crabs' eyes, mingled with the blood of the sea tortoise, dissolved in red wine, the stalks of three dogs' tongues, the right horn of an hart, cummin seeds 1 oz., the vermet of an hare, and 1 oz. of oil of scorpions." A dairymaid was so terrified by a toad crawling over her foot, as reported lately in a provincial paper, that she had fits severely, afterwards causing her death, but to the last she persisted in declaring that she was poisoned.

This poor creature, filled with poison as it is often supposed to be, has, however, its redeeming qualities, for it has the power, when dried and applied either to the nose or any wound, to "assuage bleeding." A diamond is also said to exist in its head, but which can only be extracted by the "seventh son of a man who was also the seventh son."

It is noticed above as the gardeners' friend, for it destroys, if allowed to ramble at will over the borders, an immense quantity of snails, slugs, grubs, and insects. The base of its tongue is attached at the entrance of the mouth, and the lip or point is, when not in use to catch its prey, pointing down the throat. For a moment watch it: as a worm crawls a few inches before its head, not suspecting any danger, the eyes glisten as they rest upon the morsel—perhaps it is hungry; however, in much less than a second the tongue darts from its mouth, and the worm has disappeared, being safely deposited in the toad's stomach; but it still sits in the same position, never having moved during its meal, as unconcerned as if nothing had occurred.

I have often been told of colonies of the Natterjack being found in various parts of the country, as if they were exceedingly common, but any one at all acquainted with this species will never again confound it with the common toad—it is a much handsomer reptile, with bright green and yellow bands. The reason why the common toad is thus confused is because the person reporting the discovery in good faith has seen a specimen in a new suit of clothes, or new skin. It has the power of changing its skin at certain intervals, but the old cast-off garment is never found. I frequently come across the skins of the slow-worm and serpents, yet I was never so fortunate as to find the cast-off clothes of the toad, for the simple reason that our friend is ashamed to let others see his worn-out garb, and quietly puts it out of sight—not in the garret or chest, but where it is never seen again, so that he can never be criticised for his miserly habit of wearing his suit so long, even until it is actually torn and threadbare, like many more of his much more intelligent fellow creatures. Do not, however, think any the worse (it has a fearfully bad character already) of this much maligned reptile, because it rolls up its cast-off coat and forcibly pushes it down its throat, like a big pill. I am not aware if it is proud of its new suit; most likely it is, for it seems to be more lively just at this time, and it is anything but an easy matter to get rid of the old one. It first splits down the centre of the back, then down the belly; by means of its mouth, together with much twisting and turning of its legs and body, it gradually pulls off the incumbrance. *R.*

The Villa Garden.

The lengthening days, slightly warmer weather, and occasional glimpses of sunshine, even though cold drying winds are their habitual accompaniment, are turning the attention of villa gardeners to the plants they have wintered, and on which they depend to some extent for spring and summer decoration. Nearly every one who has the slightest convenience for wintering plants endeavours to keep a few through the winter, and a great deal of trouble is expended in the attempt, often with but sorry results. Sorry results have rewarded many an attempt put forth during the past winter, and not only did the owners of a cold frame or a few hand-lights find out what destruction could be wrought during a spell of severe frost and snow, weather like that which attended on the closing days of the past year, but those having houses affording better, though not a perfect or even reliable means of artificially warming the same, saw many plants destroyed that would survive an ordinary winter. We have before stated that there is a certain amount of risk in wintering plants in unheated or imperfectly heated structures, and, naturally enough, attention is being turned to those plants which can be preserved without fear of harm, and which flower in spring and early summer. He that loves flowers for their own sakes will grow something, and if he cannot succeed with tender plants during the winter months because of liability to injury during severe weather will devote his attention to plants of a more certain character, because hardy. We know several villa gardeners who have done this, and they bear witness to the great pleasure they derive from the new pursuit. Not long since we paid a visit to one of these gardeners, a man daily engaged in business, but passionately fond of his garden, in which scarcely a tender plant found a place even during the summer months, because of the difficulty of wintering them. As a lover of hardy plants he had so selected the subjects he cultivated as to possess something of interest all the year round. That he should have this perennial pleasure he had constructed a small span-roofed house, the floor of which rested on a good bed of rubble, and its surface was some 18 inches to 2 feet below the ground, and he had constructed on each side and at the farther end of the house a pit, by building up a 4-inch brick wall, 2½ feet from the wall of the house all round. This was filled up to within 1 foot or 15 inches of the top with rubble, and the remainder with Cocoa-nut fibre; the last-named being used to plunge the pots of the plants in. Not a day passed during the autumn and winter months without something presenting itself to gratify the eye. In early spring many pleasant flowers that in the open air would be tardy to bloom, or else the fragile blossoms would be seriously damaged by cold winds, have been or are in their full beauty, unharmed and protected.

Autumn Crocuses, especially the pretty C. speciosus, Violets, Snowdrops, Early Primroses, Iris reticulata, Saxifraga oppositifolia, Myosotis dissitiflora, and some Hyacinths, Narcissi, Crocuses, &c., alternating with a few plants noticeable for their variegated or attractive foliage, have been especially noticeable during the winter. The plunging material seems to assist Nature in inducing precocity. There is the necessity for keeping the plants clean, shifting them, dividing them, potting off of sets, &c., all of which gives occupation and enhances the interest felt in his pets by the cultivator.

Some such method as this can be applied, in part, at least, in every cold house or glass structure where fire-heat cannot be constantly supplied in severe weather sufficiently to keep out frost. During the past winter, and in such a house, Zonal Pelargoniums that in the winter of 1873-74 were uninjured, the frost being kept at bay by means of a good-sized paraffin lamp, were, during the Christmas season, every one destroyed, established plants and cuttings alike; and with them went Dracæna australis, Agapanthus umbellatus, Cinerarias, Acacialophantha, Fuchsias, and other things that invariably survive an ordinary winter in a cold house. Had it not been for certain hardy plants, our shelves would have been very bare at this season of the year; and several of them are now getting very interesting. Foremost among them is the pretty snow-white Primula nivea, generally known as nivalis, now in charming bloom, with large trusses of pure white flowers. This plant is not more than 4 or 5 inches in height, and several examples of it are quite hidden by the snowy flowers. Of all the hardy Primroses this is one of the prettiest, and the earliest to flower. It grows well in a gritty loam, with which is mingled some leaf-mould; and this gritty loam is obtained by mingling with it a little fine siftings of mortar rubbish. This gives a free porous soil, one that this Primrose likes; and it grows quite freely in it. Another beautiful species, just coming into flower, is P. intermedia. This has larger flowers than P. nivea, and of a purplish rose hue, and when the trusses of flower are developed is very handsome. Two more bewitching flowers to cultivate in pots at this season of the year can scarcely be imagined; and though the soil in the pots was frozen hard several times during the winter, no harm was done to the plants. P. denticulata is also in bloom, and though the flowers are not nearly so showy as those of the other two just named, it is worth growing because of the white mealiness spread over the handsome leaves. All three of these are managed with the greatest ease; and soon after they have done flowering, and even during the time of blooming, they throw up side shoots from the stem of the plant. A little fine soil should be placed on the surface as a top-dressing, and this will induce the shoots to root into it. They should then be taken off and potted into very small pots, using a light sandy soil, and put in a shady part of the house, or plunged in coal ashes in a shady cool place in the open air. They will soon make growth, and in this way a stock can be obtained in a short time. P. cortusoides amœna and its varieties are making a robust growth, and the leaves are quite handsome. Unlike P. nivea and P. intermedia, amœna and its varieties die down during the winter; they are what is termed deciduous, but are perfectly hardy. The flower-stems of this are being pushed up rapidly, and their blossoms, large and of great beauty, will succeed those now in bloom. This type should also be divided as soon as the foliage begins to decay, so that the roots may become thoroughly established in pots by the blooming season the following year. Too much cannot be written in praise of the hardy Primroses for spring flowering.

Of the other members of the Primrose family now flowering in pots we have the splendid double crimson, the purple lilac, and white double varieties also which do well in pots, but which ought to be planted out as they have done blooming. There are a few single varieties also among them, the rich maroon-crimson auriculæflora, which seems too beautiful to be a common Primrose, and likely to suffer for want of appreciation in consequence; and there are also some of the gold-laced Polyanthuses, and a few of the showy fancy or mottled Polyanthus, that are most valuable for spring decoration. Some of these are fantastically marked, all are very attractive, and they can be cultivated with the greatest ease, and with scant accommodation. Add to these Snowdrops, Triteleia uniflora, just coming into bloom, and the charming blue Myosotis dissitiflora, now getting into fine condition in pots under glass, and there is ample materials out of which to make a button-hole or a pretty posy of spring flowers worthy the acceptance of the fairest lady in the land.

Law Notes.

Dom Luis I., King of Portugal, *v.* Carruthers and Another (Vice-Chancellor's Court, Lincoln's Inn, before Vice-Chancellor Sir C. Hall): *March* 22.—The object of the plaintiff in this suit was to obtain a declaration that he, in right of his Crown, and as part of the public property of the kingdom of Portugal, was entitled to some collections of botanical specimens and other natural objects, made by the late Dr. Friedrich Welwitsch, in the course of his employment in Africa by the Portuguese Government, including, as part thereof, the notes and descriptions from time to time made by Dr. Welwitsch explanatory thereof, or in reference thereto; that the defendants might be ordered specifically to deliver the collections, &c., whole, undefaced, and uninjured, to the plaintiff, or to whom he should appoint; that, if necessary, an inquiry might be directed to ascertain of what the collections consisted; that in the meantime some proper person might be appointed to receive and take due care of the collections; or otherwise, that the same might be duly deposited as the Court should direct; that the defendants might be restrained from selling or disposing of, and from

parting with the possession (save to such receiver or otherwise, as aforesaid) of the collections, &c., or any part or parts thereof respectively; and for such further or other relief as the nature of the case might require. The bill in the suit stated that Dr. Welwitsch, a native of Carinthia, in Austria, held under her late Majesty Dona Maria II., Queen of Portugal, an office in the Royal Botanical Gardens at Lisbon, and was Curator of the Museum of the Polytechnic School in that city. In 1852 he was appointed by the Queen to explore as a naturalist the African provinces belonging to the kingdom of Portugal. He was to receive a certain salary, and was to furnish to the Governor-General of the province of Angola notes, observations, and experiments made in foreign countries by competent persons relating to the agricultural industry of that province. He was also to inform the Governor-General upon the collection, preparation, packing-up, and transport of the samples of the natural products of the province, which he might have to send to the Portuguese Colonial Council; to which he was also to send samples of any natural products which might be remarkable in any way, as well as specimens of herbs fit for collections. The plaintiff alleged that it was part of the Doctor's duty, in the execution of his appointment, and part, also, of the terms on which he held it, that he should collect in the African provinces botanical specimens and other natural objects, and make the necessary notes and descriptions explanatory of them, on behalf and for the use of Her Majesty Dona Maria and her successors, so that all such collections, including the notes and descriptions, should become and be her and their property, in right of the Crown of Portugal, and as part of the public property of that kingdom. Dr. Welwitsch accordingly left Lisbon in August, 1853, reached Loanda, the capital of Angola, in October of that year, and continued his explorations till 1860, collecting many botanical and other specimens, and illustrating them with notes. In January, 1861, he returned to Lisbon. In 1863 he obtained permission from the Portugese Government to come over to this country with his collections, in order to get further scientific assistance for their arrangement, from our museums and institutions, and particularly from the officials at Kew Gardens. He continued to reside here, classifying and arranging his collections, and reporting thereon to the Portugese Government. In February, 1866, that Government, deeming that ample time had been afforded to Dr. Welwitsch for completing his operations, suspended the salary of which, until then, he had been in the receipt. He remained, however, in this country till 1872, in which year he died, having by his will assumed to treat the whole of his collections as his own. He disposed of various parts of them to different persons and bodies, and directed that "the Study Set," called in his work "the Study Copy," of African plants, the most valuable part of the collection, should be offered to the Botanical Department of the British Museum, of which the defendant, Mr. Carruthers, was the keeper, at the rate of £2 10s. per century (100 species), and bequeathed some portion of the collections to the Portuguese Government, and the Royal Academy of Sciences at Lisbon. He concluded his will by stating that he made the dispositions thereinbefore appearing of his collections, in the hope that all the bequests made to museums might be considered as made to them by the Portuguese Government, through whose assistance and liberality some of the collections had been made; and he appointed Mr. Carruthers and the other defendant, Mr. Frederick Justees, and others, his executors. In that state of things a considerable amount of correspondence passed between the solicitors to the parties interested, and several interviews having been held in reference to the matters in dispute, the bill was filed in this suit, stating the facts, and praying for a decree as above-mentioned. The defendants put in an answer, and the cause now came on for hearing.

Mr. Lindley, Q.C., Mr. Chitty, Q.C., and Mr. W. Phillimore, for the plaintiff, having explained the nature of the suit,

The Vice-Chancellor asked whether there were no means of settling it equitably and reasonably without a decree of this Court. He had read the pleadings, and thought that with the aid of a scientific person some arrangement could be arrived at which would satisfy both parties.

Mr. Lindley, Q.C., said the plaintiff's claim to the whole of these collections was disputed by the defendants. The plaintiff attached the greatest importance to "the Study Set." It was a collection of standard specimens, with the names and other particulars affixed, in the handwriting of the Doctor, and no second or other set of duplicate specimens ever had the same authority among botanists as these, which were called "the Types." The "Study Set" of African plants was not quite complete; but so far as it went it was made by the Doctor in the execution of his duty to the Portuguese Government, who, if the defendants' claim to that set was allowed to prevail, would be deprived of the most valuable result of an expedition sent out at the expense of the Portuguese nation.

The Vice-Chancellor was aware of the importance attached to the possession of that set, but thought it hardly required a decree of this Court with respect to it.

Mr. Dickinson, Q.C., Mr. D. Jones, and Mr. Gregory Walker, for the defendants, said "the Study Set" was of the greatest consequence to both parties. But there were other matters of a pecuniary nature in dispute between them.

The Vice-Chancellor said the negotiations for an arrangement might include all those matters. The defendants were only desirous of doing their duty as executors of the Doctor, who appeared to have directed them to offer some of the collections to the British Museum.

Mr. Dickinson, Q.C., said the defendants had a double duty to discharge—one as executors of the Doctor, the other with reference to the British Museum.

Mr. Lindley, Q.C., said the British Museum had no more to do with the matter than Kew Gardens had.

Mr. Dickinson, Q.C., admitted that; but said that both institutions had something to do with it. There was a balance said to be due for salary to the Doctor's estate. He thought if the matters were considered, perhaps, with the assistance of the Court, the delivery of "the Study Set" to the plaintiff might be waved, and some arrangement come to.

Mr. Lindley, Q.C., said that any suggestion of the Court would be, of course, attended to; but there could be no arrangement without the delivery of "the Study Set."

The Vice-Chancellor said that, having regard to the parties to the suit and the nature of the questions raised in it, it was certainly one which, he thought, should be arranged. After some further discussion, he directed the cause to stand over generally for the consideration of the parties. Either of them might apply to have the cause put on the paper, and neither of them was to be in any way compromised by what had now occurred.—*Times.*

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
For the Week ending Wednesday, March 24, 1875.

Month and Day.	Barometer. Mean Reading at 32° Fahr.	Barometer. Departure from Average of 16 Years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 65 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
Mar	In.	In.	°	°	°	°	°	°			In.
18	30.37	+0.53	43.0	31.9	11.1	36.3	− 5.4	27.4	70	ENE: E.	0.00
19	29.95	+0.13	45.0	32.2	12.8	38.2	− 3.5	35.6	90	W: NNW	0.09
20	29.91	+0.13	41.8	33.4	8.4	37.2	− 4.5	30.0	73	NNW: N	0.00
21	29.99	+0.19	41.5	34.9	6.6	37.4	− 4.4	31.5	79	WNW: W.	0.00
22	29.89	+0.10	47.9	32.0	15.9	39.5	− 2.4	36.0	88	NNW: N.	0.01
23	30.15	+0.37	46.6	31.8	14.8	38.1	− 3.9	31.9	78	E: ENE: E.S.E.	0.00
24	30.18	+0.40	50.2	32.8	17.4	40.7	− 1.4	35.9	84	ESE: E.: E.N.E.	0.00

Mar. 18.—Fine, bright, mild, and nearly cloudless throughout.
— 19.—Overcast, and dull throughout. Slight fog prevailed, and rain fell occasionally throughout the morning.
— 20.—Fine, partially cloudy, mild, and brisk wind all day.
— 21.—Fine, cold, and cloudless in early morning; partially cloudy, and mild afterwards.
— 22.—Overcast, dull, and mild throughout. A few drops of rain fell in the morning.
— 23.—Fine, bright, mild, though light clouds were present throughout.
— 24.—Overcast, dull, mild, and nearly calm throughout.

—— In the suburbs of London the reading of the barometer at the level of the sea increased from 30.08 inches at the beginning of the week to 30.17 inches by the morning of the 15th, decreased slowly to 30.14 inches by the afternoon of the same day, rapidly increased to 30.16 inches by the morning of the 18th, and then decreased to 30.12 inches by the afternoon of the 19th, and was 30.14 inches at the end of the week. The mean values throughout the week were above their averages, that for the 18th being 0.53 inch in excess. The mean reading for the week was 30.23 inches, being 0.15 inch greater than that of the preceding week.

The highest temperatures of the air at 4 feet above the ground ranged from 48¾° on the 15th to 41½° on the 16th and 17th, the mean value for the week being 44°. The lowest temperatures of the air ranged between 35° on the 14th and 17th and 31½° on the 15th; the mean for the week was 33½°. The mean daily range of temperature in the week was 10¾°, ranging from 17½° on the 15th to 6½° on the 17th. The mean daily temperatures of the air were as follows:—March 14th, 40°.2; 15th, 38°.6; 16th, 36°.9; 17th, 37°.3; 18th, 36°.3; 19th, 38°.2; 20th, 37°.2; and the departures in defect of their respective averages—1°, 2°.8, 4°.6, 4°.3, 5°.4, 3°.5, 4°.5. The mean temperature for the week was 37°.8, being 3°.7 below the average of sixty years.

The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in sun's rays, were 106¾° and 118¼° on the 14th and 18th, but on the 16th it did not rise higher than 53¾°. The lowest readings of a thermometer on grass, with its bulb fully exposed to the sky were 27¾° both on the 15th and 19th, but on the 17th 32° was the lowest reading. The mean for the several low readings was 29°.

The direction of the wind was generally E. and N.E., and its strength gentle. The weather during the week was for the most part dull, and the mornings and nights cold, although there was an appearance of fine and bright weather at intervals each day.

Rain fell on one day: the amount measured was 0.09 inch.

Slight fog prevailed on the morning of Friday the 19th.

In England, the extreme high temperatures observed by day ranged from 56° at Bristol to 45° at Norwich, Hull, and Newcastle-on-Tyne, the general average over the whole country being 48½°. The extreme low temperatures observed at night varied between 33° at Sunderland and 24¼° at Wolverhampton, the general average being 29°. The extreme weekly range of temperature was 19½°, the extreme being 27¾° at Bristol, and 14° at Newcastle-on-Tyne. The mean high day temperatures varied from 47½° at Bristol to 41° at Newcastle-on-Tyne, with an average value of 43¾°. The mean low night temperatures ranged between 34¾° at Sunderland and 30½° at Wolverhampton and Eccles, with a general average of 32¾°. The mean daily range of temperature was 11¼°, ranging from 15° at Eccles to 8° at Newcastle-on-Tyne.

The mean temperature of the air for the week was 37°, being 9¼° lower than the value for the corresponding week in 1874; the highest was 39° at Bristol, and the lowest 35¾° at Norwich, Hull, and Newcastle-on-Tyne.

Rain fell on one or two days in the week at most stations, and the amounts measured were very small; they, however, varied from two-tenths of an inch at Newcastle-on-Tyne to one-hundredth of an inch at Nottingham and Liverpool; at Sheffield no rain fell, the average fall over the country was five-hundredths of an inch.

The weather during the week was somewhat fine, but dull and cold, and the sky generally cloudy.

A lunar halo was seen at Bristol on March 14.

In Scotland, the highest temperatures ranged from 48° at Aberdeen to 45¾° at Leith, the general average being 46¾°. The lowest temperatures varied from 32° at Dundee to 23° at Paisley, with an average value of 28¾°. The mean range of temperature in the week was 18°. The mean temperature for the week was 37¼°, being 9½° lower than the value for the corresponding week in 1874, the highest being at Edinburgh and Aberdeen, both 38¼°, and the lowest at Perth, 36¾°. The amounts of rain measured at the several stations ranged from one-tenth of an inch at Greenock to three-hundredths of an inch at Aberdeen and Perth. At Dundee, Paisley, and Leith no rain fell. The average fall over the country was three-hundredths of an inch.

JAMES GLAISHER.

Garden Operations.

(For the Ensuing Fortnight.)

PLANT HOUSES.

Plant Stove.—Trained specimens of *Allamandas* that have been hard cut back, and partially disrooted sometimes break weakly and with an insufficiency of shoots; instead of stopping the points to increase their numbers and strengthen them, it is much better to allow the first breaks to grow until they are some 3 or 4 feet long, and then train them round the trellis, with the points a little lower than where the base of the shoots spring from: by this means several shoots will start from the bottom of each first growth, that will grow vigorously and be in every way more satisfactory than the results of the usual stopping process. Be particularly careful to keep regularly trained as they advance the young shoots of all rapid-growing stove twiners, such as *Stephanotis, Dipladenias, Aristolochias, Ipomœa Horsfaliæ*, &c.: the latter is an excellent plant for training lengthways over the paths of the house, as it does not push such a number of shoots as many kindred subjects, but runs to a considerable length in the course of the season, and in such a position looks well and economises space, requiring little shade itself but imparting such to any plants placed under it that may be benefited by a little. By a judicious arrangement of those

climbing plants that do not require shade, grown thinly over a portion of the stove, the sun's rays will be sufficiently broken for some plants that cannot bear full exposure to them, without the application of much outside shading. Syringe overhead ficely every afternoon sufficiently early for the plants to get dry before nightfall. This is not only necessary to promote growth, but to keep insects in check. This operation should be performed with judgment, so as not to wet the soil of delicate or sparse-rooted planst too much. All the *Allamandas* are especially subject to a very small species of thrips, which gets into the points of the shoots, and effectually prevents growth. Where these insects exist, unless the points are thoroughly well wet once a day their cultivation can never be satisfactory. These gross-growing plants, so different from the delicate-rooted *Dipladenias*, are not likely to be injured at the roots by this copious syringing. *Gloxinias* may now be moved into larger pots. To keep them stout, and short in leaf and flower, place them near the glass. Cuttings should at once be put in, or seed sown, of *Solanum Capsicastrum* and *S. Pseudo-Capsicum*. Let *Gesneras*, *Billbergias*, *Tillandsias*, &c., have a good light position, otherwise they will not bloom so satisfactorily. No collection of stove plants should be without the lovely blue free-flowering *Tillandsia Lindeni*. It occupies little room, and is a nice habited plant, independent of its very conspicuous flowers.

Camellias.—Plants that bloomed early will now be commencing to grow. These should be placed where they can receive shade and a temperature of 55° in the night, with a rise of 10° or 15° by day. Let them have plenty of moisture both at the roots and in the atmosphere. These that are in comparatively small pots will be benefited by the use of clear manure-water.

Soft-wooded Greenhouse Plants. — *Calceolarias*, both herbaceous and shrubby varieties, should be potted as they need it. These plants like a humid atmosphere. The most useful size for general decoration are such as are in, say, 6 or 7 inch pots; but if desirable some may be grown larger by moving on into 8 or 10 inch pots. The most suitable for this growing on are plants that are vigorous, and not yet showing flower; when they have got well hold of the new soil assist them with liquid manure.

Cinerarias are always useful, and never more so than early in the winter, particularly the different shades of blue so essential for cutting. These plants cannot bear forcing, half their value being destroyed if they are submitted to heat. To have them in bloom at the above season the seed must be sown early: there is no better time for doing it than the present. *T. Baines.*

FRUIT HOUSES.

Vines.—Energy, method, and determination are requisite to keep pace with the work in this department, for now that all the vineries are started one will require thinning, another disbudding, another pinching and tying down, none of which operations can be put off without in some measure injuring the Vines. As soon as the fruit is set determine the number of bunches to be left on a Vine, and then cut off those that have not set well or are small and badly placed. The desire inherent in most of us to have a grand show of fruit generally leads to the error of overcropping, but this should ever be avoided. Greediness is at all times to be deprecated, and especially so when evils follow in its train, as they certainly do if Vines are overcropped. Our solace should be that what we lose in the number of bunches we gain in size of berry, higher finish, and quality. Pinch out the point of the shoots one joint beyond the fruit, or, if space will admit of more foliage being exposed to light, pinch out at the second or third joint, as the more foliage the more roots. Care should be exercised in tying out the shoots, as when growing vigorously they are apt to snap. It is best to go over them two or three times in the course of a week, and get them down gradually. Keep up a supply of moisture in all houses, but those where the fruit is ripening; this is particularly necessary this season because of the bard firing consequent on the cold sunless weather we have had so long. Where Grapes are colouring a comparatively dry atmosphere should be maintained, and air given regularly, even though firing be necessary to keep up the temperature. A free circulation of warm dry air is indispensable to perfect colour and finish. Young Vines that were planted last season, and in the winter cut back to the bottom of the rafter, should have the points pinched out of all laterals they make to a length of 6 feet; this will help to plump their fruit buds for next season, but all growth made above this point should be allowed to grow at random to aid in the manufacture of roots. *W. Wildsmith, Hickfield.*

Melons.—We may shortly hope for a more favourable condition of the weather, which (March 24) is still winterly; meanwhile, let everything go on quietly, and now that the days are lengthening a slight increase in the temperature, both day and night, may safely be permitted. Our first batch are this year later than usual, nevertheless they are advancing nicely up the trellis, and with half the batch we shall endeavour to secure a good set on the first laterals. To facilitate this end the plants should not be stopped until they have advanced up the trellis quite two-thirds of the distance they are intended to travel; after which, in many kinds, a few fruits may be expected to show at the second or third joint on these first laterals, and by securing which a few extra early fruits will result. The remainder of the batch may be stopped once or twice to keep them a little later. Do not earth-up the roots till the fruits begin to swell off; a very small quantity of soil will suffice to grow the earliest batch, and especially if in boxes or pots. Maintain a moderately moist atmosphere in bright weather, with an occasional gentle syringing over-head. In pits and frames, if the fermenting materials have generated a good heat (and if not turn them and add fresh material), the plants may be planted out forthwith, pressing down the soil fairly tight in the operation. After turning out, the plants should receive a fair watering; afterwards use water very moderately for a few weeks. Be careful to allow the escape of rank heat and steam, and especially when the sun shines, and employ a good night covering of hay, straw, or Fern litter, or other good non-conducting material. *Thomas Simpson, Broomfield.*

Orchard-House.—In most localities *Apricot* trees in these structures will now be in full bloom, and air should be admitted in abundance whenever the state of the weather will permit this to be done. Should dull, damp weather happen to set in during the time that any of the fruit trees cultivated in the orchard-house are in flower, more particularly the *Apricot*, the *Peach*, and the *Cherry*, it is always advisable to facilitate the setting of the fruit by the use of a camel-hair pencil, which should be repeatedly filled with pollen from the anthers, and which should be deposited upon the stigmas. As yet, however, this operation has not been necessary, on account of the prevalence of east wind, and the somewhat arid state of the atmosphere, which has also made it advisable to close the ventilators somewhat early in the afternoon, so as to retain as much as possible of the solar heat; otherwise an injurious depression of temperature might occur during the night. Syringing the trees must, of course, be discontinued until the fruit is fairly set, when it must be resumed; and in order to keep down insects it may be necessary to have recourse to the syringe, or rather to the more powerful garden engine, mornings and evenings, but this should not be done on evenings when there are any indications of frost, or of a very low temperature. Let the trees, whether in pots or planted out in the borders, have abundance of water at the roots whenever this is required. To allow the soil in which the trees are growing to become too dry, at any stage of their development, is very injurious, but never more so than while they are in bloom, the result of this being, very frequently, the dropping off of the flowers without setting and the consequent loss of the crop. For some weeks to come all spare space in the orchard-house, as well as in other glass structures, will be found useful in affording shelter to bedding plants, &c., which are in no degree injurious to the legitimate occupants of this structure; but which may, on the contrary, be so arranged or grouped by the sides of the paths and elsewhere as to give increased interest and attractiveness to the same, while to all such plants the protection afforded by an orchard-house will generally, after this time, be found to be sufficient. *P. Grieve, Culford, Bury St. Edmund's.*

Answers to Correspondents.

Books: *G. T.* Get Ewart's *Land Improvers' Pocket Book*, 4s., and Horton's *Complete Measurer*, 5s. Both are published by Lockwood & Co., 7, Stationers' Hall Court, E.C.—*G. C. M.* You will probably find what you want in Kemp's *How to Lay Out a Garden* (Bradbury, Agnew & Co.); Thomson's *Handy Book of the Flower Garden* (Blackwood & Co.); or a cheaper book of garden plans published at 171, Fleet Street, E.C.

Heating Pit: *A. B. C.* If we understand your question, we do not think any danger can arise; but, to avoid any risk, why not work both top and bottom systems, keeping the Vine well in check? If you have the superabundance of piping your note seems to indicate, you need keep up much less powerful fires.

Hyacinths: *An Invalid.* We will bear your request in mind, and give the list in a week or two.

Names of Plants: *W. S., Worthing.* Cotyledon umbilicus.

Sophronitis: *C. W. S.* The two plants—coccinea and grandiflora—have been a good deal mixed up. Dr. Lindley, in Paxton's *Flower Garden*, does not distinguish them, but gives his Cattleya coccinea as a synonym of S. grandiflora. The S. grandiflora of the *Botanical Magazine* is, however, different. They are distinguished thus: the S. coccinea of Reichenbach (S. grandiflora of Lindley) has the lip ovate *undivided* cucullate at the base, "something like the standard of a leguminous flower inverted." The S. militaris of Reichenbach (S. grandiflora of *Botanical Magazine*) has the lip *three-lobed*, with the lateral lobes incurved, and the middle one flat and acuminate.

Insects: *H. S.* The ring of eggs around the Apple twig sent are those of the Lackey Moth, Bombyx neustria (fig. 84). The eggs will produce about the beginning of May, or earlier, small, black, hairy caterpillars, which immediately cover the ring of eggs with an exceedingly fine web, and this they keep extending

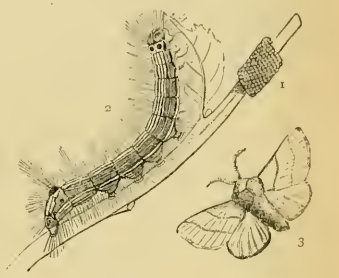


Fig. 84.—Bombyx neustria.

until they change their skin the third time. Into this web they retire at night, and remain secure in wet weather, continuing to feed until they become full grown, about midsummer. 1 is the ring of eggs; 2, the full-grown caterpillar; and 3, the perfect moth.

*** Correspondents are specially requested to address, post-paid, all communications intended for publication to the "Editors," and not to any member of the staff personally. The Editors would also be obliged by such communications being posted as early in the week as possible. *Letters relating to Advertisements, or to the supply of the Paper, should be addressed to the Publisher, and* not *to the Editors.*

☞ Foreign Subscribers.—We are requested by the Publisher to desire Foreign Subscribers sending Post Office Orders, to be good enough to write to the Publisher at the same time.

Erratum.—At p. 365 ("The Islands of Finistère"), close of first paragraph, for "island horses" read "Iceland horses."

Catalogues Received. — William Paul (Waltham Cross, N.), Catalogue of New Roses, Geraniums, Phloxes, Dahlias, Hollyhocks, &c.—V. Lemoine (Rue de l'Etang, 67, à Nancy), Catalogue of New Plants, &c., for 1875.—James Backhouse & Son (York), Catalogue of Alpine Plants and Hardy Perennials.—J. Linden (52, Rue du Chaume, Gand, Belgium), Catalogue of Stove and Greenhouse Plants, &c.

Communications Received. — R. Miller. — J. R. J. — J. O. (next week).—Fudge.—T. W. T.—A. B.—S. G.—J. R.—W. S.—W. J. — M. A. (we cannot undertake to recommend one more than another).

Variorum.

"Where are the Police?"—Messrs. James Carter & Co., seed merchants, High Holborn, write to complain of the absence of police supervision in a leading thoroughfare. They say that between 10.30 and 2.30 on the night of Friday last their seed warehouse, situated in a most prominent position in Holborn, and opposite to a cab rank, was broken into from the front door, the heavy padlock having been wrenched off, and the lock of the door forced. The burglars broke open twenty-eight desks, ransacking the contents, and the police believe that this must have taken them between two and three hours. There was moonlight; and, as the front of the warehouse almost entirely consists of windows, the lights moving about must have been plainly visible from the opposite side. *Times.*

Markets.

COVENT GARDEN, March 24.

The supplies have fallen off in most descriptions of rough goods both here and at the other markets, consequently some articles have improved in price. We have also experienced a better demand for late sorts of culinary Apples, such as Wellington, Northern Greening, and the Gooseberry Pippin, ranging from 5s. 6d. to 8s. per bushel; dessert varieties from 7s. to 10s. per bushel. Some new Grapes have been offered; but, having got good late ones yet, the dealers have not made much inquiry for them. *Thos. Taylor, Wholesale Apple Market.*

Fruit.

	s. d.	s. d.		s. d.	s. d.
Apples, per ½-sieve	2 0–	3 0	Nuts, Cob, p. lb.	..	2 0– ..
Chestnuts, per bush.	10 0–	20 0	Oranges, p. 100	..	8 0–12 0
Grapes, English, p. lb.	10 0–	20 0	Pears, p. doz.	..	4 0–12 0
Lemons, per 100	..	8 0–12 0	Pine-apples, p. lb.	..	3 0– 6 0
Medlars, per doz.	..	....	Walnuts, p. bush.	..	16 0– ..

VEGETABLES.

	s. d. s. d.		s. d. s. d.
Artichokes, Fr., doz.	4 0– ..	Horse Radish, p. bun.	3 0– 5 0
Asparagus, English, per bundle ..	8 0–12 0	Leeks, per bunch ..	0 2– 0 4
— French, p. bund.	20 0–30 0	Lettuces, per doz. ..	1 6– ..
Beans, French, p. 100	6 0– ..	Mushrooms, per pott.	1 0– 2 0
Beet, per doz. ..	1 0– 2 0	Onions, young, bun.	0 4– 0 6
Broccoli, p. bundle ..	0 9– 1 6	Parsley, per bunch..	0 9– 1 0
Brus. Sprts., p. bush.	9 0– ..	Parsnips, p. doz. ..	0 9– 1 0
Cabbages, per doz. ..	1 0– 2 0	Peas, per quart ..	8 0– ..
Carrots, p. bundle ..	0 6– 0 9	Radishes, per bunch.	0 2– 0 4
Cauliflowers, per doz.	2 0– 6 0	— black, Turnip, do. ..	– 0 6
Celery, per bundle ..	1 6– 2 0	Seakale, per bundle	2 0– 3 0
Cucumbers, each ..	2 0– 4 0	Shallots, per lb. ..	0 3– ..
Endive, per doz. ..	1 0– 2 0	Salsify, per bundle ..	1 6– ..
Herbs, per bunch ..	0 2– 0 4	Sprue, French, bund.	1 6– ..
		Turnips, per bundle.	0 6– ..

Potatos:—Early Shaws, 110s.; Early Regents, 120s.; and Early Dons, 120s per ton.

CUT FLOWERS.

	s. d. s. d.		s. d. s. d.
Azaleas, p. 12 sprays	0 6– 1 6	Lily-of-the-Valley, 12 sprays ..	2 0– 6 0
Camellias, 12 blooms	3 0– 9 0	Mignonette, 12 bun.	4 0– 6 0
Carnations, 12 blooms	2 0– 4 0	Narcissus, per doz...	1 0– 3 0
Cineraria, p. bunch..	0 9– 1 6	Pelargoniums, 12 spr.	1 0– 2 0
Cyclamen, 12 blooms	0 2– 0 6	— Zonal, do. ..	0 9– 1 6
Deutzia, per bunch..	0 6– 1 0	Primula, dbl., p. bun.	0 9– 1 6
Epiphyllums, 12 bl.	1 0– 2 0	— single, do. ..	0 4– 0 9
Eucharis, per doz. ..	6 0–12 0	Roses, indoor, p. doz.	2 0– 6 0
Euphorbia, 12 sprays	1 6– 6 0	— French, do. ..	1 0– 2 6
French Lilac, p. bun.	3 6– 5 0	Snowdrops, 12 bun.	1 6– 4 0
Heliotropes, 12 sprays	0 6– 1 0	Spiræa, 12 sprays ..	2 0– 4 0
Hyacinths, per spike	0 3– 0 6	Stephanotis, 12 sprays	9 0–15 0
— Roman, per 12 spikes ..	1 0– 4 0	Violets, per 12 bun...	1 0– 3 0

PLANTS IN POTS.

	s. d. s. d.		s. d. s. d.
Azaleas, per dozen...	24 0–60 0	Heaths, in var., doz.	12 0–30 0
Begonias, do. ..	6 0–12 0	Hyacinths, per doz.	6 0–18 0
Bouvardias, do. ..	9 0–18 0	Lily of the Valley, 12 sprays, about ..	2 0– 5 0
Cineraria, do. ..	6 0–15 0	Mignonette, do. ..	6 0– 9 0
Cyperus, do... ..	6 0–12 0	Myrtles .. do.	3 0– 9 0
Deutzias, do. ..	8 0–18 0	Pelargoniums, dble., per doz. ..	6 0–12 0
Dracæna terminalis	30 0–60 0	— Scarlet, do. ..	6 0– 9 0
— viridis, per doz.	12 0–24 0	Primula sinensis, do.	4 0– 8 0
Epiphyllums, each ..	1 6– 3 6	Solanums, do. ..	6 0–18 0
Ficus elastica ..	1 6– 7 6		
Fuchsia, per doz. ..	9 0–18 0		

SEEDS.

LONDON: *March* 25.—A very brisk demand now prevails for agricultural seeds. The fact that our market is, of course, closed on both Good Friday and Easter Monday, threw a good deal of extra business into the early part of this week. Red Clovers generally maintain their values with great steadiness; the knowledge of the comparative smallness of the stocks remaining in London inspires holders with confidence, no wish to sacrifice goods being shown. For yearling red we have more inquiry. A fair quantity of white Clover seed has recently changed hands at rather more money. Alsike is a gain cheaper. Sanfoin, being exceedingly scarce, must be noted 2s. to 3s. per quarter dearer. Perennial grasses and imported Italian are in better demand at full prices. Spring Tares show no change. Large Scotch Gores, being now nearly exhausted, realise an advance of 2s. to 3s. per quarter. In bird-seeds there is no noteworthy alteration. Large blue Peas seem about used up. Mustard, Rape, and Linseed keep fully as dear. *John Shaw & Sons, Seed Merchants*, 37, *Mark Lane, E.C.*

CORN.

At Mark Lane on Monday trade was in no degree influenced by the firmer tone prevalent in the provinces, the probable arrival at an early date of a large quantity of produce tending to create caution on the part of millers. The show of Wheat was very moderate, and its condition and quality variable, but factors evinced little disposition to press sales, though offers of less money were not generally refused. Barley was very dull, and the quotations of the previous Monday were not supported for all descriptions. Malt was slow of sale, and cheaper in some instances. Oats were steady, but not easily disposed of. Maize being abundant, and difficult to move, declined in price to some extent. Beans and Peas were purchased sparingly at about late rates. Flour met with a limited inquiry, and barely realised the rates previously current.—On Wednesday the market opened with a quiet but steady aspect. The supplies available were only moderate, and quotations remained generally steady. English and foreign Wheat cleared off slowly, at late rates. Flour was dull, Barley remained without improvement, and Maize was neglected.

CATTLE.

At the Metropolitan Market on Monday there was rather a larger supply both of English and foreign beasts. Trade was not quite so brisk as last week, owing to milder weather, yet choicest qualities were very little cheaper. Sheep were also more plentiful, but there was a fair demand at late rates. The milder weather has caused more trade for sborn sheep and choice lambs. Choice calves were very scarce and dear. Quotations:—Beasts, 3s. 6d. to 4s. 6d., and 5s. 4d. to 6s.; calves, 5s. 4d. to 7s.; sheep, 5s. 2d. to 5s. 8d.; lambs, 7s. 4d. to 8s. 6d.; pigs, 4s. 4d. to 5s. 4d.

HAY.

The supplies of fodder on sale at Whitechapel market have been rather large, but a good inquiry prevailed for all classes, and rates remained firm. Prime Clover, 100s. to 125s.; inferior do., 85s. to 96s.; prime meadow hay, 90s. to 117s.; inferior do., 55s. to 75s.; and straw, 35s. to 40s. per load.

COALS.

There was a large supply of house coals in the market on Monday, and the price for "best" sorts was lowered 3s. per ton, and for "seconds" 6d. per ton.

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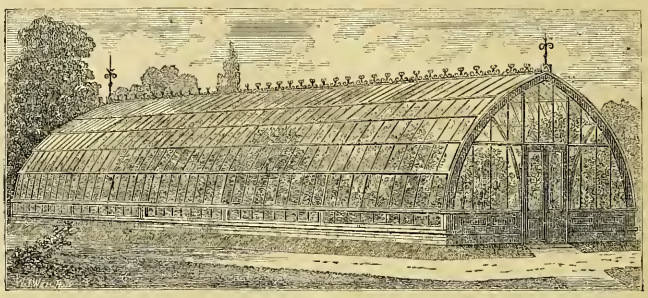

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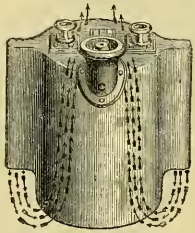

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Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

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CONTENTS.

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MESSRS. PROTHEROE AND MORRIS beg to announce that the ABOVE PROPERTY WAS SOLD by them on TUESDAY LAST, March 23, on the Premises, as above, for £10,000.

Auction and Estate Offices, 98, Gracechurch Street, E.C.

SALE THIS DAY, AT HALF-PAST TWELVE O'CLOCK.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the City Rooms, 38 and 39, Gracechurch Street, E.C., THIS DAY, a first-class Collection of CARNATIONS, PICOTEES and PINKS, 500 Standard, Dwarf, and Climbing ROSES of the best varieties, selected hardy American PLANTS, CONIFERÆ, SHRUBS, choice Double CAMELLIAS, AZALEAS, EPACRIS, and other plants in flower; FUCHSIAS, DAHLIAS, LILIUM AURATUM, GLADIOLI, choice FLOWER SEEDS, &c.

On view and Catalogues had.

Kingston-on-Thames.

By Order of the Executor of the late Mr. Bruce.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Tokenhouse Yard, City, E.C., on MONDAY, April 26, at 4 o'Clock punctually, a compact and valuable FREEHOLD ESTATE, known as Bruce's Nursery, and situate in the Richmond Road, Kingston, Surrey, possessing a highly important frontage of 332 feet 6 inches to the high road, by 504 feet depth, comprising about 3 acres 2 roods of very eligible building Land, together with the substantially brick-built Detached Residence standing thereon. Possession will be given on completion of the purchase. The Property offers great scope for profitable subdivision and re-sale in small plots, or for the creation of ground rents.

Cards to view, with printed Particulars and Plans, may be had of R. B. WHEATLEY, Esq., Solicitor, 7, New Inn, W.C.; and of the Auctioneers and Estate Agents, 98, Gracechurch Street, E.C., and Leytonstone, E.

Theobald's Park, Waltham Cross.

IMPORTANT CLEARANCE SALE of choice GREEN-HOUSE and STOVE PLANTS, valuable LIVE-STOCK, GARDEN and FARM IMPLEMENTS.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from Mr. Alderman Cotton (who is leaving the neighbourhood upon the expiration of his tenancy) to SELL by AUCTION, on the Premises, Theobald's Park, Waltham Cross, Herts, on THURSDAY, April 29, at 11 for 12 o'Clock precisely, the whole of the choice COLLECTION of STOVE and GREENHOUSE PLANTS, consisting of large Double Camellias and fine Azalea indica, sixty half-specimen Pelargoniums, a beautiful example of Alsophila australis (12 feet through), fine Ficus, Cattleyas, Blechnums, Adiantums, and several other Exotic Ferns; large Fuchsias, Vallotas, Dracænas, Gardenias, &c.; 150 Fruiting and Succession Fides; also the valuable LIVE-STOCK, comprising eight excellent Milch Cows in profit, three Heifers, one Steer, a well-bred Alderney Calf, ten cross-bred Ewes with Lambs by side, a handsome Chestnut Mare (14 hands), a capital dark brown Carriage Horse, an excellent Grey Cob, a Norwegian Pony, an active Black Pony, Poultry, together with the GARDEN and FARM IMPLEMENTS and EFFECTS, including a Green's 18-inch Lawn Mower, Garden Seats and Tables, a Haymaking Machine (by Barrett & Co.), a Tumbril Cart, Harness, &c.

On view the day prior to the Sale. Catalogues may be had on the Premises, of Mr. Stephens; and of the Auctioneers and Estate Agents, 98, Gracechurch Street, E.C.

Preliminary Notice of

FORTHCOMING SALES, by PROTHEROE AND MORRIS.

APRIL 13.—CITY. A large consignment of LILIUM AURATUM, JAPANESE CURIOS; also some choice AZALEA INDICA and other PLANTS, promising young specimens for exhibition.

MAY, early in the month.—MEREDITH'S VINEYARD, Garston, near Liverpool, unless previously sold by private treaty, the extensive collection of Greenhouse, Stove, and other Plants, &c.

MAY.—Sydenham, Kent. KIRKDALE NURSERY. The whole of the Greenhouse and Bedding Plants.

MAY 20.—WEST DULWICH, S.E. An important Sale of Greenhouse and Bedding Plants; also some choice Camellias, Azaleas, &c.

Offices, 98, Gracechurch Street, City, E.C.; and Leytonstone, Essex, E.

Orchids and Lilies.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, April 5, at half-past 12 o'Clock precisely, a Collection of ESTABLISHED ORCHIDS, the property of Mr. Wheeler, of Stamford Hill; Imported Orchids, and several small Collections of Established Orchids; 2000 fine Bulbs of LILIUM AURATUM, just arrived from Japan; and a few choice GLADIOLI.

On view the morning of Sale, and Catalogues had.

Hardy Plants and Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, April 7, at half-past 12 o'Clock precisely, Standard, Dwarf, and Climbing ROSES, CONIFERS, CAMELLIAS, and AZALEAS, from Ghent, FRUIT TREES, LAURELS, RHODODENDRONS, Hardy HERBACEOUS PLANTS, Choice GLADIOLI for Spring Planting, RUSTIC GARDEN WORK, &c.

On view the morning of Sale, and Catalogues had.

Highly Important Sale of East Indian Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, April 8, at half-past 12 o'Clock precisely, unusually choice EAST INDIAN ORCHIDS, just to hand in the best possible conditron, about starting freely into growth; amongst others are Dendrobium falconeri in quantity, fine varieties from a new locality; the lovely hitherto rare Dendrobium crassinode, in quantity and many fine specimens; the new and beautiful Dendrobium suavissimum, offered for the first time by public sale; splendid plants of Dendrobium Wardianum, seen in flower by Collector with about forty flowers on one growth; fine plants of Dendrobium Farmeri, Dendrobium Primulinum giganteum, Thunias, &c. Also twenty plants of Phalænopsis Schilleriana and amabilis, fine varieties, in flower.

On view the morning of Sale, and Catalogues had.

Periodical Sale of Poultry and Pigeons.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, April 6, at half-past 12 o'Clock precisely, 250 Pens of choice POULTRY and PIGEONS, from the yards and lofts of well-known breeders and exhibitors.

On view the morning of Sale, and Catalogues had.

Specimen Stove and Greenhouse Plants.

Formed by the late J. Philpot, Esq., of Stamford Hill, N.

MR. J. C. STEVENS has received instructions from Mr. Wheeler (gardener) to offer for SALE by AUCTION, at his Great Rooms, 38, King Street, Govent Garden, W.C., on FRIDAY, April 9, at half-past 12 o'Clock precisely, the well known Collection of STOVE and GREENHOUSE PLANTS, formed by the late J. Philpot, Esq., of Stamford Hill, N., consisting of specimen Azaleas, Camellias, Ericas, Stephanotis, Clerodendrons, Bougainvilleas, Franciscea, &c.; also a capital COVERED VAN, patent axles, by Randall, will go by rail.

On view the morning of Sale, and Catalogues had.

Important Sale of Established Orchids.

MR. J. C. STEVENS begs to announce that he has received instructions from the Council of the Royal Horticultural Society, to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, April 15, at half-past 12 o'Clock precisely, a Collectioo of ESTABLISHED ORCHIDS, including some fine specimens of Cypripedium villosum, fine specimens of the rare Cattleya exoniensis, Lælia anceps Dawsonii, Phalænopsis grandiflora, &c.; also a remarkably fine lot of Cattleya Trianæ, many of them in bloom.

On view the morning of Sale, and Catalogues had.

FOR DISPOSAL, a genuine London SEED and FLORIST BUSINESS, with immediate possession. Premium for Goodwill, Lease, and Fixtures, £225.

M. A., *Gardeners' Chronicle* Office, W.C.

Victoria Estate, Kansas, U.S.—To Farmers and OTHERS.

FINE STOCK FARMS of 640 Acres and upwards, to be SOLD, Freehold, from 12s. to 50s. per acre. Grass in its natural condition unsurpassed for feeding Sheep and Cattle. For PAMPHLET containing full particulars respecting this Property, apply to

ROBERT W. EDIS, Esq., F.S.A., 14, Fitzroy Square, London, W., Architect to the Estate.

TO BE SOLD, the BUSINESS of a SEEDSMAN and FLORIST, with Jobbing, well-established, first-class position, with a good ready-money trade. Address 227, Brixton Road, S.W.

A Great Bargain for an Immediate Purchaser.

TO BE SOLD, or LET, a Gentleman's DETACHED RESIDENCE, on the South Coast, with an EXTENSIVE RANGE OF GLASS, well stocked with Grapes, Pines, &c., Coach-house and Stabling.

B. H., *Gardeners' Chronicle* Office, W.C. No Agents.

Near the Important Town of Romford, Essex

(12 miles from London).

TO BE LET, for a Term, from Michaelmas next, The MANOR FARM, known as Mawneys, close to the town of Romford, with Commodious House and Homestead and 209 acres of Land—the greater portion good Arable, adapted for growing Corn, Roots, or Market Garden Crops—and about 44 acres Meadow. The Farm is also available for producing Milk for the London Market.

May be viewed by cards, which, with Particulars, can be had of Messrs. CRAWTER, Land Agents, &c. (who are authorised to Treat for the Letting), 5, Bedford Row, Gray's Inn, W.C.

MESSRS. FRASER AND BENTON, HORTICULTURAL AND AGRICULTURAL AUCTIONEERS AND VALUERS, Romford and Grays, Essex.

Transit Agency for Plants, Seeds, &c.

C. J. BLACKITH AND CO., late BETHAM & BLACKITH, Cox's and Hammond's Quays, Lower Thames Street, London, S.E.—Forwarders to all parts of the World.

Wood Engraving.

MR. W. G. SMITH, ARTIST and ENGRAVER on WOOD, 15, Mildmay Grove, London, N.

Window Glass, Sheet Lead, Paints, &c.

THOMAS MILLINGTON AND CO., IMPORTERS and MANUFACTURERS. New LIST of PRICES, very much reduced, on application.

87, Bishopsgate Street Without, E.C.

LARCH, 1-yr., £10 per 100,000, good stuff, and are offered as the advertiser has more than he requires for his own planting.

NURSERYMAN, *Gardeners' Chronicle* Office, W.C.

SEAKALE for Sale, good forcing and planting; also 1-yr., 2-yr., and 3-yr. ASPARAGUS; and GLOBE ARTICHOKES, per dozen or 100. For price, &c.,

J. COOPER, Balfour Cottage, Fulham Fields, S.W.

To the Trade.

SEAKALE PLANTING.—4s. per 100; 30s. per 1000. For cash.

RICHARD LOCKE, Alexandra Nurseries, Redhill, Surrey.

Fuchsia Cuttings.

H. CANNELL has now an immense quantity of the above in fine condition for striking, at 5s. 6d. per 100, in not less than ten first-class varieties. Post free.

New Florist Flowers and Florist Flower Seed Merchant, Woolwich, S.E.

Verbenas, Verbenas.

JOHN SOLOMON offers White, Scarlet, Purple, Pink, Crimson, Rose and other mixed sorts, good strong spring-struck cuttings, well rooted, at 6s. per 100, 50s. per 1000, package included. Cash to accompany all orders from unknown correspondents.

Islington Nursery, Park Street, Islington, N.

ROYAL BOTANIC SOCIETY OF LONDON.

FIRST SPRING EXHIBITION.

March 31, 1875.

AWARDS of the JUDGES.

LARGE SILVER MEDAL.

Mr. J. Ward, Gr. to G. Wilkins, Esq., Leyton, for twelve Stove and Greenhouse Plants.

Mr. J. Ward, for six Greenhouse Azaleas.

Messrs. G. Paul & Son, The Old Nurseries, Cheshunt, for Collection of Pot Roses.

SILVER MEDAL.

Mr. G. Wheeler, Gr. to Sir F. H. Goldsmid, Bart., M.P., St. John's Lodge, Regent's Park, for twelve Stove and Greenhouse Plants.

Mr. G. Wheeler, for six Greenhouse Azaleas.

Messrs. Cutbush & Son, Highgate Nurseries, Highgate, for six Greenhouse Azaleas.

Mr. J. James, Gr. to W. Watson, Esq., Redlees, Isleworth, for nine Cinerarias.

Mr. J. Douglas, Gr. to F. Whitbourn, Esq., Loxford Hall, Ilford, for twelve Hyacinths, single spikes.

Messrs. Cutbush & Son, for twelve Hyacinths, single spikes.

Messrs. Cutbush & Son, for twelve Hyacinths, any number of spikes.

Mr. J. Doughs, for six Deutzias.

Mr. H. Little, Cambridge Park, Twickenham, for twelve Cyclamens.

Mr. G. Wheeler, for twelve Clematis.

Mr. B. S. Williams, Victoria Nurseries, Upper Holloway, for Collection of Plants.

Mr. W. Paul, Waltham Cross, for Collection of Plants.

SMALL SILVER MEDAL.

Mr. J. Child, for six Deutzias.

Mr. J. James, for six Chinese Primulas.

Mr. J. Douglas, for twelve pots of Tulips.

Messrs. Cutbush & Son, for twelve pots of Tulips.

Mr. J James, for twelve Cyclamens.

LARGE BRONZE MEDAL.

Mr. J. Weir, Gr. to Mrs. Hodgson, The Elms, Hampstead, for twelve Hyacinths, single spikes.

Messrs. Barr & Sugden, 12, King Street, Covent Garden, for twelve Hyacinths, single spikes.

Mr. J. Douglas, for twelve Hyacinths, any number of spikes.

Mr. G. Wheeler, for six Forced Hardy Shrubs.

Mr. J. Child, for six Greenhouse Azaleas.

Mr. G. Wheeler, for six Chinese Primulas.

Mr. J. Weir, for six pots of Lily of the Valley.

Mr. J. Weir, for twelve pots of Tulips.

Messrs. Barr & Sugden, for twelve pots of Tulips.

Mr. G Wheeler, for twelve Cyclamens.

Mr. H. Little, for Collection of Cyclamens.

Messrs. Barr & Sugden, for Collection of Hyacinths.

Mr. Chas. Turner, Royal Nurseries, Slough, for Collection of Standard Berried Arcubias.

Mr. Chas. Turner, for Collection of Specimen Ivies.

Mr. T. Stevens, Gr. to G. Simpson, Esq., Wray Park, Reigate, for Dendrobium fimbriatum oculatum.

BRONZE MEDAL.

Mr. G. Potts, Gr. to the Right Hon. Viscount Gage, Firle, near Lewes, for twelve Hyacinths, single spikes.

Messrs. Carter & Co., for twelve Hyacinths, single spikes.

Messrs. Barr & Sugden, for twelve Hyacinths, any number of spikes.

Mr. G. Toms, Gr. to C. Wetenhall, Esq., The Poplars, Stoke Newington, for twelve pots of Tulips.

Messrs. Carter & Co., for twelve pots of Tulips.

Mr. J. Child, for six pots of Lily of the Valley.

Messrs. Paul & Son, for Collection of Cut Roses.

Mr. G Wheeler, for Collection of Plants.

Mr. J. James, for Collection of Cyclamens.

Messrs. Carter & Co., for Collection of Hyacinths.

Mr. J. James, for Collection of Cinerarias.

BOTANICAL CERTIFICATES of MERIT.

Mr. B. S. Williams, Holloway, for Geonoma gracilis, Brazil.

Mr. B. S. Williams, for Alsophila Van Geertii.

Mr. B. S. Williams, for Anthericum variegatum.

FLORICULTURAL CERTIFICATES of MERIT.

Messrs. James Carter & Co., for Coleus Duchess of Edinburgh.

Mr. J. James, Hounslow, for Cineraria Brightness.

Mr. J. James, for Cineraria Charles Bending.

Mr. J. James, for Cineraria Ann Page.

Mr. Wm. Paul, Waltham Cross, for Rose Star of Waltham.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION, for the relief of decayed Farmers, their Widows and Orphans.

Patron—HER MAJESTY THE QUEEN.

President—HIS GRACE THE DUKE OF RICHMOND.

Allowances to Pensioners.

Married	£40 per annum.
Male	£26 "
Widows and unmarried Orphan Daughters	£20 "

Every information to be had of the Secretary, by whom Subscriptions and Donations will be thankfully received.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.—The FIFTEENTH ANNIVERSARY FESTIVAL, in aid of the Funds of the Institution, will take place at Willis's Rooms on SATURDAY, June 5, at 6 o'Clock.

H.R.H. The PRINCE OF WALES, K.G., in the Chair.

Dinner tickets, 21s., application for which should be made to the Secretary not later than May 22.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.—The ANNUAL GENERAL MEETING will be held at Willis's Rooms, St. James's, on WEDNESDAY, June 16, at 11 o'Clock precisely, and the ELECTION of PENSIONERS will take place on the same day, at half-past 11 o'Clock.

All Subscriptions shall be deemed payable on January 1 in each year; and no Contributor shall vote in respect of an Annual Subscription while the same is in arrear.

Offices of the Institution—

No. 25, Charles Street, St. James's, London, S.W.

THE SECRETARY of the ROYAL AGRICULTURAL BENEVOLENT INSTITUTION gratefully acknowledges the Receipt of a First ANNUAL SUBSCRIPTION of £100 from Mr. JOHN C. KING, of Beedon, Newbury, Berkshire; and a similar Annual Subscription from Mr. JAMES COOMBES, of Milton Cottage, Steventon, in the same county.

New and Choice Ferns.

W. AND J. BIRKENHEAD, having a Collection of many thousands of the most beautiful and choice BRITISH and EXOTIC FERNS, and giving their cultivation special attention, are prepared to supply large or small quantities at most reasonable prices.

CATALOGUES on application. Special quotations for large quantities.

Fern Nursery, Sale, near Manchester.

STELLARIA GRAMINEA AUREA—100 cuttings sent post free for 2s. 6d. This is quite distinct from Golden Feather, and certainly the best yellow carpet-bedding plant ever introduced; quite hardy.

H. CANNELL, New Florists' Flowers and Florist Flower Seed Merchant, Woolwich, S.E.

CHARLES B. SAUNDERS, NURSERYMAN, &c., Jersey, respectfully offers choice CARNATION and PICOTEE SEEDS at 2s. 6d. per packet of 100 seeds; fine strong VINES, best sorts, 24s. to 30s. per dozen; Evergreen OAKS, in or from pots, 2 to 6 feet high, 50s. to 150s. per 100.

March 18, 1875.

PEACHES and NECTARINES, in pots, forced and well furnished with fruit. Strong healthy trees of the best leading varieties at 10s. 6d. each, carriage paid to London.

THOMAS RIVERS AND SON, The Nurseries, Sawbridgeworth, Herts.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS; also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.

Mr. WEBB, Calcot, Reading.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

VICTORIA MIGNONETTE is the best of the red-flowered section yet sent out.

Growth very robust; requires to be 18 inches from plant to plant, and blooms till cut off with frost. Deliciously scented. Invaluable for cut flowers.

Packets, free by post, 6d. and 1s. each.

THOS. SMITH, Seedsman, Long Wittenham, Abingdon.

FLORISTS' FLOWERS.—Named exhibition varieties of Carnations and Picotees, 6s. per dozen plants; Pinks and Pansies, 4s. per dozen; Pentstemons and Antirrhinums and Phloxes, 4s. per dozen; all good plants and first-class sorts. LISTS of above, and other plants, in great variety, for two stamps. Trade terms on application.

WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

NEW PLANTS.—The three best new plants recently sent out are:—

CROTON MAJESTICUM,
DIPLADENIA BREARLEYANA,
CROTON SPIRALE.

Price Two and Three Guineas each.

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

Australian Seeds and Plants.

SEEDS of TIMBER TREES, PALMS, SHRUBS, &c. Plants indigenous to Australia, New Zealand, and Fiji, including ARAUCARIAS, TREE FERNS, variegated FLAX, &c. Orders may be left with our London Agents, Messrs. C. J. BLACKITH AND CO., Cox's Quay, Lower Thames Street, London, E.C., for transmission.

SHEPHERD AND CO., Nurserymen and Seedsmen, Darling Nursery, Sydney, New South Wales. (Established 1827.)

To the Trade.—Surplus Stock.

THOMAS IMRIE AND SONS, Ayr, offer the following:—

BEECH, 15 to 18 ins., 10s. per 1000; 1½ to 2 feet, 15s. per 1000.
PINUS AUSTRIACA, 1½ to 2 feet, 10s. per 1000.
POPLARS, Ontario, 6 to 8 feet, 6s. per 100.
STRAWBERRIES, prepared runners, 10s. per 1000.
POTATOS, Victoria, £5 per ton.
,, Milky White, £6 per ton.

March, 1875.

New Potatos for 1875.

JOHN CATTELL with the greatest confidence recommends the following, which have received a First-class Certificate:—

ECLIPSE KIDNEY (Cattell), price 6s. per 7 lb.
RELIANCE KIDNEY (Cattell), price 4s. per 7 lb.
ADVANCER KIDNEY (Cattell), price 4s. per 7 lb.

The Set 12s. for cash with order. Trade price on application.

See large Advertisement in last page of the *Gardeners' Chronicle* for January 9, 1875.

Full description, and testimonials, post-free on application.

Sole Wholesale Agents in London, Messrs. HURST AND SON, 6, Leadenhall Street, E.C.

Nursery and Seed Establishment, Westerham, Kent.

Rhododendrons.

HENRY FARNSWORTH, Matlock Bank, Derbyshire, has to offer a fine stock of the following, at a moderate rate:—

3-yr. Seedling, fine.
3-yr. Seedling and 2-yr. transplanted.
3-yr. Seedling and 3-yr. transplanted.
4 to 8 inches good stuff; 6 to 10 inches bushy.

For prices and samples apply as above.

MESSRS. STIRZAKERS, Skerton, Lancaster, offer as follows:—20,000 SCOTCH FIR, extra transplanted, 2 to 2½, to 3½ feet; SILVER ditto, stout, extra transplanted, 1½ to 2½ feet. Also, in quantity, SYCAMORE, BEECH, CHESTNUT (Horse), ELM (Wych and English), ASH (Mountain and Common), BIRCH, LIME, MAPLE, OAK (English and Turkey), POPLAR (Black Italian), in all sizes, from 2 feet up to 8 or 10 feet; PRIVET, strong bushy, 2 to 3 feet; THORNS, 1½ to 2, 3 to 4 feet.

GERANIUMS:—Mrs. Pollock, Sophia Dumaresque, 3s. per dozen; Lady Cullum, Sophia Cusack, Louisa Smith, 3s. 6d. per dozen; Thos. Moore, Lord Derby, Wm. Underwood, 2s. 6d. per dozen; 12 varieties of doubles, including Jewel, E. J. Lowe, and Aline Sisley, for 3s.; Dr. Denny's second set, Rienzi, Lord Macaulay, &c., for 5s., in rooted cuttings, for 3s. 6d.

PANSIES:—100, in 40 choice varieties, for 18s.; 50, in 25 sorts, for 10s.; 12 varieties, 3s.; Cloth of Gold, the finest yellow, 2s. 6d. per dozen, 16s. per 100; Great Eastern, the finest white, 2s. 6d. per dozen.

CALCEOLARIA, Golden Gem, 5s. per 100, 40s. per 1000.

J. LEIGH, Sandy Lane Nursery, Lowton, near Newton-le-Willows.

Verbenas for Sale.

S. BIDE can now supply, for cash, Verbenas, spring-struck, strong, and free from disease of any kind, including Purple King, Scarlet, White, Pink, and many other varieties (of which a list may be had on application), at 8s. per 100, package free. PELARGONIUMS, show and fancy, of the best varieties, 40s. per 100. GERANIUMS, plain-leaved and zonal, strong autumn-struck plants, 10s per 100. CENTAUREA CANDIDISSIMA, struck last autumn, and well established, in large 60 pots, 40s. per 100. AUREA FLORIBUNDA and other CALCEOLARIAS, 8s. per 100. HELIOTROPES, light and dark, 8s. per 100.

S. B. would particularly wish to draw the attention of his numerous customers to his fine stock of VERBENAS for this season, which are the admiration of all who see them; and would request that all orders should be sent to him as early as convenient, as he was unable to supply many who applied late last season—general satisfaction being expressed by all those who favoured him with their orders.

S. BIDE, Alma Nursery, Farnham, Surrey.

The Only Really and Thoroughly Distinct LOBELIA of the SEASON,

BLUESTONE—hitherto a hidden gem.

Strange that this, by far the best of all the Lobelias, should have been kept back from the public by a "crotchet," and it is only within the last few days that the seed has been placed in my hands. The darkest blue, no eye, strong compact pumila habit; foliage, strange to say, is a most peculiar purplish green, and its whole character far exceeds any other Lobelia. Five hundred seeds, post free, 1s. 1d.; plants sent post free 1s. each, 12 for 7s.

Vide p. 94 *Gardeners' Magazine*, February 20: "Challenging the whole of the floricultural community to produce a better."

FORGET ME NOT
TRADE MARK.

H. CANNELL, F.R.H.S., begs to announce that his FLORAL GUIDE for 1875 is now ready, and will be sent, post-free (cost price), for ten stamps. It is beautifully illustrated with 200 splendidly executed engravings. It also contains particulars and correct descriptions of all the novelties, and the best new and old varieties of soft-wooded plants, in cultivation, and it is highly important to amateurs and gardeners that they should peruse it continually, for it contains invaluable and practical information on Florists' Flowers and Bedding Plants and their Seeds; and the cheap, ready, and correct manner in which they are supplied and forwarded to any part of the world cannot fail to be a great advantage and highly appreciated by all who are really fond of the choicest flowers.

NEW FUCHSIA, "MRS. H. CANNELL."—This magnificent variety last year bore out even more than the high character previously given it, and is by far the best double white corolla variety; foliage and flower even an advance on the good old dark Avalanche. Fine half-specimen plants, 2 feet high, in 6-inch pots, 7s. 6d. each; small ditto, 5s.; nice plants in thumbs, 1s. 6d. each; small rooted little plants, or two cuttings, 1s., post free.

New Florist Flowers and Florist Flower Seed Merchant, Woolwich, S.E.

Sutton & Sons

CHOICE FLOWER SEEDS,

FREE BY POST OR RAIL.

Suttons' Collections of Choice Flower Seeds, to produce a beautiful and continuous display during Summer and Autumn.

No. 1 Collection, Free by Post or Rail			.. £2	2 0
No. 2 Collection	,,	,,	 1	11 6
No. 3 Collection	,,	,,	 1	1 0
No. 4 Collection	,,	,,	 0	15 0
No. 5 Collection	,,	,,	 0	10 6

Small and Useful Collections can also be had, from 2s. 6d. to 7s. 6d. Free by Post.

Complete Instructions as to the Cultivation of Suttons' Choice Flower Seeds will be found in

"SUTTONS' AMATEUR'S GUIDE,"

The most practical work on gardening yet published, beautifully illustrated with 300 engravings.

Price 1s., Post Free. Gratis to Customers.

TO OBTAIN THE

Best Garden Lawns and Croquet Grounds

SOW

SUTTONS' LAWN GRASS MIXTURE,

Which forms a close velvety turf in a very short time. For making New Lawns or Croquet Grounds 3 bushels or 60 pounds is required per acre, or 1 gallon to every 6 rods (or perches) of ground.

For improving those already in turf, 20 pounds should be sown per acre.

March, April, and May are the best months for sowing.

Price 1s. per lb.; 20s. per bushel.

From Mr. J. MERRICK, *Gardener to* S. Forster, Esq. *Le Court.*

"The Seed you sent me last year turned out uncommonly well. Several gentlemen who came to Le Court could scarcely credit, from the appearance of the lawn, that it was only sown in May. In August it was as fine and thick as I have seen some lawns that had been laid down for three years."

Instructions on the Formation and Improvement of Garden Lawns and Croquet Grounds Gratis and Post Free.

Sutton & Sons

THE QUEEN'S SEEDSMEN, READING.

Highly Important Sale of East Indian Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, April 8, at half-past Twelve o'Clock precisely, unusually Choice EAST INDIAN ORCHIDS, just to hand, in the best possible condition, about starting freely into growth. Amongst others are DENDROBIUM FALCONERI, in quantity, fine varieties, from a new locality; the lovely and hitherto rare DENDROBIUM CRASSINODE, in quantity, and many fine specimens; the new and beautiful DENDROBIUM SUAVISSIMUM, offered for the first time by public sale; splendid plants of DENDROBIUM WARDIANUM, seen in flower by Collector with about forty flowers on one growth; fine plants of DENDROBIUM FARMERI, DENDROBIUM PRIMULINUM GIGANTEUM, THUNIAS, &c. Also twenty plants of PHALÆNOPSIS SCHILLERIANA and AMABILIS, fine varieties, in flower.

On view the morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

Verbenas, Verbenas, Verbenas.

WILLIAM BADMAN offers Purple, White, Scarlet, Crimson, and Rose Verbenas—good Plants from single pots, 12s. per 100; rooted cuttings, clean and healthy, 6s. per 100, 50s. per 1000, package included. Terms cash. Cemetery Nursery, Gravesend.

Spring Planting.

FOREST TREES, ORNAMENTAL TREES, and SHRUBS, a large stock at moderate prices. CATALOGUES free on application.
THE LAWSON SEED AND NURSERY COMPANY (Limited), 106, Southwark Street, London, S.E., and at Edinburgh.

VINES, extra strong leading sorts, close-jointed and well ripened; SEAKALE, ASPARAGUS, and RHUBARB, extra strong, for forcing; ROSES, FRUIT, FOREST, and ORNAMENTAL TREES, STOVE and GREENHOUSE PLANTS, &c.
Priced Descriptive CATALOGUE, post free.
DICKSON AND ROBINSON, 23, Market Place, Manchester.

Pelargoniums for the Million.

JAMES HOLDER'S unrivalled COLLECTION of Show, French, and Fancy Varieties, strong Plants, distinct sorts, at 40s. per 100; 25s. for 50; or 15s. for 25. Hamper and packing included. Extra strong plants at 9s. and 12s. per dozen. Cash. CATALOGUES free on application.
Crown Nursery, Reading.

PYRUS, or CYDONIA MAULEI.—Plants of this hardy ornamental and useful new Japan Fruit, now sending out, price 22s. each, usual discount to the Trade.
Illustration sent on application. See *Gardeners' Chronicle*, 1874, i. 757, ii. 740; and the *Florist and Pomologist* for this month.
WM. MAULE AND SONS, The Nurseries, Bristol.

NEW ROSES for 1875.—Splendid plants, with magnificent foliage, in forty-three Continental varieties, now ready. LISTS, with raisers' descriptions, post free.
HENRY BENNETT, Manor Farm Nursery, Stapleford, Salisbury.

GIANT ASPARAGUS PLANTS, the best that money can procure, all certain to grow, 2s. 6d. per 100. This delicious vegetable does not require half the expense usually incurred in planting it. See RICHARD SMITH'S SEED LIST for 1875.
Extra strong SEAKALE, 2s. per dozen.
RICHARD SMITH, Nurseryman, Worcester.

Variegated Bedding Geraniums.

ALFRED FRYER offers the following GERANIUMS at per dozen for cash:—Golden Tricolors: Mrs. Dunnett, 3s. 6d.; Louisa Smith, 3s. 6d.; Mrs. Pollock, 3s. 6d.; Sir Robert Napier, 3s. 6d.; Sophia Dumaresque, 3s. Silver Tricolors: Miss Burdett Coutts, 3s. 6d.; Mrs. John Clutton, 3s. Golden Bronze: Aurie, 3s. 6d.; Bronze Beauty, 3s. 6d.; Kentish Hero, 2s. 6d.; Roi de Siam, 3s. 6d.; Waltham Bronze, 3s. 6d. Baskets and packing, 6d. per dozen, or 3s. 6d. per 100 extra.
PRICED LISTS post free.
ALFRED FRYER, The Nurseries, Chatteris, Cambridgeshire.

New Double Zonal Pelargoniums for 1875.
First-class Certificate Royal Horticultural Society.

Emily Laxton.

MESSRS. W. AND J. BROWN have again been entrusted by Mr. Laxton with the distribution of the following set of New Double ZONAL PELARGONIUMS raised by him, viz.:—
EMILY LAXTON.—First-class Certificate Royal Horticultural Society. The largest flowered and most remarkable Scarlet Pelargonium, either double or single, hitherto sent out. Individual flowers upwards of 2 inches in diameter; full, but not crowded; truss enormous. Free-flowering, and suitable for winter work. Figured in the *Floral Magazine* for October last. Strong plants, 15s. each.
GUIDING STAR.—The most shrubby and dwarf Double Pelargonium yet raised. Foliage pale green, and partaking somewhat of the character and habit of the Show Pelargonium. Flower very pretty purplish pink, and double; quite unique and distinct. Strong plants, 10s. 6d. each.
ILLUMINATOR.—A striking and distinct purplish carmine-coloured variety of the Emily Laxton type, but darker in colour; semi-double, but full; petals large and stout. Strong plants, 7s. 6d. each; the set for £1 10s.
Prizes will be offered for the above in 1876. To be sent out in May next. Coloured Plates of Emily Laxton post free for 1s. 6d. Electros of Single bloom 2s. 6d. each.

NEW STRAWBERRIES.

Messrs. W. & J. BROWN are also now sending out Mr. Laxton's fine firm-fleshed New Strawberries—TRAVELLER and EXQUISITE; the flavour of both these is distinct and unequalled. Traveller has received a First-class Certificate from the Royal Horticultural Society, and is undoubtedly the most suitable Strawberry for transmission yet raised. Strong plants of last season:—Traveller, £1 per 25, £3 per 100. Exquisite, 12s. 6d. per 25, £2 per 100. Early struck runners of each, in 60 sized pots, 7s. per 25 extra. Prizes for fruits of these will be offered in 1876. Trade terms on application to
W. AND J. BROWN, Nurserymen and Florists, Stamford.

Hollies.

ANTHONY WATERER respectfully invites the attention of Holly buyers to the very fine Stock to be seen growing at Knap Hill. It comprises upwards of Thirty Thousand Plants, from 3 to 10 and 12 feet high, of the finer Gold, Silver, and Green-leaved kinds, affording a choice in size and variety such as can be met with in no other Nursery in Europe. Every Plant has been recently removed, and will be guaranteed.
The Stock of Common Green Hollies alone occupies 5 acres of land, and Purchasers will find them in large numbers of all heights up to 25 feet.
Knap Hill Nursery, Woking, Surrey.

WILLIAM POTTEN'S PLANT LIST for 1875 is now ready, which contains one of the largest and choicest collections of Geraniums and other Bedding Plants, and will be sent to all applicants post free.
W. P. can supply the following good plants in single pots:—
Double PETUNIA, King of Crimsons, 2s. 6d. per dozen.
12 other good Double varieties, 3s.
12 vars. good COLEUS, 2s. 6d.
12 select Zonal GERANIUMS, 3s.
12 select Double do., 3s.
12 select Gold and Silver Tricolors, 6s.
12 select Gold and Bronze, 4s.
Camden Nursery, Sissinghurst, Staplehurst, Kent.

FREDK. GEE begs to offer, for cash with orders, fine selected stocks of POTATOS:—Climax, splendid quality variety, 5s. 6d. per bushel, 10s. per cwt.; Early Goodrich, productive and good, 4s. 6d. per bushel, 8s. per cwt.; Early Rose, 5s. per bushel, 9s. per cwt.; Myatt's Prolific Ashleaf Kidney, 5s. per bushel, 9s. per cwt.; and many other good sorts on hand.
DAISIES, splendid double, from 2s. per 100.
CABBAGE and other Plants, &c., choice and good; also SEEDS, &c., of all kinds, cheap and good.
Seed Growing Establishment, Biggleswade, Beds.

TO BE SOLD, CHEAP—to clear the ground, required for building at once:—
ROSES, Standard, very fine, 10s. per dozen, 75s. per 100.
PINES, Austrian, 2 to 2½ feet, 7s. per 100, 60s. per 1000; 2½ to 3 feet, 8s. per 100, 70s. per 1000.
PINUS EXCELSA, 18 inches to 2 feet, 10s. per doz., 75s. per 100.
BERBERIS DARWINII, 2-yr. seedlings, 15s. per 1000; 18 inches to 2 feet, 10s. per 100.
COTONEASTER SIMMONDSII, 12 inches to 15 inches, 20s. per 1000.
W. BARRON AND SON, Elvaston Nurseries, Borrowash, Derby.

CHRYSANTHEMUMS:—12 new varieties of 1874, 3s.; 12 older sorts, 2s.; 100 Chrysanthemums, including 25 new varieties of 1874, for 18s.; 50s. for 100.
FUCHSIAS:—6 new varieties of 1874, for 4s.; 12 varieties of 1873, for 4s.; 100 Fuchsias, in 50 sorts, for 14s.; 50, in 25 sorts, for 8s.; 12 varieties, 2s. 6d.
LOBELIA, pumila grandiflora, 1s.; IRESINE, Lindeni, 1s. 6d.; MESEMBRYANTHEMUM, cordifolium variegatum, 1s. 6d. per dozen.
The above sent post free for cash with order.
I. LEIGH, Sandy Lane Nursery, Lowton, near Newton-le-Willows

THE HANDSOMEST AND BEST NEW POTATO IS
CARTER'S AMERICAN BREAD-FRUIT.

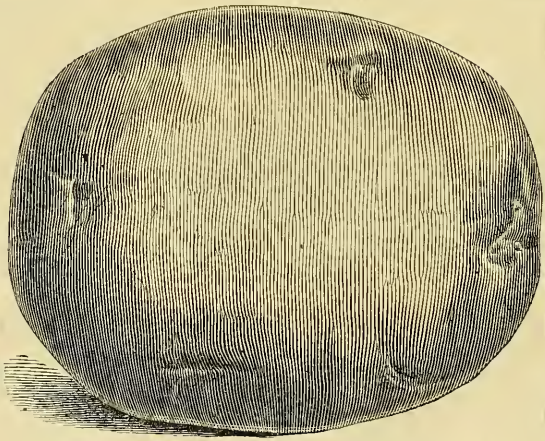
Indispensable as one of the best Potatos for Exhibition.

CARTER'S
AMERICAN
BREAD-FRUIT.

FOR MAIN CROP.

This is a grand Potato in every respect. Handsome in shape, with very shallow eye. Flesh of fine texture and superb quality, whether baked or boiled. It is a first-rate keeper, and extremely prolific.

An invaluable acquisition to Hotel Keepers, for Public Institutions, &c.



CARTER'S AMERICAN BREAD-FRUIT POTATO.
Per Peck, 6s.; per Bushel, 21s.; per Cwt. 35s.; per Ton, £30.

THE POTATO THAT BEST RESISTS DISEASE
IS
CARTER'S
IMPROVED RED-SKIN FLOURBALL.

Price per Peck, 2s. 6d.; per Bushel, 9s.;
Per Cwt. 17s.:
Per Ton, for not less than half a ton, £14.

We again offer a very fine selected stock of this invaluable Potato, which continues to resist the ravages of the disease in a most surprising manner. We have at all times avoided the statement published by some Houses, "that the Red-skin Flourball Potato is the only *disease-proof* variety." We, however, repeat that our Improved Red-skin Flourball resists the disease to a far greater extent than any other variety in cultivation.

CARTER'S Improved Red-skin Flourball was one of the varieties in the great Trial of Potatos made by the Royal Agricultural Society of England last year, and we believe we are justified in stating that it fully maintained its disease-resisting reputation, whilst other varieties were nearly consumed by the disease.

Carter's THE QUEEN'S SEEDSMEN, 237 & 238, HIGH HOLBORN,
LONDON, W.C.

SATURDAY, APRIL 3, 1875.

PLANES.

FROM the first year of the existence of the *Gardeners' Chronicle* discussions have periodically arisen respecting the comparative hardiness, identity with wild types, &c., of the forms or species of Planes cultivated in Britain. The result of all this writing, it appears to me, is greater confusion than ever; but I will not venture to affirm that I shall succeed in clearing it up. From the time of the earliest introduction of Planes, the greatest uncertainty has prevailed respecting their specific origin, and the most contradictory descriptions and attributes have been assigned to the same name by different writers—whether they had different species in view, I cannot tell. Continental writers seem to have been equally in the dark, unless it should turn out, as some suppose, that there really is no specific difference between the American and Eastern Planes. I am of the opinion that they are distinct species or races, and that the real Platanus occidentalis, or American Plane, was unknown to many of the writers on this subject. Though this is my opinion at the present moment, I am quite open to conviction, and shall not be surprised if some one should prove me wrong. But I must have real, unanswerable proofs, not statements based upon what are believed to be facts, otherwise the question will still remain, practically speaking, unanswered.

At the last meeting of the Linnean Society I exhibited fruiting specimens of Platanus orientalis, P. orientalis var. acerifolia, and P. occidentalis; but being prevented at the last moment from attending, I requested my friend, Mr. Baker, to read a short note on one of the most marked characteristics (as I believe) of P. occidentalis. It was objected that this character was equally valueless with all others put forward as distinguishing this or that species. Mr. Baker, of course, was not prepared to discuss the question, and I believe I had the worst of it, though nothing beyond words was adduced against my specimens. Under the circumstances, I think I cannot do better than state my case here, especially as it is rather a lengthy one, and a subject that concerns gardeners as much as botanists. Perhaps, too, after reading what I have to say, some planters may be able to confirm or refute my statement beyond dispute.

As there is some doubt respecting the correctness of the dates of the introduction of the Eastern and Western Planes given by Loudon and others, and as I shall have occasion to refer to a considerable number of books, I will in the first place relate what I have been able to gather respecting their history in this country. Turning to *Le Grete Herball*, 1526, I find no mention of the Plane, and as this book was translated from the French, it was probably unknown in France at that time. In the second part of Turner's *Herball*, 1568, is the first mention I have been able to find of the Eastern Plane, though Loudon says it was cultivated in England before 1548. Possibly he may have found evidence to that effect somewhere, but I imagine 1548 to be a misprint for 1568. How little it was known at the latter date may be learnt from the following quotation from Turner:—

"Although Dioscorides writeth of the vertues of the Playn tre yet he describeth it not, wherefore very mane in England and Germany have erred in takyng of diverse trees for the Playn tre, whereof none of them all was the ryght Playn tre in dede. Sum take ye Lynd tre (which I and mane others take for the ryght Tilia) for Platano, because it shutteth forth long branches and boughes, and is able to cover a grete number of men under it. Sum take a tre which seemeth to me to be a kinde of Acer to be a Platanum, and that tre is called in Duch Ahorn. . . . For these and diverse other lyke causes I reken that tre called in Duch Ahorn, or Wild Asshen, can not be Platanus. I have sene the leaves of that Platanus that groweth in Italy, and two very young trees in England, which were called there Playn trees, whose leaves in all poyntes were lyke unto the leaves of the Italian Playn tre. And it is doubtles that these two trees were either brought out of Italy or of some farr countre beyond Italy, where onto the freres and monkes went a pilgrimage."

Gerarde, 1635, only mentions P. orientalis, which was still very rare in his day. A quaint and amusing passage is worth quoting, for it would almost seem that England retrograded between the time of Turner and Gerarde. Speaking of the Plane, the latter writer says it will flourish if "cherished and watered with wine; and it is found by experience that the same is very comfortable to the roots, and we have already taught that trees desire to drink wine." He adds below that he sent his servant, William Marshall, to the Mediterranean, and he brought seeds from Morea "whereof one or two are growing with Tradescant." Parkinson, *Theatrum Botanicum*, 1640, gives figures and the history of both P. orientalis and P. occidentalis, the latter, we are told, having been recently brought from Virginia by the younger Tradescant. The figure seems to have been made from the true American Plane, and is much better in its way than that of the Eastern species. Parkinson appears to have been the first to go wrong respecting the constitution of the Eastern Plane, of which he says, not "enduring our winter without extraordinary care." It is true that this species is, like many other trees, liable, when quite young, to be injured by frost. Ray (*Historia Plantarum*, 1706) knew apparently very little respecting one or the other of the two, for he alludes to them as Platanus orientalis pilulis majoribus and P. occidentalis pilulis minoribus. There is probably little difference in the size of the fertile spikes or catkins, but those of the true occidentalis are usually larger than those of orientalis in authentic specimens. Miller (*Gardeners' Dictionary*, 1731) states that P. occidentalis is much commoner than P. orientalis, and that P. acerifolia is a seminal variety of orientalis, as he knows from personal observation. Evelyn, in his *Sylva*, figures acerifolia for occidentalis; at least, such is my conclusion after consulting authentic figures and dried specimens.

I may here mention the particular character to which I alluded in the beginning of this article. In all the undoubtedly North American specimens that I have seen labelled P. occidentalis the fertile heads are solitary. In Michaux' *Arbres de l'Amerique du Nord* the plate of this tree exhibits the same character; and Dr. Asa Gray (*Flora of the Northern States*) mentions the same thing in his description. It is, therefore, quite evident that, if not an absolutely constant character, it must, at least, be commonly so, otherwise we make the specimens in the Kew Herbarium and at the British Museum wrong, as well as (probably) the only authentic figures (Michaux). The plate in the *Nouveau Duhamel* is also correct, but possibly that is simply a copy of Michaux. I have not the two works at hand at the time I am writing, and, therefore, I cannot decide this question. Why I suspect this to be the case is because all the other plates, with the exception of Parkinson's mentioned above, that I have seen called occidentalis, are most likely nothing more than acerifolia. Among others I may mention Watson's *Dendrology*, Schnitzlein's *Iconographia*, and Schkuhr's *Handbuch*. I do not wish to appear too confident and positive of the accuracy of my views, but I think I have shown sufficient to justify myself in re-opening the question. I find that different writers have disagreed entirely in their description of the botanical characters, rate of growth, hardiness, &c., of what they term occidentalis. For my own part, I have no experience whatever of its hardiness; the largest specimen actually known to me

is quite young, and only about 25 feet high. It was from this specimen in Kew Gardens that Mr. Smith kindly furnished me with the specimens exhibited at Burlington House. I ought not to omit to mention that here and there on this tree two heads may be seen on the same stalk, but that I think does not affect my position; solitary heads are occasionally seen on P. orientalis. It is labelled P. pyramidalis, whatever that may mean. I believe, however, that this name belongs to a cultivated variety of orientalis. A large tree at Kew bearing the name of occidentalis is doubtless acerifolia, as suggested by Dr. Hooker some years ago. Messrs. Decaisne and Naudin, in their *Manuel de l'Amateur des Jardins*, vol. iii., give it as their opinion that the greater part of the degree of constancy there is in the character I have particularised. I believe I recognise Mr. Thomas Rivers in the "T. R." of the *Gardeners' Chronicle*, about the year 1856, if I remember right; perhaps he can say something decisive. I feel pretty sure that he had the true P. occidentalis at that time. The dried specimens and portraits of P. occidentalis are so distinct in appearance, that I have ventured to dilate at some length on this subject. There are several other instances of closely allied species or races separated by the Atlantic Ocean. In some cases the American species or race, as the case may be, is confined to the eastern side of the continent, and the Old World form stretches eastward to Japan. With the Planes it is otherwise; in America two or three species occur, and one or forms, their geographical distribution, and the opinion of Heer that the fossil Plane of the miocene beds of Italy is more like the American than the Oriental form. Plane leaves have also been found in Greenland. If it should turn out that a Plane tree is native to Japan, we should consider our surmise well nigh established. Eds.]

New Garden Plants.

Anthurium cuspidatum.* (Fig. 85).

An Anthurium, somewhat resembling A. aeranthe, but, as it seems, distinct from it, and from any described in Schott's *Prodromus*. It is a handsome stove foliage plant, of tufted habit, and with bold bright green foliage, the leaves measuring about 1 foot 7 inches in length, by 12 inches in breadth. The

Fig. 85.—Anthurium cuspidatum. Leaves 1 ft. 7 in. long, 1 ft. broad.

large Plane trees, both on the Continent and in England, are the American P. occidentalis, although they were perfectly aware of what had been published in this country on the subject, satisfactorily identifying our park Plane with P. acerifolia. I do not feel so confident that P. acerifolia is simply a seminal variety of P. orientalis; but possibly there may be an authentic specimen among the dried plants which the Chelsea Botanic Garden was bound to deposit at the Royal Society. If it really be so, there is perhaps very little more difference between the Western and acerifolia than there is between the latter and P. orientalis. The true orientalis is a far handsomer tree, and of more majestic habit than acerifolia, and, I believe, of much slower growth. I think even now it will turn out that P. occidentalis possesses characters by which it may readily be distinguished from P. orientalis, but I should be glad to hear from some of our American colleagues what two of them down the western side from California to Mexico; whereas, in the Old World, the Plane does not appear to occur eastward of Kashmir. I have only to add, that possibly some of the characters reported to have broken down in attempting to discriminate the species have not been tried with the true P. occidentalis. *W. B. Hemsley.*

[Mr. Hemsley admits that P. orientalis has sometimes only a solitary female catkin while P. occidentalis has sometimes more than one, and so far concedes the point in dispute. We do not think that the evidence furnished by tenderness or hardihood is any better, for we have seen seedling varieties from the same tree, some cut by frost, others uninjured, though growing side by side in the same nursery quarter. In an article in these columns, 1869, p. 940, we leant to the view that all the forms of Plane had a common origin, founding our surmise on the known variability of existing petioles are perfectly cylindrical, and not at all sulcated: a character by which it may be distinguished readily from any species with which we are acquainted. The spathe is reflexed much shorter than the elongated purplish spadix. The plant is, we believe, a native of Colombia, whence it was introduced to the Veitchian nurseries by Mr. Gustav Wallis. We had, however, previously seen it in the collection of Mr. Wilson Saunders, under the name of A. cordatum, from

* *Anthurium cuspidatum*, Mast., sp. nov.—Caudice abbreviato; petiolis 15—24 poll. long., viridibus, teretibus, nec sulcatis, rigidis crassitie, pennæ gallinaceæ, geniculis ½ poll. long. subteretibus, antice vix applanatis; foliis arcte approximatis 10—20 poll. long. 7—12 poll. lat., membranaceis, glabris, superne saturate viridibus, infra pallidioribus, cordatis ovato-oblongis, longe gradaimque acuminatis, lobis basalibus distantibus rotundatis sinu lato separatis, nervo medio subtus prominente, nervis lateralibus secondariis 17—18, e quibus 6 basalibus e basi folii utroque latere radiantibus, cæteris a sese basi parum remotis pinnatis ad apices pauloque intra marginem folii cum pseudoneuro continuis, venulis arcuatis reticulatim ramulosis; pedunculis teretibus longitudinaliter sulcatis, pallide puniceis; spatha demum reflexa oblonga obtusa apice apiculata, membranacea subpunicea glabra, vix 2 poll. long., circa ½ poll. lat.; spadicibus 6—8 poll. long. teretibus pallide brunneo-purpureis.

which it differs greatly. It is also in the Aroid house at Kew. *M. T. M.*

Anthurium Wallisii, *Mast.*, *sp. nov.** (Fig. 86.)

A very distinct Anthurium, remarkable for its peculiar cordate, elongate oblong leaves, quite different from those of any Anthurium we find in collections or herbaria. The leaves are of a deep green colour; the spathe is revolute, nearly as long as the greenish yellow spadix.

The plant is a native of Colombia, where it was found by M. Gustav Wallis, and by him introduced into the nurseries of Messrs. Veitch & Sons.

Cymbidium elegans, *Lindl.*†

It is very surprising that some very interesting Indian Orchids found their way to England so very slowly, when in a short time the inhabitants of India, as far as they are Orchidologists, may make pilgrimages to England to see where their most distinguished Orchids decayed. I expressed that surprise I just alluded to when speaking of Cymbidium longifolium, and I have just the same opinion now when writing the name of the elegant Cymbidium elegans. It cannot be very rare. I have specimens at hand from Nepal, Wallich; Khasia, Griffith, T. Lobb, Hooker, and Thomson; Darjeeling, Griffith. It is a highly curious thing, not quite a first-class beauty, but quite apart, something totally unlike any plant seen before. The great raceme of long sulphur-yellow flowers, all nearly shut, is very striking, and decidedly must be acknowledged as very peculiar. It came to the collections of Lord Lovelace, East Horsley Towers, Ripley, Surrey, in spring, 1869, from Lady Lovelace's brother, and I am informed by Mr. Robert Miller, the skilful grower of the plant, that it flowered each year from 1871 to 1874; and I have at hand a beautiful inflorescence I obtained in February. It flowered during three weeks in my room. I also obtained it from the same place last autumn, in September. It flowered at that same period, I believe the first time, in the Royal Exotic Nursery of Messrs. Veitch. The plant would appear to improve much in Europe, its leaves, as well as its flowers, exceeding by far those of the wild specimens. I also made an astonishing observation. The two small angular lamellæ at the base of the lip were very inconspicuous and orange-coloured last autumn, both in all flowers of the Lord Lovelace's as in those of Messrs. Veitch's plant. Those lamellæ in fig. 1 of Lindley's *Sertum*, 14, appeared very superior; now this time all the flowers I examined have the same lamellæ much larger than those represented in the *Sertum*, purplish and toothed. Let us hope to see it soon represented in the *Botanical Magazine*. *H. G. Rchb. f.*

Phalænopsis Schilleriana, *Rchb. f.*, *var.* immaculata, *n. var.*

I have just been favoured with this splendid variety by Mr. H. Low. The flower has not a single dot or blotch at all. Now the callus is pure yellow. The lateral laciniæ of the lip are pure white, with a violet border, which looks exceedingly pretty. The plant is owned by J. T. Barber, Esq., of Spondon, near Derby, who selected it from the plants received last summer at Clapton Nursery, from the Philippines. *H. G. Rchb. f.*

Masdevallia spectrum, *n. sp.**

Once more a Masdevallia of the Chimæroid group, very near M. severa, but very distinct in its very narrow sepals, which have yellow tails as long as the sepal bodies, which appear quite dark, being mottled over and over with blackish purple or violaceous dots. There is no doubt that it has three-flowered inflorescences, but whether those three flowers are developed at the same time, I cannot say. The plant may soon appear in the nursery of Mr. W. Bull, who sent me dry specimens, gathered by one of his collectors, Mr. Shuttleworth. *H. G. Rchb. f.*

Fig. 86.—Anthurium Wallisii in flower. Leaves 2 ft. 2 in. long, 10 in. broad.

DANIEL HANBURY.

The death of this accomplished gentleman, on Wednesday the 20th inst., has come upon us as a most painful surprise. Amiable, accomplished, profoundly versed in his own special department, still in the prime of life, having done excellent work, capable and willing to do good service to science and to his fellow creatures, he has been suddenly removed from

* *Anthurium Wallisii*, Mast., sp. nov.—Caudice abbreviato; foliis arcte approximatis 2 poll. long. 11 poll. lat. subcoriaceis glabris superne saturate viridibus subtus pallidioribus oblongis obtusis basi profunde cordato-bilobis, lobis rotundatis seu subangulatis parallelis, sinu ovato utrinque attenuato separatis, pedatinervis nervo medio utrinque prominente carinam acutam superne efficiente, subtus costam validiorem subteretem constante nervi basales pedati, cæteri pinnati sub arcuati cum pseudoneuro paulo intra marginali continuo, venulis arcuatis reticulatis; petiolis 20 poll. long. subteretibus antice leviter sulcatis viridibus glabris crassitie pennæ anserinæ, geniculo crasso sulcato ½ pollicari; pedunculis 4—5 poll. long. teretibus glabris crassitie pennæ cygneæ; spatha demum revoluta, coriacea oblonga acuta spadice vix breviore; spadice 8—9 poll. long. flavo-virente; pollinis granis oblongis; ovula non vidi.

† *Cymbidium elegans.*—Caulescens, caule basi tumido; foliis ligulatis acuminatis valde elongatis; pedunculo vaginis ligulatis acuminatis scariosis distichis vestito; racemo nutante; bracteis triangulis minutissimis; floribus hinc glutinosis, clausis, mento valde parvo; sepalis ligulatis acutis; tepalis sursum latioribus; labello a basi late ligulato concavo dilatato: antice trifido; laciniis lateralibus triangulis; lacinia media subrhombea; callis geminis semirhombeis seu subfalcatis denticulatis in basi; pilis quibusdam circumspersis; carinis linearibus contiguis antepositis usque in basin laciniæ anticæ, ibi abruptis velutinis; columna semitereti apice curvata, basi pilosula, rostello trifido.—*Cymbidium elegans*, Lindl. G. and Sp. Orch. 163 Sertum, tab. 14.

* *Masdevallia spectrum* (Saccilabiata).—Racemosa, sepalis ligulato triangulis caudatis sat angustis; caudis corpora sepalorum subæquantibus; limbo ac disco interno parce hispidulis atque tuberculatis; tepalis ligulatis abbreviatis apice obtusangulo bivalvibus, tumore hispido papuloso interjecto; labelli laciniis lateralibus postice obtusangulis parvis; lacinia media oblonga calceata obtusa; carinula angulata in quavis auricula basilari; carinis membranaceis erectis ternis per totam laciniam mediam subparallelis approximatis; columna apice acuta denticulata.

us, leaving behind him an example to be followed and a memory to be cherished.

Mr. Hanbury was one of those who raise their business and themselves to a higher level than that of mere money getting. Pharmacy to him was a means of serving, not only his own interest, but those of humanity and of knowledge. His original investigations into the nature and history of drugs and of the plants producing them were minutely accurate, and his record of them was as judiciously terse. Little was left doubtful, nothing, we may say, that it was within his power to clear up. At the same time not a word was wasted, not an irrelevant remark added. His *magnum opus*, the *Pharmacographia*, published in conjunction with Professor Fluckiger, of Strasburg, and quite lately noticed in our columns, amply justifies our remark. It is the work of no mere compiler, but of one who brought judgment, penetration, and original research to bear on his self-imposed task. We mention this as his chief work, but the publications of the Pharmaceutical Society and of the Linnean Society, yield many evidences of his diligence and thoroughness. He was not content to examine and study dried specimens of the plants producing various drugs, he cultivated them whenever he had the opportunity. His brother's garden at La Mortola (see *Gardeners' Chronicle*, 1874, p. 35, fig. 7) afforded him ample opportunity for indulging his gardening tastes, and for introducing to that genial climate plants that cannot be cultivated here in the open air.

The garden at La Mortola is a veritable garden of acclimatisation, in which the most interesting, the most useful, and the most attractive of plants find a home. In the formation, stocking, and management of this garden, Mr. Hanbury took the greatest interest. His catalogue of plants cultivated, and his notes on their progress, attest the zeal and devotedness he bestowed on furthering his brother's plans of establishing a garden of interest as well as of beauty on the lovely shores of the Mediterranean. Mr. Hanbury was a Fellow of the Royal Society, Treasurer of the Linnean Society, and a most active member of the Pharmaceutical Society. He was an occasional contributor to these columns, and was the means of introducing several plants of great interest to our gardens.

THE SOUTHPORT WINTER GARDEN.

When, in 1805, Sir James Edward Smith, then simply M.D., wrote his notice of the evening Primrose, Œnothera biennis, for the original *English Botany*, he stated that his specimen of the plant (the same from which the drawing was prepared) had been gathered upon the "dreary sandbanks" on the coast of Lancashire, a few miles north of Liverpool. "Millions" of this plant, he goes on to say, had been noticed there by Dr. Bostock and Mr. John Shepherd, "perfectly wild," though possibly, he adds, the progenitors might have come "from the opposite shores of the Atlantic." This is now generally acknowledged to be the true history of the Œnothera, as regards its apparently wild existence in England. It is clearly one of the New World plants which, after crossing the water, at once took kindly to the soil of Europe. So completely indeed has it become established in our continent that it is included and figured not only in the *English Botany*, but in the *Flora Danica*. The seeds were first brought to England designedly in 1629, and there can be no doubt that at some very early period afterwards accident conveyed seeds ripened in England to these Lancashire sandhills, where, as in our gardens, if not subdued, the multiplication would be as rapid as that of fishes. Had it been possible for the seeds of the Oil Palm, Elaïs guineensis, to germinate as readily, the margin of Lancashire at this part might now have held a young forest of it, for a few years ago they were strewn upon the sands by thousands, the result of some shipwreck or other disaster to a vessel trading to the coast of Africa, and homeward bound to the Mersey. Very interesting is it to observe that the posterity of the old immigrants, the Œnotheras of a century and a-half ago, are still in many parts quite thick upon the ground. They occur at intervals all along the shore from Waterloo, just above Liverpool, nearly to the mouth of the Ribble, and now probably will never disappear. Many and very lovely are the *bonâ fide* Southport wild flowers. The Southport people, who are wild-flower-minded, have still nothing more worthy of attention than their naturalised evening Primrose. Various little particulars give it a rare and permanent charm. The flower-buds, for example, that open so curiously—not as others do, at the top, but from the bottom upwards, the petals creeping out through a gap in the side—the easy and *nonchalant* way in which they allow us to watch their expansion, if we will but wait a moment; the large and beautiful cruciform stigma, laced to the anthers by threads finer than gossamer, and beaded with pollen of the same clear yellow as the flower in general—with these, no one who loves the "little things of Nature" can fail to be pleased, to say nothing of the romantic hour when the performance commences, which is just about sunset in the calm warm evenings of mature summer, when the sweet lustre of the first planet is seen in the sky. In England we have only one or two really indigenous evening flowers. The prettiest and most abundant of them all, the milk-white evening Lychnis, is itself a Southport plant. That one of the first of their "American cousins" to arrive should have settled upon the sandhills of this now celebrated watering-place is really a sort of floral compliment to the neighbourhood, and one which should be fittingly acknowledged.

The sandbanks of the Southport of 1805 have long since ceased to be "dreary." Adjacent to them, occupying large areas of the ancient wilderness, there is now a town remarkable for its neatness, and with a history that is perfectly astonishing. When Dr. Smith received his Œnothera even the name had not been coined. At the beginning of the century what is now Southport was simply "The Hawes," a bathing-station in the parish of North Meols—"Meols" being of ancient Saxon extraction, and signifying "sand-hills"—while the people all dwelt at Churchtown. The first house of the present thousands was built only about 1792, and of course has long since disappeared, though the name of the old foundation is extant in that of "Duke Street." Two or three different railway lines now converge towards the station, rendering access from Liverpool, which is only 18 miles distant, and from Manchester, which is 32, a very easy matter. Seven or eight well proportioned spires imply as many places of worship. High-class hotels abound: there has recently been opened a very handsome new public hall; there is a promenade half a mile long along the shore; and there is a pier nearly a mile in length, the visitors travelling to and fro by steam-car. A long pier, it must be confessed, is indispensable, on account of the distance to which the sea retires over the level sands, which do but correspond, either as regards flatness or breadth, with the inland country for a distance of many miles. The extent of these sands, and the rapidity with which high water changes to low, recommended them some years ago as the practising ground of the now famous Whitworth artillery. They contribute in no slight measure to the salubrity which has won for Southport, with its special patrons, the title of the Montpellier of the north. Within the last fifty years changes almost incredible have been made. Lord Street, a mile in length, was laid out soon after 1825; the promenade was commenced about 1835, and the pier soon after 1860. Since then immense breadths of marshy ground, the home of the Buck-bean and the Mare's-tail, have been drained, the surface changing into elegant and substantial suburbs. Tasteful and well-appointed villas have risen by the hundred, especially at fair-complexioned Birkdale; and where only the other day there was nothing but shifting sand and the multitudinous and speary Mat-grass, Ammophila arenaria, the haunt of the green lizard, now there is the spacious and remarkably well-kept Hesketh Park. The schools at Southport and Birkdale have earned themselves a reputation that has travelled all over England; and now, though last by no means least, there has just been established an aquarium and winter garden, which will sustain the challenge of anything of the kind in England. This bit of local history, it is hoped, will not have been tiresome. Horticulture is itself so thoroughly a thing of progress—the *Gardeners' Chronicle* may so rightfully assume the same word for its enduring motto—that a record of progress of any description that is honourable must needs be congenial to its own spirit, especially when the record begins and ends with facts about flowers. Such is my apology for the guide-book details.

Of the aquarium, strictly so called, it is not our province here to speak. Let it suffice to say that in every particular, whether of extent, fittings, or contents, it appears to be everything an intelligent people can desire. The examples of Anthozoa, or "flower-animals," seemed to us, when we saw them, to be singularly beautiful, especially those delicately feathered ones which in tenderness surpass even the Sea Anemones and the Sea Marigolds. Neither is it our province here to speak of the arrangements in the splendid building, which includes the aquarium proper, for entertainments of a popular character, music in particular. That which the readers of the *Gardeners' Chronicle* are more nearly concerned with is the winter garden, a section of this great complex which is calculated at the first seeing to fill every one with astonishment. A notice recently appeared in the *Gardeners' Chronicle* of the great hall at the Pomona Gardens, Manchester, the scene of Mr. Reilly's flower and fruit show. In its way, the winter garden at Southport is quite as remarkable to all who enter it for the first time. It has the great merit also of improving upon acquaintance. Lancashire is evidently determined not to be left behind as regards the construction of splendid edifices. The county of the red Rose long since won for itself celebrity in regard to huge cotton-mills; now it is equally well to the front in buildings of every description that gratify Art. The total cost of this immense place has been not less than £100,000, and the winter garden may perhaps have consumed about a fifth of the money. Of course it is to be understood as a sort of immense cool greenhouse. The length is 180 feet; the width 80 feet; and along the centre, which is an exact miniature of the transept of the Crystal Palace at Sydenham, it is 80 feet high. The architects, Messrs. Maxwell & Tuke, of Bury, did very wisely in taking the latter for their model. It is warmed by means of Messenger's hot-water apparatus; the temperature maintained in winter being 50° by day, and 50° to 60° by night. Looking out upon the contiguous pleasure-grounds, and beyond these, upon the Irish Channel, the western extreme of the building bids fair to become a very seductive resort. Here, in addition to the plants and flowers, we have the aviary, and in the evening the full beauty of the western sky. At a very considerable height, and extending the whole length of the edifice, are two plant galleries, the lower one 5 feet wide, the upper one a yard. These are already furnished with pots holding Passion-flowers, Cobœa, Clematis, and various other plants of climbing and trailing habits, so that before long there will be a perfect veil of vegetation. In front, at suitable distances, there are hanging-baskets, while the floor is provided with beds and stages that are already well filled with specimens in good variety—Palms, Tree Ferns, and Conifers not omitted, and the aggregate amounting to 5000 or more. Many of the plants were procured from London and the Continent. Besides those in view, the curator has plenty more in preparation in the nursery-houses, and will doubtless keep up a nice succession of bulbous flowers, and of other attractive and popular sorts as the seasons come round.

Here, however, arises a very large and important consideration. With such a magnificent opportunity as the members of the executive have now provided themselves, it is to be hoped that designs and notions of mere prettiness of effect will be laid aside, and that in place of them there may be a determination to let the building become worthy of its contents, and, *pari passu*, to let the contents become worthy of the building. They are already very commendable, but as regards the merit of the species they are only the nucleus of what they ought to be, and easily may be. See, in the first place, what admirable spaciousness! It is often quite lamentable to see how plants of aspiring tendency, and of the most exquisite forms and outlines, are confined and imprisoned, to their serious injury, if not ruin, in places no doubt cheerful enough to the owner, but which, regarded horticulturally, are nothing more than glass boxes. To give such plants ample space to display their beauties we regard as only honest and fair. In many cases it would be a genuine charity, and though the Humane Society could scarcely bestow a medal for it, the deserving would be none the less. What a grand potentiality for good lies accordingly in this Southport winter garden, in regard to the innumerable splendid plants which may be introduced into it, or those which require only a medium temperature. There will be no let or hindrance to their acquiring and retaining the graceful figures natural to them. Any quantity of such plants may be got together, and at a cost that never need be an impediment. Out-of-doors, in the floral "tattooing" of the garden, which Mr. Baines so happily terms the current or "bedding-out" system of floriculture, we have quite enough of the tinsel demanded by colour-worship—the great affliction of the age. Those whose place it may be to dictate to the curator what shall be done in his winter garden, with its many facilities, will not desire, it is to be hoped, that their hall shall be simply "pretty." They have a splendid opportunity for showing themselves superior to childish preferences for mere finery, like a little girl's for a doll decked with ribbons and beads. Let them by all means have bright and fragrant flowers in constant plenty, but let them remember at the same time that the true interests of the place demand for it a scientific and æsthetic character. This is never incompatible with "prettiness," and, on the other hand, there is no need for it to be made only a shelter for evergreens, though a simple fernery well-contrived is undoubtedly "a joy for ever." We desire only to see that the present first-rate chance shall not be ignored; and that botany, as a noble science, shall be accredited to the utmost possible extent. To descend to mere colours, for the sake of the incurious and the feeble, may be very good-natured; but Southport is a rapidly-rising place, and the executive of the aquarium will unquestionably promote their best interests by rendering their winter garden a spot that science as well as excursionists shall delight to visit. There is money enough to procure all that ought to be there; and it will scarcely be a credit to the town if with such a promise as this

building implies, the performance should lag behind. A very good beginning has been made. Note, for example, that handsome specimen of the Bidwill Araucaria, the famous Bunya-Bunya tree, from the banks of the Brisbane River. Is it nothing to have daily access to a tree like this? In its native country the Bunya-Bunya rises to the height of 100 feet, the cones—one of which was figured in these columns in 1873, p. 361—which stand erect on the loftiest branches, are nearly a foot in length, and contain seeds which, when roasted, resemble Chestnuts, and constitute the harvest of the aborigines. The different tribes of the latter possess each their own grove of trees; they pass, like estates, from generation to generation, and are the only kind of hereditary property they comprehend. We take it, moreover, that the getting together a collection of plants of this quality, especially economic ones, would render the Southport winter garden a first-rate place for practical botany lessons. Ready at all seasons, and in all weathers, how delightful would it be for the hundreds of young people in the schools to come hither, instead of cramming hard words from books, and receive from some competent teacher the lessons that in the presence of life become so charming. We beg leave to commend this idea to the directors. It is for them to choose whether they will do their best to enrich and elevate, or rest satisfied with providing a lounge for idlers.

One word more. Once quite renowned for their indigenous flora, the sandhills to the south of the town are still the abode of countless numbers of that lovely flower, the Pyrola, the Lily of the Valley of their quiet little plateau. Blending with it are myriads of the snowy Parnassia, Orchids in three or four kinds, the purple Gentian, the seaside Spurges, Euphorbia Paralias and E. portlandica; the Chlora, the Erythræa, the blue Eryngo, many rare mosses, and fifty more of Nature's *bijouterie*. No more, therefore, than in kindly keeping with the gifts of wild Nature would be a winter garden well stored with choice exotics. These wild and wayward sandhills, so rich in indigenous botany, possess at the same Our English seedlings are few, but excellent in their moment all the features of the genuine picturesque. A sort of Andes in miniature, at every turn there is something new, and ordinarily they are tranquillity itself.

It is but right to add that the curator, trusting in "a good time coming," has already secured some nice plants of Phœnix, Rhopala, Chamærops, and the like; but, looking to the capabilities of the winter garden, to rest in these, and for the future to think only of show and colours, would be most tasteless. *G.*

NEW AND LITTLE KNOWN PEARS.

If we are to judge from the remarks made in horticultural journals, and the lists authoritatively (more or less so, at least) given to inquirers after the "best dozen" of Pears to plant, we should conclude that the English mind had succumbed under the number of new introductions, and had fallen back in despair on old favourites, or that the novelties themselves were really of no value.

It would be a curious question, but one which it is fair to ask, where and how these arbiters of our future Pear culture have obtained their knowledge of the new varieties? Not at nurseries, for that is hardly fair to expect. Not in their own gardens, for their employers would scarcely enjoy the trial. Not in our public gardens, for these do not devote space for such things. Where, then, shall we go? We must even travel as far as the countries whence they come as seedlings, and then afterwards learn of those who devote their time especially to test which novelty is really adapted to our climate. Foreigners are very well aware of our weak points, and one of these is Pear culture, and another, knowledge of sorts.

As long, too, as a trial is confined to the training of trees on walls in largely developed forms it is impossible to spare sufficient space to grow varieties side by side, in exactly similar conditions, which is the only fair test.

The cordon system, originating abroad, has considerably contributed towards a speedier and more accurate determination of sorts, while the splendid climate of mid-France and the summers of Belgium have enabled observers to try how these answer as standards. America has also sent us valuable fruits. kind.

Not to dwell on these matters, however interesting, I shall endeavour to indicate a way by which English amateurs can, without much real trouble, ascertain for themselves exactly what Pears, new and old, will suit their local climate and soils. The difference these cause in Pear culture is immense. If in such cases there be added a few scientific protections in the spring, a little more knowledge of pruning, no encroaching on the Pear borders, and general constant attention, in a few seasons our progress would surpass all others.

The best, indeed the only, way to test Pears is to use the diagonal cordon. Vertical cordons require too lofty walls; horizontal cordons give results which neither indicate what is right in wall culture nor in open borders. Fan-trained trees take too much room, and do not bear so quickly.

Let then the amateur take, if his space allow—and it will, in many cases—say 100 varieties, singly, or in pairs (which is far better), and plant these at 18-inch intervals, against a good wall, in a well cared for border. If possible, these same varieties should also be planted as standards close by.

In two seasons he will see a little fruit; by waiting three he will see abundance of the finest quality. Let the fruit on these 100 sorts be thinned out very freely and equally, and where can a better test be found, or a fairer comparison be made? As soon as the merits of any sort are considered as well-established, let the tree be removed, either for a standard or for another exposition, or, say, for some distant locality. Destroy any trees which are found unprofitable; the expense is trifling, the time employed not much; and its place can be at once filled in by any novelty. I do not despair of seeing public gardens attached to horticultural societies for these purposes, and one grand national central garden devoted to some similar use, for Pear culture is of great importance.

Diagonal cordons I have found, after many seasons of experience, to be most suitable for Pears. Apples, except rare and tender American sorts, hardly need it, while Plums and Cherries grow too strongly for such small development, unless grafted accordingly; and there might be many interesting experiments made with new sorts in this way also. In short, it is marvellous to me that this system of training, now a quarter of a century established, and perhaps double as old, is so little known.

I also speak from experience, having for a long time tried nearly every new Pear of any repute, and condemned numbers. Many friends, seeing the good results, have also adopted the cordons, and some amateurs think nothing of training and pruning their thousands of trees, entirely by themselves. Can any one teach these which sort is the best? When they read the lists so often given of the "best trees to plant," they must smile at the retrograde and stunted ideas which prevail.

Such persons would exclude Souvenir du Congrès and Beurré de l'Assomption, and adhere to time-honoured Bon Chrétien and Louise Bonne. But are not these two last inferior to Beurré Superfin? And yet we see it excluded in the "orthodox half dozen" far too frequently. The other day I read the name of Beurré Capiaumont among a list of six; let us hope M. Baltet will not hear of it.

A capital Pear, which is new to most people, but, thanks to cordons, several years well fruited here, is Olivier de Serres—moderate size, round shaped, melting, may keep well to March. Marie Guise is a new March Pear also; large, firm flesh, good aroma, requires high cultivation. Beurré d'Esperen is not very new, but deserves notice; early in December, pyriform, russetty, melting. Emile d'Heyst is excellent here, considered first-rate abroad; rich and juicy, in season in November. Nouvelle Fulvie, like Passe Colmar, but not so cloying in flavour, and larger; ripe here at Christmas. Prince Napoleon is another new Pear of good augury. It is a very model cordon, of just the right quality; a seedling from Passe Crassane, having the fine flavour of this old Pear, and ripe in March. Marie Benoit is new, large and good, so is the Brockworth Pear. These I do not know so much of yet. Grégoire Bourdillon would also have many rivals in September. Anna Nelis, a very late Pear, has not fruited these two years. Duchesse de Mouchy, also immensely late, I cannot speak of yet. President Debouttelville, new also—doubtful here. Professor Barral, more than equivocal. La Quintinie is a failure completely, though yet on the best French lists. President Mas, a fair Pear only, but Beurré Bachelier is too like it. Marshal Vaillant varies much; some years it is a grand Pear, and a late one too. Jacques Molet, large, melting; very hopeful, and has the merit of keeping from November to March. Among others, Pitmaston Duchess is a showy and very promising Pear, late in November. Beurré d'Amanlis (striped) is also a fine-looking fruit. Summer Beurré d'Aremberg is a great acquisition; fruited here for years. Calebasse (Boisbunel), new and extraordinary, but not to be trusted.

Many more names could be given, but, although possessors of small gardens would probably not require one of the above—not even Souvenir du Congrès—still, we need not quite exclude—and there are also numerous large gardens—any variety simply because it is new. Some will ultimately hold their ground; our best old sorts were once novelties also. The thing to be ascertained is the relative merit of recent introductions, and not to wait till we have forgotten their names, when, very likely, they will be re-introduced under another designation. Another matter deserving of consideration among gardeners is a trial of many sorts double worked *versus* single worked on the Quince. How can we expect to do this except by means of diagonal cordons? It is now certain that what succeeds on them will also do so in larger forms. Wall cordons give results for walls; espalier cordons show what is fit for the borders. I am not so much an admirer of these espalier cordons as some of my friends are, for they need protection by mats, &c., in the blossoming season. However they, too, have their use. As was said already, the horizontal cordon gives results appropriate to itself only, being neither wall nor border. With a fair wall, nothing equals the diagonal cordon for trial purposes; and, as to quality, I think it has been shown before this. *Thomas C. Brehaut, Guernsey.*

ELEMENTARY LESSONS IN BOTANICAL GEOGRAPHY.

On the Botanical Characteristics of the Zones of Heat.

(*Continued from p. 367.*)

The gradual lessening of the average number of plants in a given area which begins as soon as this zone is entered on its equatorial side, and goes on in proportion to the decrease in the time of vegetation, is one of its most important and noteworthy characteristics. France, including Corsica, is about the same size as Sweden, and the former yields 3600 and the latter 1160 flowering plants; Naples, with 3130 species, is about the same same size as Iceland, with 400; Germany, as limited in Koch's *Synopsis*, with 3368 plants, is about the same size as the whole of Scandinavia, including Denmark, with 1677; Tuscany, with 2366 species, is about the same size as Yorkshire, Northumberland, and Durham taken together, with 1000; Silesia, with 1288 plants, is about the same size as Spitzbergen, with 107. Except in the heart of Asia the botany of this zone has been explored very thoroughly, and although it includes a third of the earth's surface we cannot estimate its total flora at sea-level at more than 15,000 species, to which, however, a large addition must be made for the plants that ascend into it on the mountains that rise from the countries of the two warmer zones.

The principal marks which give the general tone to the physiognomy of its vegetation are—1. The concomitants in plant-form of a real winter, a great proportion of the trees with deciduous leaves, standing bare and leafless for half the year or more, according to latitude; and the few evergreens organised so as to resist severe cold, principally Pines with long needle-like leaves, in which the evaporating surface is reduced to a minimum; and plenty of herbaceous perennials that die down in winter to an underground root-stock. 2. Fewness of shrubby climbers, and total absence of the tropical types of form, such as Palms, Figs, Peppers, Tree Ferns, Gingers, Bauhinias. 3. The small number of trees and shrubs in proportion to the total number of plants, and the way in which single kinds (*e.g.*, Pinus, Fagus, Betula, Quercus, Calluna, Ulex) often grow together in vast quantity. 4. The low floral type of the trees, which are usually achlamydeous or monochlamydeous, and incomplete sexually, with small obscure flowers in dense clusters, which appear in spring before the leaves are fully formed, thus offering a great contrast to the trees of equatorial regions. 5. The abundance and persistence of the greensward-producing grasses, and presence of a constant general covering of grassy verdure. 6. Ferns in the insular climates in the same way as the trees and shrubs, a small number of kinds growing in great quantity. 7. Relative preponderance as compared with the two former zones of terrestrial mosses, and large foliaceous and fruticulose lichens, such as Cladonia, Peltigera, Parmelia, and Collema.

The orders or sub-orders, which have a decided maximum in the cool-temperate zone, are very few. The principal are Alsineæ, Amentaceæ, Saxifrageæ, Grossularieæ, Primulaceæ, Polemoniaceæ, Hydrophyllaceæ, and Sarraceniaceæ—the three last mainly or entirely American. Amongst orders and sub-orders that may be considered as characteristic of this and the warm-temperate zone taken together, are Ranunculaceæ, Fumariaceæ, Cruciferæ, Silenеæ, Trifolieæ, Loteæ, Umbelliferæ, Stellatæ, Cichoraceæ, Campanulaceæ, Valerianaceæ, Gentianaceæ, Labiatæ, Boraginaceæ, Coniferæ, Chenopodiaceæ, Cupuliferæ, Juncaceæ, Phalarideæ, and Festuceæ.

Amongst striking generic types that have their head-quarters here are Anemone, Ranunculus, Aqui-

legia, Corydalis, Cardamine, Arabis, Draba, Erysimum, Viola, Acer, Geranium, Astragalus, Vicia, Lathyrus, Stellaria, Arenaria, Lupinus, Prunus, Spiræa, Rosa, Pyrus, Cratægus, Cotoneaster, Potentilla, Fragaria, Ribes, Saxifraga, Chrysosplenium, Parnassia, Heuchera, Sedum, herbaceous Sempervivums, Philadelphus, Deutzia, Heracleum, Angelica, Cornus, Lonicera, Sambucus, Viburnum, Epilobium, Valeriana, Aster, Solidago, Chrysanthemum, Helianthus, Hieracium, Lactuca, Crepis, Leontodon, Vaccinium, Rhododendron, Kalmia, Azalea, Pyrola, Primula, Lysimachia, Pedicularis, Pentstemon, Mentha, Phlox, Gentiana, Asclepias, Fraxinus, Rumex, Rheum, Chenopodium, Atriplex, Ulmus, Fagus, Corylus, Carpinus, Betula, Salix, Populus, Pinus, Juncus, Luzula, Gagea, Lilium, Allium, Scirpus, Carex, Eriophorum, Alopecurus, Phleum, Anthoxanthum, Agrostis, Calamagrostis, Glyceria, Poa, Festuca, Bromus, Triticum, Elymus, Avena, and Hordeum.

The principal plants grown in this zone on a grand scale for the use of man are the common cereal grasses, Wheat, Oats, Barley, and Rye; of fruits, the Plum, Apple, Pear, Peach, Apricot, Cherry, Strawberry, Gooseberry, Red Currant, Black Currant, Quince, Medlar, and Loquat; of garden esculents, the Potato, Cabbage, Turnip, Beet, Bean, Kidney Bean (Phaseolus vulgaris and coccineus), Onion, Leek, Chives, Mustard, Cress; of fibre-yielding plants, Hemp and Linseed; and of forage plants, Vicia sativa, Lolium italicum, Clover (Trifolium pratense, repens, hybridum, and incarnatum), Lucerne and Sainfoin.

One of the most remarkable points about the zone is the wide and dissevered dispersion of many of its characteristic species. Of the 2100 flowering plants of the Northern United States 320 are European; and out of 577 Ferns, Mosses, and Hepaticæ, 355 are European; and out of the plants of this zone that reach within the arctic circle about 100 species also inhabit cool-temperate areas in the southern hemisphere.

4. *The Arctic-Alpine Zone* includes at sea level all the country from the arctic circle northward to the perpetual snow-line, and upon the mountains of the warmer zones the belt between the upper limit of practicable cultivation and the perpetual snow.

The number of flowering plants and Ferns that grow within the arctic circle does not exceed 800 species, of which not more than 25 per cent. can be regarded as at all characteristic of this particular climate, the other 75 per cent. being plants of the cool-temperate zone, which are flexible enough in constitution to grow here also. The number of plants which inhabit the zone where it occurs as a belt upon the mountains is far greater. We cannot count the characteristic "alpines" of the Alps, Pyrenees, Apennines, Sierra Nevada, and other European ranges at less than 1000 species, and there must be three or four times as many that ascend into the zone from below, and the characteristic plants of this zone within the tropics and in the southern hemisphere are very rarely the same species as the arctic-alpines of the north.

There is, in fact, a wide difference in the period of vegetation of the plants of this zone near the poles and upon an equatorial hill, and similarly in the place of the line of perpetual snow, which is fixed, not by the average temperature of the year, but by the heat of the summer months. In high latitudes there is a great elevation of the temperature of the summer above that of the winter, with a proportionately higher snow-line as its result, and there is a very short period of vegetation. In Spitzbergen the plants to live need to flower and perfect their seed within six weeks or a couple of months, and the whole island does not yield much over 100 plants of the higher orders. On the equatorial mountains, on the contrary, there is very little difference between the temperature of the different seasons, and consequently no additional heat in summer to melt the snow above where the average annual temperature is at freezing-point. The snow-line is therefore here proportionately lower, and there is a much longer period of vegetation for the plants of this zone, and a much richer alpine flora. The plants known in this zone upon the Andes cannot be fewer than 2000 or 3000 species. There is quite as much difference between the climates to which the different parts of this zone are exposed, as between the different climates, insular and continental, more polar and more equatorial, of the cool-temperate zone.

The general *facies* of the vegetation of this zone is not dissimilar from that of the cool-temperate. It is a flora of low herbaceous perennials, with a considerable scattering in its lower levels of trees and bushes, but the former fast disappearing after its lower bounds are passed, and all the few really characteristic shrubs dwarf and low-growing. The two negative general characters that stamp it most forcibly as compared with the cool-temperate zone are the absence of the plants cultivated on a grand scale for the use of man, and the almost entire absence of annuals.

Within the arctic circle, out of its 800 plants there are nearly one hundred that are trees and shrubs. Of these about one-fourth are really characteristic, the other three-fourths being species that ascend here from further south. The following are those that may be considered as characteristic of the zone, viz.:—Rubus arcticus, R. Chamæmorus, Vaccinium uliginosum, Andromeda hypnoides, A. tetragona, A. calyculata, Arctostaphylos alpina, Diapensia lapponica, Azalea procumbens, Rhododendron lapponicum, Osmothamnus fragrans, Phyllodoce taxifolia, Betula nana, Salix lanata, S. lapponicum, S. arbuscula, S. glauca, S. arctica, S. myrsinites, S. reticulata, S. herbacea, and S. polaris.

There are not any orders characteristic of the arctic-alpine zone in the northern hemisphere, unless we count as such Diapensiaceæ. The characteristic genera are all either monotypic or very small, such as Braya, Eutrema, Kernera, Sibbaldia, Dryas, Homogyne, Adenostylis, Sieversia, Wulfenia, Tozzia, Soldanella, Kœnigia, Oxyria, Chamæorchis, Kobresia, Vahlodea, Phippsia, Lloydia, Pleuropogon, and Woodsia.

Out of the 800 arctic plants only eight are absolutely restricted to the arctic regions; the other species occurring, which are characteristic of the zone—about 200 in number, are many of them spread widely upon the mountain summits of the northern hemisphere. A very large proportion of the thousand characteristic alpines of the northern hemisphere are high-climbing species of the large characteristically cool-temperate genera. Of the genera, which include several characteristically alpine species, the following are the principal, viz.:—Ranunculus, Arabis, Draba, Thlaspi, Silene, Alsine, Dianthus, Potentilla, Saxifraga, Senecio, Achillea, Erigeron, Hieracium, Crepis, Campanula, Phyteuma, Gentiana, Veronica, Pedicularis, Primula, Androsace, Salix, Juncus, Luzula, Carex, and Poa.

Under the tropics, as already stated, hardly any of the characteristic arctic-alpines are the same species as those of the northern hemisphere. Many of them belong to characteristically cool-temperate genera, and others are high-climbing species of the genera that belong specially to the countries round the base of the mountains. We find, for instance, that in the Andes of South America there are 473 species of Compositæ known in the alpine region, which belong to sixty-one genera. Not one of these species is known in the northern hemisphere; 182 species belong to eight genera, which in the northern hemisphere have other species which are characteristic of the arctic-alpine zone. Fifty-four species belong to seven genera, which ascend into the cool-temperate zone of the northern hemisphere, but do not climb its mountains, and 237 species belong to forty-nine genera which are not north-temperate at all, but specially South American. Of arctic-alpines of the northern hemisphere which pass down the Andes into the southern hemisphere, we have examples in Draba incana, Lychnis apetala, and Phleum alpinum.

It is scarcely needful to point out that these four zones of heat correspond to our four plans of garden treatment. We provide, for instance, at Kew, for the plants of the intertropical zone in the Palm-house, the large Fern-house, and the central compartments of the new range, but our imitation of a tropical climate must be, of necessity, a very imperfect and clumsy one. We cannot transfer to England the regular rainy and dry seasons, the equal day and night, the trade winds, and, above all, the clear cloudless skies and bright light and burning sunbeams of the equatorial zone. We provide for the plants of the subtropical or warm-temperate zone in the new temperate house, the Cactus-house, the lesser Fern-house, and the ends of the new range, and it is a valuable elementary fact for a young gardener to store up in his memory that a large proportion of the 40,000 plants of this zone are in danger of being killed if frost gets fairly at them. Our principal difficulty with the plants of this zone is with those from the southern hemisphere. These have been accustomed as a rule to bloom in their summer, which is our winter, and refuse when brought here to change their habits. The 20,000 plants of the cool-temperate zone we can accommodate without difficulty in the open air in our herbaceous ground and shrubberies, and arboretum. For the characteristic plants of the arctic-alpine zone we build rockeries and shelter them from the sun, but our long warm summers and dry sandy soil try their constitution severely, so that they need careful watching over and watering, and require that great pains should be taken to imitate their natural stations as closely as possible.

M. Alphonse De Candolle has given names to plants of the different degrees of heat-constitution, which it is sometimes convenient to use, and which, with a modification which I venture to make, by using four stages instead of three, are as follows:—

1. Macrotherm, characteristic of the intertropical zone, and requiring stove-heat with us for its cultivation.

2. Mesotherm, characteristic of the sub-tropical or warm-temperate zone, and therefore needing to be entirely protected from frost.

3. Meiotherm, characteristic of the cool-temperate zone, and therefore quite hardy in the open air in England.

4. Microtherm, characteristic of the arctic-alpine zone, and therefore needing protection from drought and full sunlight at sea-level in England. *J. G. B.*

THE POUCE MOUNTAIN, MAURITIUS.

The Pouce is a lofty mountain with a sort of thumb-shaped summit (hence its name), which rises immediately behind Port Louis; and the two illustrations (figs. 87, 89) accurately represent its appearance from front and rear. The ascent of this mountain from the Port Louis side is a favourite excursion, and the varied flora of the whole mountain range affords ample field for the botanist. The base is wooded, and the well-beaten path steep, but not difficult, affording good halting places, with openings in the trees, through which are obtained most charming views of the rich valley, with its villas, cottages, and gardens; the citadel, town, and port, with the forts William and St. George, which guard its entrance; the lines of shipping, and the wide blue ocean beyond. On the other side of the path is the bold steep pile of dark ferruginous volcanic rock, diversified along its different strata by tufts of grass and stunted shrubs rises, perpendicularly. Amongst these rocks the monkey can occasionally be seen springing from branch to branch, whilst overhead the Tropic-bird, or *paille-en-queue*, sails along in the clear and cloudless sky. Along this route are constantly to be met small parties of creoles from the Moka district, carrying on their heads vegetable produce for the Port Louis market. The path crosses the mountain at what is called the shoulder, and passes to the cultivated plains on the further side. From hence the way to the summit lies through a thickly-wooded region, and innumerable plants greet the eyes of the enthusiastic collector, and claim examination and comparison. The collecting case is soon full to overflowing.

Orchids generally form the chief object of the collector's search, but so many new and beautiful plants of other species present themselves, that one hardly knows which way to turn, bewildered with botanical enjoyment. Attention is speedily attracted to two kinds of Dracænas—D. mauritiana and tessellata—besides, various elegant Ferns. Here grows that curious plant so like an Anæctochilus, viz., the Monkey-apple, Mithridatea Tamburissa. Leaving the wooded cover, the track now emerges upon the bare steep side of the thumb or summit; when this is gained, a flattish space is attained 2847 feet above the sea, from which the whole island appears spread out like a map beneath the spectator. A grand panorama is here exhibited. By the time one has descended, the coolies are overloaded with specimens. Among the Ferns are to be found lovely specimens of Asplenium macrophyllum and Adiantum palleus. At the base of the mountain is the Aogræcum elatum, whilst the ravine is filled with masses of rock covered with trees, and overgrown with creepers and Ferns. Some of the fronds of Asplenium Nidus are at least 6 feet long and 8 inches across, covered with lovely fructification. Here also is the lovely Lomaria circinata. The fragrant Erythrospermum and the Amaranthus-like Gnaphalium multicaule, and others, abound in the higher parts of the mountain. The Orchids are simply innumerable. The accompanying sketches were made on the spot—one from a sugar estate in the Moka district, and the other from an avenue of Casuarina filao, leading to the old cemetery of Port Louis. *S. P. Oliver, Captain 22d Brigade Royal Artillery.*

THE TEA PRODUCE OF CHINA.

The Adulteration Act, which has in many cases weighed so heavily on innocent dealers in this country, is beginning to make itself felt in countries far beyond the limits of its actual operation. The inferior quality and the adulteration of tea has within the last few years become so notorious, that we are glad to learn from the official reports of our Consuls in China that the matter is causing a stir among the tea producers, who find that the demand is falling off; therefore, as their interest is affected, it becomes a question whether it would not be a better policy to produce a purer article, and not to be supplanted in this most important traffic by the Indian produce. The principal cause of the adulteration is, of course, the competition in prices:—

"Teas," we are told by the Consul at Canton, "are hastily and imperfectly prepared to meet the demands of the market; they are loaded with iron filings and refuse matter to give them weight, and mixed with Cactus or

other leaves; and in some, well known to the trade, there is scarcely a tea leaf in the whole composition."

So far as the leaves of the Cactus are concerned, it is the first time we ever heard of their application for such a purpose, and we do not certainly understand how such a succulent leaf or, as we suppose, joints of the stem, could be incorporated with true tea. The writer of the above sentence, however, speaks the truth when he says:—

"It is hopeless to expect a remedy for the evil will be found in China, and to lay the blame upon the Chinese producers and teamen, the fact being that the Chinese producers and teamen care no more for the genuine quality of their goods, so that they can sell them, than the English merchant does at home, and the blame, if any, attaches to each side pretty equally; but perhaps the reasonable view to take of the deterioration is, that it is a fault of system rather than individuals, and the correction must be found in the first instance at home. Questions of this kind are open to arguments of a very wide range, and must be so in all cases where people lay the blame on each other; but there is one which admits of no doubt of fact, and that is, conviction by a magistrate, the effect of which has already made itself apparent in the Chinese market, and would, if frequently repeated, seriously damage the interests of spurious tea, and give the home consumer something like a pure article for his money."

The depression of the market at Canton in consequence of these proceedings at home has caused a circular to be issued by the teamen to the producers, notifying that they will not purchase spurious teas in future. The yield of tea in Foo-chow-foo during the season of 1873 was quite satisfactory, its reception, however, in London was from the first discouraging, owing to a large admixture of dust, which is a prominent feature of the Foo-chow teas, though nothing in the form of adulteration is attributed to them. The crops of 1873 were better made, cleaner and more free from dust than usual, and it is hoped that the manufacturers will maintain the high reputation of these teas by using their best endeavours to prepare them as cleanly as possible. "On the side of the native dealers it is contended, however, that no outside dust is mixed with the tea, and that no tea can be free altogether from dust, and while it is the dust of the tea itself, and not of another quality, it helps to preserve the flavour of the tea in its voyage across the sea. If the tea were sifted, and all the dust extracted—which, however, is never done—the price would be considerably higher, and the dust would have to be sold by itself." The inland duty on the dust amounts to the same as that on whole tea, therefore no inducement is held out to separate the dust carefully from the tea: were the duty lowered the Russian firms in China engaged in making brick tea for exportation would consume a much larger quantity; as it is, not only the dust of the tea itself, but other refuse of the factories, such as the sweepings, &c., are made into a consolidated form.

A great deal of anxiety always exists in getting off as quickly as possible a few cargos of the new seasons' teas to England, latterly a similar interest has sprung up in dispatching new teas to Australia. Writing on this subject the British Consul at Foo-chow-foo says:—

"It is conjectured that in future steamers of a large class will be put on to carry the teas which the colonies require, and that this change will supersede the small sailing vessels, or the most part under the German and Danish flags, which now almost monopolise the carrying trade. The tea will be less exposed to damage by sea-water in large steamers than is at present the case in sailing vessels of 260 and 300 tons in the heavy China seas.

"Tea for the Australian market has to be repacked into packages or small chests of uniform weight, say in packages of 80 lb. nett (38 to 40 lb., with boxes), which process necessitates additional expense through the cutting down of the tea-chests from the country into packages of the desired size, no matter the quality of the tea. It results from this, that on the whole the tea costs the consumer in Australia from 1*d.* to 2*d.* per pound more than the consumer in England. The Australian consumer is beginning to appreciate a better class of tea, and doubtless soon a demand will arise for first-class Congous. Up to the present time it has been supposed that the knowledge of tea in Australia was in a limited degree, and that purchasers for the interior stations in the colony were in the habit of choosing their supplies by appearance only, without regard to flavour, but a gradual change is taking place, and very shortly the fine teas of Foo-chow are likely to find a profitable market in the great markets of the colonies."

In Ningpo the staple trade is in green tea, the demand for which during the year showed a considerable falling off, which was attributed to the unfavourable light in which green teas have been held in England of late. The artificial colouring of teas is stated to be carried on only in obedience to the European demand, the uncoloured leaf being absolutely unsaleable; the quality of the tea so coloured is exactly the same, but the appearance in its natural state does not please the merchant's eye. Should a demand for these artificially coloured teas die out, and the natural teas become more in favour, some good will have been done by the Adulteration Act both to the consumer and to the manufacturer. The colours mostly employed for artificial green teas are cobalt or indigo, according to the shade required. The soapstone or China clay which has been detected by analysts is used for giving a gloss or finish to the rolled leaf, while the iron which has been characterised as "iron filings" is said to be derived from the pans in which tea is fried or roasted. These pans are usually made of soft, rough iron, which by the continual trituration of the tea wear smooth.

From Tamsay and Kelung we learn also that the export of tea during the past season had considerably decreased, nevertheless the tea shrub is being planted in larger numbers every year; almost everywhere the Chinese are uprooting their other crops, such as sweet Potatos, and in some places even the indigo plant, to make room for more tea plantations.

From the foregoing notes, which are the condensed opinions of those best able to speak on the subject, namely, the British Consuls at the various Chinese ports, it would seem that opinions are somewhat divided as to the wilful and systematic adulteration of tea, or that such a practice prevails in some districts, and not at all in others. On the other hand, it would seem that a general depression in the tea trade existed during the season of 1873; but that it is thought that the ultimate effect of our legislation would be to produce a more carefully prepared article, so that the general purity of Chinese teas would ultimately be much enhanced. From several of the consular districts good crops were anticipated during the season just closed. *John R. Jackson, Kew.*

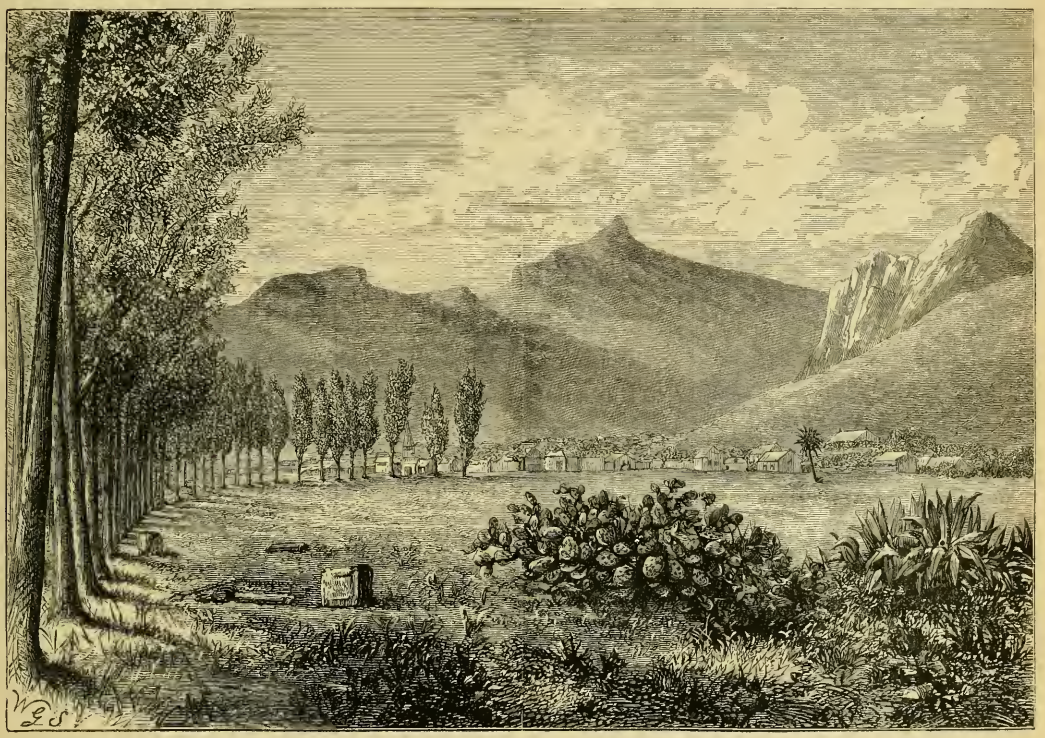


Fig. 87.—The Pouce Mountain, Mauritius, from near the old cemetery, Port Louis.

THE GARSTON VINEYARD.

We learn from the *Liverpool Daily Courier* that the sale of Mr. Meredith's vineyards at Garston took place by the instructions of the mortgagees, the trustees under Mrs. Meredith's marriage settlement, and the trustee in liquidation, Mr. Bolland. The auctioneer was Mr. Morris, of the firm of Protheroe & Morris, 98, Gracechurch Street, London. A large company assembled to witness the sale, but the number of intending purchasers of such a concern was necessarily limited :—

"In commenting upon the property, Mr. Morris said he estimated it as worth £21,000 for a going concern, but taking the land for breaking up for building purposes, he reckoned the freehold worth £6500. Then there was 50,000 feet of glass, which he estimated to be worth £3125. The dwelling-house was worth £1400, the piping £792, and boilers, bricks, and sundry other items £250, making a total of about £12,050. The plants loose and in pots, he said, were not included in this, and these would either be sold separately or could be taken at a valuation by the purchaser of the concern. The biddings commenced at £7500 by Mr. Inglefield on behalf of a client, and the competition lay mainly between him and the gentleman who eventually became the purchaser, although a third competitor, whose name did not transpire, made a few bids. The biddings proceeded by £50 a time till £8150 was reached, when £100 was added, and then £50 was the pace till £8650, when Mr. Inglefield's opponent offered £9000; then £50 again became the rule till £9300, when a jump of £200 was made, and thereafter the biddings relapsed into fifties, until, after much patient and persuasive eloquence, the auctioneer's hammer fell at £10,000 (this being the reserve). The purchaser was Mr. John Cowan, of the Cowan Patents Company (Limited), London. The price realised is for the concern as it stands, and does not include goodwill; and the figure, though inadequately representing the skill and labour and money expended on the business, is considered a fair value for an establishment so peculiarly situated. Much sympathy is felt for Mr. Meredith in the circumstances that have led to a change of proprietary, and it is hoped that the new owners will continue the vineyards in their present flourishing state, and maintain in its integrity an establishment that has brought so much repute to Liverpool and to English Grape growers."

Foreign Correspondence.

Collioure, Pyrenees Orientales.—I should like to bring under the notice of your readers the splendid varieties of Canna raised by MM. Huber & Co., of Hyères. Nowhere in Europe is there so rich and varied a collection, a circumstance easily accounted for by the climate, and by the skilful culture bestowed on the plants. Your correspondent, Dr. Henry Bennet, who has so well described for us the Mediterranean gardens, seems to have overlooked the little town of Hyères, which, nevertheless, enjoys an old-established horticultural reputation.

Adorned with numerous Palm trees, Hyères resembles an Algerian oasis, with this difference—that instead of being surrounded by the deserts and wastes of the Sahara, its surface and the neighbouring hills are clothed with an ever-green mantle of Cistus, Kermes Oaks (Quercus coccifera), Arbutus, Lentiscs, Myrtles, Alaternus; in fact, with all the shrubby vegetation of the South. On account of the clearness of the atmosphere and the mildness of the climate, Hyères is certainly the rival of Nice, with more verdure in summer, and greater quiet at all times.

I have known Hyères for many years, and revisited it in 1874, when I found it adorned with many handsome villas, new gardens and plantations, among which the Eucalypti made themselves remarkable for their rapid growth. Some trees, not more than fifteen to twenty years old, are already of enormous size.

The stranger arriving at Hyères, even if he knows a little botany, is surprised at the multitude of Cactuses of every size and shape, which grow there as freely as in their native clime; and at the gigantic Agave Salmiana, by the side of which even A. americana is dwarfed. He will be, moreover, specially surprised to see in 43° N. lat. the Bambusa Thouarsii, a rival of B. arundinacea, and more handsome. Livistona sinensis flowers and fruits, but does not ripen its seed. Here, too, may be seen L. australis, Sabal umbraculifera (Hort., Huber), Diplothemium campestre, and many other Palms of recent introduction. Yucca filifera attains a height of nearly 12 feet, with a conical trunk nearly as thick as a man's body. Some years ago I saw in the garden of MM. Huber a magnificent specimen of Jacaranda mimosæfolia, covered with flowers, but which was unfortunately killed by the severe winter of 1870-71.

Either by local causes or by artificial fertilisation, the Cannas of Messrs. Huber & Co. have been wonderfully multiplied, so that the collection consists of many hundreds of varieties, of which I shall content myself with enumerating some of the best and most novel.

Ernest Benary.—A superb plant, 6 to 7 feet high, with broad erect leaves, of a deep green colour: flowers compact, red bordered with carmine.

Henry Vilmorin.—Large tufts, 4 to 5 feet high, leaves large and stiff, of a deep green, erect: flowers large, of a bright red.

Jean Sisley.—A majestic plant, of 8 to 9 feet high, resembling in its habit and the size of its bright green leaves the beautiful varieties named Imperator and gigantenm: a shy bloomer, but the flowers are large and of a deep red.

Crozy.—Stems numerous and in a large tuft, 6 feet, leaves of moderate size, lanceolate, bright green: flowers straw-coloured, spotted with carmine.

Chrétien.—Height 4 to 5 feet, leaves lanceolate, bright green, free flowerer: flowers large, and of a fine orange-purple.

Nardy.—Seedling from C. Bihorelii, stems numerous, in vigorous tufts, 3 to 4 feet: leaves large, deep green, veined with purple: flowers compact, of a bright red.

Souvenir d'Hyères.—Stems tufted, from 3 to 4 feet, leaves lanceolate, erect, clear green: flowers orange-red, bordered with yellow.

Dr. Livingstone.—In 1874, stems 4 to 5 feet, leaves lanceolate, deep green, striped with purple, free flowerer: flowers very large, of an orange-carmine.

Gloire de Provence.—Stems 4 to 5 feet high, leaves green and erect: flowers very large, clear yellow, spotted with carmine.

Gustave Dippe.—Stems 3 to 4 feet high, leaves lanceolate, erect, glaucous green: flower-spikes short and compact: flowers very large, and of a pure yellow.

Victoria.—Stems 3 to 4 feet high, leaves broad, lanceolate: flower-spikes numerous and compact: flowers very large, saffron-yellow, with a salmon-coloured centre; a superb variety.

Not to make the list too long, I merely mention the names of a few others, which are not inferior to the preceding, though older varieties :—C. compacta, Daniel Hooibrenk, Edouard Morren, Gloire de Lyon, Gaboniensis, Jacques Plantier, Jean Bart, Jean Vandael, Madame Celler, Madame Schmidt, Prince Imperial, and Tricolor. *C. Naudin.*

Forestry.

Planting having been unusually obstructed by frost, more of it yet requires to be done than is commonly the case at this advanced season of the year, and it is very fortunate for those who, like myself, are behind with the work, that vegetation is also late. The term "planting" comprehends much more than the simple operation of breaking the surface of the soil and inserting the roots of plants. Instead, however, of going into details at this time, I would rather call attention to a few general practical matters which are not unusually overlooked to a less or greater extent.

1. Where deaths have occurred either in forests, large or small plantations, shelter belts, ornamental groups, hedgerows, &c., no time should be lost in making up all such blanks, and these should generally be attended to before extending the area or extent of new ones.

It is a common practice, though by no means universal, to go on, year after year, adding to the acreage of the woodlands without paying due attention to the health and condition of what is already planted by way of making good all failures as they occur, and thereby producing such favourable results as to satisfy and encourage those interested in tree culture. In making choice between the two evils of over-thick and over-thin planting, I would unhesitatingly prefer the former; and if, in making up blanks in plantations, some plants are unavoidably planted too close together, the evil is speedily and inexpensively cured by timely attention to thinning.

2. Too much care and attention cannot be bestowed in strengthening or earthing the plants into the ground, either in the nursery or in the forest, after being lifted. Exposure of the roots for a short time to a strong March wind will completely destroy the vitality of the plants. Drying winds are found to be much more injurious to the vitality of plants than hard frosts. I once knew of a quantity of Larch plants which had accidentally fallen from a cart about the month of November, and lay exposed to intense frosts and other elements till February, when they were discovered and carried home to the nursery from whence they were taken, and then again planted by way of experiment, when in due time it was found that not one of them had died, notwithstanding having lain quite exposed nearly four months on the open moor.

3. As much of the future success of plants depends upon the treatment they receive between the time of lifting and that of transplanting, I would strongly recommend attention to the following points :—1st. Avoid packing or confining (specially evergreens) in any way so as to produce heating. Scotch Pine is perhaps the most liable to suffer in this way, while hard-woods, unless lifted early in autumn, seldom suffer much. In shingling-in plants, whether Coniferæ or hard-woods, they should never be put into rich loam or cold soils of any kind if they are to remain for any considerable time. I have had more failures from planting Birch and Oak that had been earthed into rich black loam, and had stood about three months, than from all other causes. Of the same sample of Beech, from 20 to 30 inches high, treated every way alike, save in respect of the soil they were shingled into, fully one-half of those in the black loam died after being planted into hedges, &c., while those that stood in light sandy loam, with very few exceptions, grew and succeeded well. If the soil is light and open, it matters little at what depth the plants are shingled-in if only the leaves are all above-ground, and they are removed before the move of the sap; but in permanent planting too much attention cannot well be paid to keeping the plants well up on the surface. That particular part of the plant where the stem and roots unite, termed the neck, is evidently a very sensitive and vital part, and should never be far excluded from the air and light. Plants, whether small or large, but especially the latter, should never be planted so deep that the swell of the roots is below the natural surface of the ground. In planting where hares and rabbits abound, either extra large or extra small plants should be used; by large I mean plants not less than 3 feet high, and by small plants not over 6 inches. The leading shoot and upper branches being above their reach (except in snowstorms) usually escape with impunity, or comparatively little injury. This class of plants, however, being too expensive, cannot be recommended except for small groups and ornamental purposes. It is, therefore, only small plants that can be recommended for such purpose. My own system is to plant all rabbit-infested ground with Larch or Scotch Fir (according as soil and situation are adapted), two years old from the seed, or what are now pretty generally known amongst planters as bedded plants, which are one-year-old plants lifted out of the bed and thickly laid in lines for one year, with the result of producing more roots in proportion to the top-growth of the plants than they would otherwise have had if allowed to grow on without transplanting. In planting I studiously avoid baring the ground, by paring off the turf or even cutting the rank herbage. The instructions to each spadesman simply are, hide the plants and plant close, say 3 feet apart or even less in some places. In tufts of heath or grass hide them as well as possible, and though many plants thus perish, and others struggle for existence amongst the choking herbage, yet by the use of small plants, thick planting, and carefully concealing the plants amongst the herbage, many plantations can be reared at comparatively small expense, that under any other known practice would either fail or cost an unwarrantable sum of money. *C. Y. Michie, Cullen House, Cullen, March* 29.

Florists' Flowers.

The Fancy, or, as it has been termed, the Mottled Polyanthus, because of the fantastic markings found in many of the flowers, is rapidly becoming a popular favourite because of its great decorative value, despite the protests of those who look upon the old-fashioned gold-laced Polyanthus as the only one deserving of culture, and regard other types as usurpers of its rightful domain.

It is difficult to state how this race of Polyanthuses first originated; and probably no single individual can claim the exclusive right of having originated them. They may be said to be a product of the necessities of the times, and when such a fine one compels a new departure, or originates and then developes in solid form new ideals, protests are futile in whatever department of life or branch of science such activities are brought into play. The growing taste for spring flowers led to the forms of the Polyanthus being looked after, and their improvement followed as a natural result. What Major Trevor Clarke did in the way of crossing the common Primrose issued in excellent results; others laid hold of Continental forms and improved these, and a concurrent action produced pleasing results. Some of these results have come before the Floral Committee of the Royal Horticultural Society, and gained the highest award it is in the power of that body to bestow on seedling flowers.

One result of improving the gold-laced Polyanthus by our florists a quarter of a century or so ago, was the certain deterioration of the race by breeding in-and-in as it is termed, in order to get the desired quality in the flowers. This led to many giving up their culture on the ground of want of constitution in the breed. On the other hand the fancy Polyanthuses have a remarkable vigour of habit, the growth being very robust, the flower-stem stout and erect, the trusses large and bold, the colours bright and striking, and most effective. They are characterised by great hardihood, and stand exposure to the severest wintry weather without injury, thus rendering them well adapted for planting out in beds for winter and spring decoration. One most acceptable characteristic is that of flowering very early—in mild weather very soon after Christmas, from the growth of the previous

autumn, and again most profusely in early spring from the young growths. By offering prizes for these Polyanthuses when grown in pots, the Royal Horticultural Society is doing something to encourage their cultivation for exhibition purposes; and there is reason to believe that, if the classes for hardy Primroses are continued, several cultivators will be ready to compete for the prizes offered by the Society.

For the information of those desiring to learn something of the fancy Polyanthuses in cultivation, I may state that the following have been distributed:—The Bride, pure white, with deep orange centre, very fine smooth pip, and large bold truss; extra fine for bedding or pot culture, being very free and continuous in bloom; awarded a First-class Certificate by the Royal Horticultural Society. Etna, magenta-crimson, with a slight spot of white at the extremity of each segment, bold and striking golden centre; colour stands well in the open air; very fine, free, and effective. Field-Marshal, velvety crimson, distinctly margined with white, golden centre, and reddish orange rays, fine pip, and bold truss. Viceroy, sulphur, with deep orange centre, very large round pip, and a splendid truss; remarkably free. Warrior, rich shaded magenta, yellow centre, rayed with deep orange, fine bold pip and truss; showy and striking. Contemporary raisers have announced other varieties, but those named have occasionally come before the meetings of the Royal Horticultural Society, and from an inspection of the same their characters can be attested to.

Beautiful as these showy flowers are when grown in beds or borders in the open air, their decorative value appears to be much enhanced from the fact that they are admirably adapted for culture in pots, and in this respect they are well fitted for the attention of those who are compelled to cultivate hardy plants during the winter and spring owing to lack of accommodation for tender plants. I grow some in this way every year, and they are beautiful objects just now, mingled with spring-flowering bulbs, Spiræa japonica, &c., and they serve to supply hues not found among the bulbs.

As soon as the plants have done flowering in pots, they are planted out in the open ground in some fine rich soil, without disturbing the balls in the slightest degree, and here the plants ripen any seed it is wished to get from them, and they also mature their growth. Early in October the plants are lifted and divided; the strongest crowns, which should be well rooted, are placed in 48-pots, or, if extra strong, in 32-pots, using a good soil made up of loam, decomposed manure, and leaf-mould, with some sand to keep it a little open. There should be a layer of drainage, and over this a piece of decayed turf; the roots should be nicely spread out, and the soil pressed firmly about them. The soil should come just above the collar of the plant, and for this reason—that the Polyanthus in early spring throws out new roots almost at the base of the lowermost leaves, and the soil should be up near them, in order that they may fully root into it. It was for this reason that the old Polyanthus growers used to top-dress these plants in February, and the plan was to take out an inch or so of the surface soil, and replace it with a compost, of which thoroughly decomposed cow-dung formed an important part.

When potted, they can be placed in a cold frame on a bottom of cinder-ashes, and have air given them on all suitable occasions; or, failing a cold frame, the pots can be plunged in an ash-bed a foot or so in depth, well-drained at the bottom with brick rubbish, under a sheltered wall. In severe frosty weather a little light litter can be thrown over the plants, and in times of heavy rain some boards might be so arranged as to throw it off the plants. By the beginning of March the plants begin to throw up their flowering stems, and they soon become charming decorative agents in a window, a cold greenhouse, or any suitable place in which they can develope their flowers without harm from uncongenial elements. *R. D.*

Notices of Books.

Introduction to Experimental Physics. By A. F. Weinhold. Translated by B. Loewy. Longmans.

This is a thick and bulky volume, but one which will be valued by teachers of physics as well as by students. Physics, or what used to be called natural philosophy, imperatively demands to be taught practically, by means of experiment and demonstration. So far as possible the student should carry out for himself, and by himself, all the experiments requisite to give him a clear idea of the subject. Without this he will be quite unable to make any practical use of what little knowledge he may pick up.

Professor Weinhold's work, of which we have here an excellent translation, is exceedingly well-adapted for a text-book for use in the laboratory. The directions are clear, precise, and minute. No one who has had practical experience of the apparent trifles which make an experiment successful or not, will question the importance of attention to minute particulars. We must content ourselves with recommending this volume, the subject-matter of which is good, while the illustrations are numerous, and the typography all that could be desired. One remark we may make in view of a second edition, and that is as to the desirability of giving the ordinary measurements as well as those of the decimal system. Although we are firmly convinced of the immense advantage of a uniform system of weights and measures such as is afforded by the decimal system, yet we do not think the abrupt introduction of them is likely to tend to their more speedy adoption, nor, indeed, in the present transition state, is it fair to students to use either system alone. For a similar reason we should counsel the editor to append a full series of conversion tables to any fresh edition which may appear.

Die Rationelle Spargelzucht. Von Franz Göschke. Berlin: Schotte & Voight. (Asparagus Culture.) 8vo. Pp. 93. Williams & Norgate.

This is a little work treating on the cultivation of Asparagus according to the L'Herault system. Written, as it is, in German, it is not likely to have many readers in this country. It is a complete treatise on the cultivation and management of Asparagus, and is preceded by a short botanical history of the species.

Apiary.

Yates' Round-topped Hives. — Mr. Yates, seedsman, of Manchester, has acquired celebrity for his hives, and many Lancashire bee-keepers, especially those who follow Pettigrew's theory, are almost compelled to purchase their skeps (hives) from Messrs. Yates, because no dealer in apiarian requisites can furnish straw skeps of the size required.

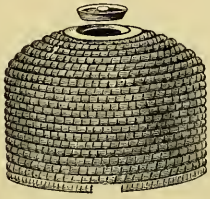


Fig. 88.—Yates' Round-topped Hive.

The illustration (fig. 88) will give our readers a tolerable idea of the shape of the hive; but to look at a hive 20 inches in diameter, and 14 inches high, both inside measure, is enough to astonish an old-fashioned apiarian.* It certainly is an enormous hive, and, best of all, when it comes to be taken off the stand in autumn it means something, for in average seasons we may expect to glean 80 lb. of honey from each stock. Then to watch the entrance of one of these monster hives, with a large colony tenanting it, on a warm, sunny day, the flight of the busy inmates going to and fro is not unlike the steam from a kettle spout, and is a sight seldom witnessed except in these hives.

We, however, draw our readers' attention to Yates' hives, not only for their size, but their workmanship. We believe they are manufactured in Scotland. This does not signify; yet we honestly confess we never saw any straw hives so strongly made as these. To show their strength and durability, we have had one in operation now for four years, and it seems as if it would last four more; but if a common skep lasts two seasons, it is thought to have done its duty.

Another feature about these hives is the improvement in the movable wooden top worked in the straw; the plug we have found very convenient both for supering and feeding. Hives of Pettigrew's pattern are also sold by Mr. Yates. These differ in having a flat top with straw plug in the centre. We do not recommend the flat-topped hive, for the simple reason that when ordinary sized swarms are introduced they commence the formation of the combs at the side, or rather in the corners; thus the combs are all irregular and unevenly built, which hinders both the breeding and honey storing; in other respects they are excellent skeps, but in Yates' or the round-topped hive, the bees are compelled to build exactly in the centre.

Mr. Yates would confer a benefit on his rustic bee-keeping friends if he would introduce the common sized, or cottage skeps, as strongly made and bound with cane like the "monster hives" he now sends out. Cottage skeps bound with Briar or Blackberry stems are far from being as economical as the cane-bound skeps. *R.*

* This may seem impossible to some of our readers, but last year I took 70 lb. from one of Yates' monster straw hives in my own garden, and Mr. Reid, of Carluke, took one up containing 120½ lb.; however, the latter is, in Old England, unfortunately, an exception; but from 60 lb. to 70 lb. may with ease be gathered by a strong stock, with a vigorous and healthy queen at their head. *R.*

Natural History.

Slugs.—Most people are only too well acquainted with slugs, but it is not quite so generally known where to look for their eggs, so as to destroy the coming pests in embryo, and a little attention directed to this point just now might save a deal of future trouble and loss. For those unacquainted with the appearance of the eggs it may be as well to mention that they exactly resemble small, slightly opaque round white glass beads, about the sixteenth of an inch in diameter. The most sure lurking ground in which to find what may be described as the nests, is in an old neglected Cabbage-bed, where the leaves have been allowed to remain lying on the ground, so as to form at once an attraction and a shelter from weather to the old slugs. Here there would probably be found a number of cavities, looking, at first glance, merely like holes in the ground, about the width of one or two fingers. On a closer examination these will be found to be little pits about 2 inches or more in depth, with edges overhanging at the top, and inside them (sheltered by earth and slime so as to look more than ordinarily disgusting) will probably be from two to five full-grown slugs. By carefully inserting the fingers, so as to remove the earth at the bottom of the hole, the deposit of eggs may be brought to light, usually well covered over with a slight depth of soil and varying in number from six or ten upwards, according to circumstances.

These nests—eggs, slugs, and all—might be easily removed with a small trowel, and the whole collection should be completely destoyed. The slug egg is, in some cases, gifted with almost incredible vital powers, and no means short of burning or crushing can be regarded as sure destruction to those of which the eggs of one species can, as mentioned in Jeffrey's *Conchology*, vol. i., p. 135, stand being eight times dried in a furnace and yet retain their vitality and develope the young.

Another favourite hiding place for deposit of eggs is at the bottom of Box borders, which, however ornamental in kitchen gardens, are apt to detract very much from the usefulness of the ground, by the network of shelter they afford throughout the whole year and over the entire area of the garden, to slugs and other garden pests. There is a popular idea that slugs cease to be destructive during the winter, which is, unfortunately, very far from being correct. During the severe cold of last Christmas the slugs in a piece of rich garden ground which had been greatly neglected, discontinued their ravages at the very height of the frost and snow, but were ont again in legions as briskly as ever, directly it abated, and the only plan which appeared really serviceable in diminishing their numbers was, to lay traps of five or six good sized Cabbage leaves one on the other. Here they fed at their pleasure, and then, partially burying themselves for shelter in the earth beneath, might be hand-picked and thoroughly got rid of.

In this case, which was the very worst instance of slug-possession of ground that I ever met with, all the usual ways of meeting the evil seemed worse than useless. It appeared as if the renewed processes of culture of the garden, by destroying the neglected plants on which they fed, simply threw them quite uninjured for their sustenance on the new crops put in, and everything was swept before them. Lettuce, Spinach, and successive hundreds of Cabbage vanished rapidly and thoroughly, soot only acting as a preservative for a few days, and successive sprinklings of lime clogging the leaves and the ground, and even (when slaked) affording an extra shelter for the slugs, whilst the leaves, not being to their taste, they met the difficulty by gnawing the plant to death round the stem.

In such a state of things nothing but personal supervision by the owner or the head gardener can meet the evil; and here the Cabbage-leaf traps, with an eye to their daily clearance, brought down the quantities of slugs within common bounds from numbers which on the worst occasion would have covered about half one of the leaves they were on, if laid side by side.

In common cases soot answers excellently if laid round the plants to be protected, and where circumstances allow of its being placed so plant by plant its effect will well repay the trouble of laying it rather than broad-casting, where, unless carefully thrown, the leaves of the plant catch much of the falling powder, and thus leave unguarded the very part round the stem which requires the most protection.

Where gas-lime is easily procurable lines of it round specially attacked spots are said to be of much service, and possibly, where it would not cause damage to vegetation or otherwise, a watering with very dilute sulphuric acid might be of use, but those who are acquainted with any thoroughly well-working application would do their horticultural fellow-labourers a kindness in making it generally known. *O.*

HORTICULTURAL EXHIBITIONS, 1875.

April.

21.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.
22.—Royal Horticultural Society of Ireland. Spring Exhibition. Sec., A. Balfe, 28, Westland Row, Dublin.
27.—Manchester Botanical and Horticultural Society. Exhibition of Auriculas, &c., in the Town Hall. Manager, Bruce Findlay.
28.—Royal Botanic Society, Regent's Park. Spring Show. Sec., W. Sowerby.

May.

1 to 19, inclusive.—Royal Botanic Society, Regent's Park. Mr. William Paul's Special Show of Roses, Pelargoniums, &c.
1 to 24.—Royal Botanic Society, Regent's Park. Special Exhibition of Clematis, by Mr. G. Jackman.
7 and 8.—Exhibition of Plants and Flowers in the Kibble Conservatory and Royal Botanic Garden, Glasgow. Manager, Robert Bullen.
12.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees. Pot Rose Show.
14 to 21.—Manchester Botanical and Horticultural Society's Annual National Exhibition, at the Garden, Old Trafford. Manager, Bruce Findlay.
17 and 18.—Halifax Floral and Horticultural Society's Annual Exhibition. Sec., Leonard Kershaw, 20, Gladstone Road, West Hill Park.
20.—Royal Horticultural Society of Ireland. Early Summer Exhibition. Sec., A. Balfe, 28, Westland Row, Dublin.
22.—Crystal Palace Great Flower Show. Sec., F. W. Wilson.
26.—Royal Botanic Society, Regent's Park. Summer Exhibition. Sec., W. Sowerby.
26.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.
31.—Coventry and Warwickshire Floral and Horticultural Society's First Show of the Season. Sec., Thomas Wigston, 3, Portland Terrace, Lower Ford St., Coventry.

THE

Gardeners' Chronicle.

SATURDAY, APRIL 3, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

Sunday,	April 4	Royal Horticultural Society of Antwerp's Special Exhibition.
Monday,	April 5	Meeting of the Entomological Society, at 7 P.M. Sale of Orchids, Lilium auratum, and Gladioli, at Stevens' Rooms. Sale of Hollyhocks, Dahlias, Vines, Roses, &c., at the North Star Nurseries, Slough, by Buckland & Sons.
Tuesday,	April 6	Sale of Poultry and Pigeons, at Stevens' Rooms.
Wednesday,	April 7	Royal Horticultural Society: Meeting of Fruit and Floral Committees, at 11 A.M.; Scientific Committee, at 1 P.M.; General Meeting, at 3 P.M. Sale of Camellias, Palms, Roses, Fruit Trees, Shrubs, &c., at Stevens' Rooms.
Thursday,	April 8	Sale of East Indian Orchids, at Stevens' Rooms.
Friday,	April 9	Sale of Stove and Greenhouse Plants, the property of Mr. Wheeler, of Stamford Hill, at Stevens' Rooms.

OUR Brussels friends take us to task for awarding the priority to Amsterdam as the *locale* for the next INTERNATIONAL HORTICULTURAL EXHIBITION. The Royal Flora Society of Brussels, we learn, claims the priority at once by right of birth and by priority of notification. We were of course aware that to Brussels belongs the honour of inaugurating that brilliant series of international gatherings which have done so much for the material interests of horticulture, and which have afforded opportunities for so many pleasant gatherings of botanists and horticulturists. To the splendid hospitality and cordial reception afforded to our horticulturists by the Belgians in 1864, and the Dutch in 1865, was due our own International of 1866. It was widely felt that we ought to reciprocate such good feeling, and we did our best to show we were not unmindful. Paris, St. Petersburg, Vienna, Florence, followed in turn, and now the cycle comes round again, and the only question arises, is Brussels, or Amsterdam to have the precedence? An amicable dispute is going on between the two capitals, which will, we trust, be speedily adjusted.

We are told that we were mistaken in attributing to the Dutch capital the first overtures for holding the International of 1876, and that as long since as May, 1872, the Belgians had taken preliminary steps—of which, however, no notice reached us. Certainly, last year at Florence we heard nothing official as to the intentions of the Bruxellois, but only of the proposals emanating from Amsterdam, and hence our statement. It appears, however, that Brussels really was the first in the field, and that there are special reasons why the gay little capital of Belgium should be selected for next year. The most important of these is the fact that a special building of temporary construction, destined primarily for an exhibition of fine arts, will be at the disposal of the horticulturists next year, and that the Government, which is a kind of *Deus ex machina* in these affairs abroad, though not so in this country, will lend this building for the purpose, the said building to be demolished immediately after. The Amsterdam people have a splendid public building, somewhat like our Crystal Palace, always at their disposal. Moreover, next year the Flora Society of Brussels will celebrate its centenary, and it is naturally anxious to do so with *éclat*. Brussels now says to Amsterdam, Wait till 1877; let us have 1876. Brussels informs us of these facts officially. From Amsterdam we learn privately that it is not unlikely the Hollanders will waive their claim, and postpone their exhibition and congress for a year.

To us Britishers it is of no particular consequence whether Brussels or Amsterdam should have the precedence. We hope they will adjust this matter for themselves. All that we know is, that we have the liveliest sense of the kindness and the hospitality shown to foreign horticulturists by both capitals. We should be thankful to accept the hospitality of either, "were t'other dear charmer away," and we shall be sorry if the success of both be imperilled by any attempt to hold an exhibition of such magnitude and importance in both capitals about the same time.

Should it be determined, as we hope it will, that the Congress shall meet in the one city in 1876 and in the other in 1877, our own exhibition—if we have one—must be postponed till 1878; a circumstance, in the present state of things here, not altogether to be lamented.

—— THE evils attending the DEEP PLANTING of TREES, with the exception of those having the power to emit roots freely from their trunks, have so often been pointed out, that they must be familiar to most planters. We recently saw a striking illustration of a case in point, or what amounted to the same thing, for the ground had been raised from 3 to 4 feet since the trees were planted. The row of fine old, though severely crippled, Elms bordering the Thames opposite Kew Palace must have been familiar to thousands. The fall of one or two last autumn, and the dangerous appearance of several others, attracted the attention of the authorities, and their doom was sealed. Now they are already lying low. But the fact of an apparently healthy tree having broken off from the roots at its base puzzled us rather, especially as the roots were sound, or nearly so; and we have since examined several of the trees. In order to fell them from the base of the trunk, the workmen had to excavate from 2 to 4 feet of ballast, which must have been thrown in many years after the trees were planted. From the decayed appearance of the boles where the roots were given off and above, we believe that it has been going on slowly ever since the ground was raised; and if the soil had been of less open character, the decay would probably have been more rapid.

—— Dr. GOEPPERT, the talented director of the Breslau Botanic Gardens, recently celebrated the fiftieth year of holding his degree, and congratulations and honours poured in upon him from all quarters. Festival memoirs (*Festschriften*) and addresses were numerous, and the Emperor of GERMANY honoured him with the Order of the Crown of the second class, the star bearing the number fifty. The city of Breslau made him a free citizen. But the best thing was done by a committee of scientific colleagues, who instituted a fund to create a foundation to be termed the GOEPPERT Foundation, with the gratifying result of obtaining 10,000 marks (£500). The interest of this sum is to be applied to the assistance of meritorious students of the natural sciences at the University of Breslau. This foundation is dedicated to Dr. GOEPPERT as a tribute of the highest esteem and an acknowledgment of his services to science and to his University. Truly these things are managed differently on the Continent; and we wish Dr. GOEPPERT may live many years to enjoy his honours.

—— The freedom with which AUCUBAS set their fruits without any attention beyond planting a few males in a nursery quarter of these highly ornamental shrubs, and the rapid growth of seedling plants, promise well for a race of valuable varieties, such as scarcely any other class of evergreens are likely to afford. Several nurserymen are raising large numbers of seedlings, which exhibit a surprising variety in the size, shape, and colouring of the foliage. We lately saw a fine bed of large examples of the common spotted variety in full fruit, the result, we were assured, of unassisted Nature. Adjoining this bed were two or three rows of seedling plants of great variety, including several males. Thus left to themselves, the females were impregnated, and bore as fine a crop of berries as one could wish to see; and it was not only the females close by that had been fertilised—at a distance of 50 yards or more there were several large specimens in a mixed border that had also set fruit, though, it is true, much less abundantly. We have heard complaints that birds frequently strip the bushes of their attractive fruit, but the nursery in which we saw the lot in question is situated in a district where birds are exceedingly numerous, yet they had not touched the berries a fortnight ago, and this winter has certainly been a severe one. The proprietor of this nursery informed us that he was agreeably surprised at his fine crop of berries, not having expected any, the late frosts last spring having caused the males to hang their heads as if all the vitality in the flowers had been destroyed.

—— We learn from the *Gartenflora* that the Prussian Government has under consideration plans for the erection of a BUILDING IN THE BOTANIC GARDEN at Schöneberg, near Berlin, to house the NATIONAL HERBARIUM. Formerly it was deposited in a special building near the Botanic Garden, but it was subsequently removed to the University buildings in Berlin, and the garden authorities have in consequence experienced the greatest difficulty in determining and maintaining the correct nomenclature of the living plants. The herbarium has suffered, too, through being in a dark, unsuitable building, and through the duties of the officers being divided between the herbarium and botanic garden. Naturally little progress in the arrangement of the collections could be made under these circumstances; which makes us the more glad that the once threatened removal of Kew Herbarium is not to be carried into effect.

—— A NOVELTY IN PELARGONIUMS is announced in the French and German gardening journals. It is believed to be an accidental cross between P. hederæfolium and P. zonale, and, what is more, it freely bears seed. Mr. JEAN SISLEY describes it as near P. hederæfolium in its prostrate habit of growth, with leaves more like those of P. zonale. The flowers are of a dazzling red, and there are from fifteen to twenty in each truss. It was found in a garden at Nice, in a bed planted with several varieties of the zonal section, and a lilac-white variety of P. hederæfolium. Mr. SISLEY considers it a great acquisition, mainly, it appears, on account of its fertility—a quality not possessed, he says by Willsii, Willsii rosea, Emperor, and Dolly Varden. He thinks it may probably give birth to a distinct new strain, in the hands of a clever hybridiser. It will be sent out this spring by Messrs. HUBER, of Nice.

—— In the last number of the *Gardeners' Chronicle*, in an article by Mr. W. G. SMITH, there is a notice regretting the repetition of Mr. SALTER'S assertion "that he had lived almost entirely on different species of Boleti, without using much discrimination." As this assertion was made in a personal communication to myself, I feel bound to state as much, and from Mr. SALTER'S intimate knowledge of natural history, from a long apprenticeship and association with the late Mr. JAMES SOWERBY, I had not the slightest reason to doubt the correctness of his assertion, especially as an excellent naturalist informed me that he had eaten Boletus luridus with impunity, and even sent me specimens. It is true that late in life there were unfortunate symptoms of insanity in Mr. SALTER, which led ultimately to his death, but though there might even then have been such a tendency, it was, as far as my conversations with him went, on the subject of religion, and not of natural history. Indeed, about the time of his making the statement to me, I had the pleasure of hearing him at a meeting of the Geological Society, when nothing could be more luminous than his remarks. I was not aware that Mr. SALTER ever regretted that his words had gained publicity. He certainly never made such a statement to me. As the sheets of Mr. COOKE'S book passed through my hands, I am in some measure answerable if there are typographical errors, but every one knows how difficult it is to avoid them altogether, especially as it frequently happens that the process of correction at the press sometimes makes confusion worse confounded. *M. J. B.*

—— We observe that Mr. R. A. PRYOR, of Hatfield—who is not to be confounded with Dr. ALEXANDER PRIOR, as has been done in one at least of our contemporaries—has in preparation a new edition of WEBB and COLEMAN'S *Flora Hertfordiensis*, the

special features of which will be the incorporation of the various supplements, the more careful enumeration and investigation of segregates, and the omission of the irrelevant poetical and other matter which gave a somewhat *dilettante* tone and appearance to what was in other respects an excellent book. Mr. Pryor has issued a pamphlet containing remarks and inquiries connected with the work, of which he will be glad to forward a copy to any one interested in the subject.

—— The *Daily Telegraph*, as will be seen from the following characteristic extract, has been "gushing" about Cashmere, and some of its statements are open to objection. We are told that "Cashmere is, indeed, the happiest spot in the world for the votaries of the goddess Flora. Nowhere are there more wonderful natural parterres or such novelties of botanical beauty, such luxuries of fragrance and grace. It is the chosen home of Roses, and some of the finest 'attar' in the world is manufactured from the delicious red and white blossoms which cover the thickets in summer. At another season the soil is draped, as it seems, with cloth of gold, by reason of the wide fields of Crocuses, which are cultivated to produce the yellow dye erroneously called Cashmere saffron, which is known and sold in every market of Western Asia." The hue of saffron itself doubtless led the writer of this paragraph to state that the blossoms of the plant producing it were also yellow, but his notion of the extent of its cultivation does not correspond with that of the authors of *Pharmacographia*, who only say that "a very little is cultivated in Kashmir, under heavy imposts of the Maharajah." By the way, in the latter work the use of saffron in colouring cakes is specially noted as prevailing in Cornwall; we may add that it is very common also in Northamptonshire, especially in Northampton itself.

—— Some more attention than has hitherto been given seems now to be directed by travellers and others to fresh sources of Caoutchouc. With regard to East Indian plants, no doubt some impulse has been given to forest officers by the circulation of Mr. James Collins' excellent report. A creeping plant belonging to the Apocyneæ, not altogether unknown as a rubber plant, has recently occupied some attention in Burmah. This plant—the Chavannesia esculenta—is said to be very common in the Burmese forests, twining round the trees and sometimes forming a stem of from 9 to 11 inches in circumference. It is also cultivated by the natives for the sake of its fruit, which is of a pleasant acid taste, and is sold in the Rangoon markets. The rubber coagulates readily on exposure to the air, forming a solid and very elastic substance. The cultivation and conservation of this plant by the Forest Department for the purpose of yielding rubber has been advocated in a pamphlet on the subject recently published in Rangoon. It may be propagated, it is said, either from seeds or cuttings; the former, however, is recommended, "as natural reproduction is abundant wherever the creeper grows, and the results are certain if the plant lives; but not so with cuttings, which do not in every instance equal the parent tree—a phenomenon in vegetable physiology yet to be accounted for. Regarding the mode of planting, it is best for the present to follow the natural habit of the plant, which is to entwine itself round its more stalwart companions of the forest, reaching from one to another in the most fantastic forms and shapes, until its trunk has gained sufficient strength to make it independent of its original support, which may long since have fallen a victim to its suffocating embrace." Such are the words of the writer of the pamphlet referred to, and he further proposes that seedlings should be planted at the base of every tree unsuited for every other purposes. Before leaving the subject, in the hope of soon hearing something more of the plant as a source of commercial rubber, it may be well to point out the manner proposed to be adopted for tapping these creepers. Three gashes in the shape of an arrow-head are made into the wood on three sides of the stem, each about 3 feet apart, not immediately over each other but alternately so as to form a spiral. At the point of the arrow, which is of course directed downwards, a kind of funnel formed of a leaflet of the Butea frondosa is fixed or rather temporarily attached by the aid of the glutinous milk of the Chavannesia. The Butea leaflet is selected on account of its size and non-liability to crack. Into these cups or funnels the milky juice flows and is afterwards amalgamated. If the rubber comes to be collected on any large scale the system of tapping and collecting will no doubt be improved upon.

—— We learn that the Villa Gardener is henceforth to be edited by Mr. D. T. Fish, already a frequent contributor to that and other journals.

—— At p. 399 we noticed a German's complaint respecting the indifference of his countrymen to German Raised Dahlias, and his estimate of their merits. He should be satisfied at any rate with the number of new varieties offered by German raisers this year. The total number sent out this year for the first time, according to the *Hamburger Gartenzeitung*, is 530! Of this number one grower, Sieckmann, furnishes no fewer than 405! If national vanity is to be satisfied with numbers, these should suffice, especially if the high standard of merit claimed for them is sustained.

—— On the estate of the Duke of Wellington at Strathfieldsaye, and immediately adjoining a small farmhouse, inhabited by Mr. Davidson, the bailiff to the Hillfield property, there recently stood three large lofty Elm trees. These had of late shown symptoms of decay, and the huge limbs that occasionally fell rendered their vicinity dangerous, a portion of the house now and then getting damaged. After considerable delay, leave was at length given to have the trees cut down, and as the largest, which stood within 20 feet of the farmhouse, had a base of about 6 feet in diameter, instructions were given that a woodman should first open the tree round with an axe to the depth of several inches. This was done, when without warning the huge tree toppled over and fell, fortunately in a direction the reverse of the house, for had it fallen upon that it would have crushed it into ruins. Upon examination it was found that, with the exception of some 4 or 5 inches of the outer wood, all the rest was perfectly rotten, and much of it bore a close resemblance to furnace clinkers. The other two trees were also decayed, but in a lesser degree. Looking over the rings of growth, as shown when cut through by the saw, it was evident that the most robust growth was made when the tree was about fifty years of age. It is not improbable that if an

Fig. 89.—Moka District, Mauritius: A Sugar Plantation at the Base of the Pouce Mountain.

examination were made into the boles of large trees by means of an auger, similar evidences of decay would be found, and by at once felling such timber some possible disaster might be prevented.

—— The Canterbury Flower Show is fixed for Thursday, August 12, and the management have been again successful in obtaining the permission of W. Howard, Esq., to hold it in his pretty grounds at Westgate.

—— We understand that the plans for the laying out and planting of the New Public Park at Barnsley, submitted by Messrs. W. Barron & Son, of Elvaston Nurseries, Borrowash, near Derby, and 16, Market Street, Nottingham, have been accepted. The park is the gift of Miss McCreery, of Richmond, Surrey.

—— We are glad to learn that the New Horticultural Club has secured a club-house in a most suitable locality—viz., Adelphi Terrace. The site is excellent, being within three minutes' walk of Charing Cross, close to the Strand and Covent Garden, but removed from its noise and overlooking the Embankment garden, the river, &c. The Club offers its subscribers the conveniences of a West End Club at very moderate rates, there being handsome reading, dining, and drawing-rooms, as well as billiard-rooms and smoking-rooms; bedrooms for the accommodation of country members are also provided. The subscription at present is two guineas per annum, with an entrance fee of two guineas, but the terms will probably shortly be raised. The desirability of such a meeting-place for those addicted to horticultural pursuits has been so long felt, that we have no doubt, under proper management, that this Club will answer the expectations of its promoters. As so much turns on management, it may be well to mention that the caterer is proprietor of several hotels, and is manager of another similar Club. Members incur no responsibility beyond their entrance-fee and annual contribution, and from what we have ourselves seen of the proposed arrangements we can confidently recommend the Club to the favourable notice of horticulturists in general. The secretary is the Rev. H. H. Dombrain, Westwell, Ashford, Kent.

—— We are requested to state that we were in error in stating in our last report of the Fruit Committee that certain Cucumbers were exhibited by Messrs. Monro and Wilkinson. That firm has been dissolved, and Mr. John Monro was the exhibitor.

—— *À propos* of the Colorado Potato Beetle, an Englishman in America, writing from Pueblo, Colorado, U.S., March 12, says:—

"I have grown Potatos in various parts of the Union, and have been bothered with the beetle since 1871. It is not necessary that the beetle should have pieces of haulm to support him whilst crossing the Atlantic; he can eat the tubers, though he prefers the haulm. In winter, when opening my Potato pits, I have seen the vermin eating greedily and moving briskly; several Potatos were either wholly or partially destroyed, and I am sure it was beetle-work. I notice by the Parliamentary reports that the authorities are for taking time and seeing what other people in Europe are going to do about the beetle, but I wish to remark (and my language is plain) that if the English authorities don't wake up pretty mighty sudden and stop importation, they will soon have beetles pretty bad."

—— The beautiful Forget-me-not-like Omphalodes verna, termed by some the Creeping Forget-me-not, because of its peculiar habit of growth, is now very effective in cool, shaded spots, suitable to its well-being. Nowhere else perhaps is the Omphalodes more at home than on the warm, genial slopes in the almost unrivalled wild garden at Belvoir Castle. There Mr. Ingram uses it with great judgment and remarkable taste, and it can be seen in large patches where it is overgrown and shaded during summer by deciduous shrubs, &c. It does well in a shallow soil in which decayed vegetable matter forms a good part, and it is by far too valuable and useful a spring plant to be stuck in the ground anywhere, as if anything like a tender care would be wasted on it. At Belvoir it has spread into large patches by reason of its creeping rhizomes spreading themselves underground, and pushing their way to remarkable lengths. If it lacks the rich profusion of flowers found on Myosotis dissitiflora, its individual blossoms are of great beauty. The colour of the flowers is of a rich pale blue, and a raceme of blossoms greatly assists to make up a charming buttonhole.

—— In one of the plant-houses at the Chiswick garden of the Royal Horticultural Society Hebeclinium ianthinum is just now a very attractive object with its massive corymbs of soft pale mauve composite flowers. It is one of those plants that Mr. B. S. Williams considers should be in the choicest collections, because it flowers so freely during the winter. The plant is of robust growth; the large leaves are ovate in shape, and contrast well with the masses of flower. It is a subject so easily managed that the wonder is it is so rarely seen in plant-houses during the winter. "The hardiness of its constitution," states Mr. B. S. Williams, "allows of its being used in any situation under cover, while the flowers may also be used with advantage for bouquet making." In another plant-house Clematis montana is flowering freely on small plants trained in a spherical form, the pure white blossoms being produced in dense clusters. This species, together with C. indivisa lobata, are invaluable in a cool greenhouse at this season of the year, being so easily managed, and at the same time so prodigal of blossom.

—— The well-known Manley Hall Estate, near Manchester, including the mansion, the conservatories, ferneries, and shrubs, and the 80 acres of freehold land on which they stand, has been sold by Mr. Sam Mendel to Mr. Ellis Lever, of Spring Bank, Bowdon, who is well-known in Manchester as the principal of the Midland Coal Company. The estate realised, we understand, nearly £150,000.

—— We are informed that the total number of visitors on payment to the Royal Horticultural Society's gardens on Easter Monday was 5175.

—— Messrs. J. & C. Lee, of Hammersmith, have recently been removing from their Ealing nurseries to Hounslow some fine bushy Yews, from 8 to 12 feet in height, the diameter corresponding to their altitude. The plants are nearly half a century old, and were reared at what was once their Stanwell nursery; from thence they were transferred to Feltham, and from Feltham to Ealing, where they had become thoroughly established and perfectly at home in the strong clayey yellow loam there. The Yews were removed under the immediate superintendence of Mr. Charles Lee. In the first place, the lowermost branches were bent upwards, and secured in that position and from harm by means of mats, and so were safe from injury by breakage. Then a trench some 3 feet or so in depth was dug out all round the stem at least 2 feet from it in each direction, and when it was sufficiently deep to be below the great mass of fibrous roots forming the huge ball, the latter was undermined till it was left standing on a kind of apex, some 6 inches or so in diameter. The next step was to bind old mats well about the ball of roots completely round it, which were securely fastened by means of strong cords, and which had the effect of preventing any of the soil from falling away. Then, by means of a tree lifter, the huge mass was lifted out of the hole and borne away to its destination. Treated in this way a plant can scarcely receive a check, and Mr. C. Lee states he has successfully transplanted many such specimens in the course of his experience as a planter.

—— The eighth annual show of the Cheadle Floral Society will be held in Cheadle, near Manchester, on August 6 and 7.

—— Among Hardy Primroses that flower at this season of the year a high place must be given to Messrs. Backhouse & Son's Primula pulcherrima. It is a most lovely species, taller and far more luxuriant than P. denticulata, and has deep lavender-purple flowers with yellow centres, and much larger trusses. The well-known Yorkshire Nursery firm who distributed it claim for it that it is perhaps the finest of the Himalayan Primulas of the denticulata section—"quite distinct," they say, "from the plant usually known as P. purpurea, though, judging by the colour, it has far more right to the name. A grand plant both for rockwork and well-drained borders, in stiff loamy soil, blooming in spring, and perfectly hardy (which the true P. denticulata is not with us)." It was originally received by them under the name of P. denticulata nana. It does well in pots grown in a cold frame, and under the protection of glass it comes into flower much earlier than in the open air.

—— Judging from a letter recently received by Dr. Hooker from a correspondent in Madeira, the climate of that island seems specially suited to the growth of Cinchona succirubra—a specimen originally sent from Coimbra in Portugal, and planted two years and a half ago in a garden in Madeira at an elevation of about 500 feet above the sea, is now nearly 20 feet high, and blossoms freely. C. condaminea, however, does not seem so satisfactory. Some plants sent from Kew six years back have been increased by cuttings, but these are said to make but little progress. From the same letter we learn that the fruits of the Banana are being exported from Madeira in large quantities, and that Eucalyptus globulus is being grown in some parts of the island simply for firewood.

—— We are requested to state that the ground allotted for planting shrubs at the Cologne International Horticultural Exhibition is now at the disposal of intending exhibitors, who can at once commence to make use of it. No charge will be made for space.

—— The Government of New Zealand has just issued a handy-sized volume of close upon 300 pages under the title of the "The Official Handbook of New Zealand, a collection of papers by experienced colonists on the colony as a whole, and on the several provinces." These papers are written by some of the best men in the colony, men whose names are well known in their various branches. Thus we have "Climate, and Mineral and Agricultural Resources," treated of by Dr. Hector; "Animal and Vegetable Productions," by Mr. Travers; and an article on the "Native Race," by Sir D. McLean. After the whole colony of New Zealand is treated generally, each province has a separate notice, and besides its early history, geographical position, description of its institutions and similar matters interesting to the colonist or the historian, there is a great deal of interesting matter on the natural resources. Thus Dr. Hector tells us that in the whole colony there are about 12,000,000 acres of land suitable for agriculture, and about 50,000,000 more better adapted for pasturage; 20,000,000 acres of this, however, is at present covered with forest, the value of timber from which is on the increase, for we learn from recently published statistics of New Zealand that the value of timber exported in 1873 was £43,697 against £27,373 in 1872, showing an advance of £16,324. Speaking of the fauna of New Zealand, Dr. Hector says that until its systematic colonisation it was very destitute of terrestrial or animal life suitable to the wants of civilised man, the only mammals being a small rat, a dog (which had been probably introduced since the islands were peopled by the present race), and pigs, the produce of some animals left by Captain Cook and the navigators who succeeded him. Domestic animals and poultry of various kinds have, however, been introduced during late years, thoroughly acclimatised and distributed over the colony. The seas around the islands abound with a great variety of valuable fish, oysters, mussels, crayfish, and other mollusca and crustacea of excellent quality are also abundant, and require only proper systematic culture to become a source of wealth to the colony. With regard to vegetable productions, it is well known that the indigenous forest contains a large number of valuable timber trees, and many of the more important trees of Europe and America have been introduced and are now flourishing, as well as many of the best fruits, such as Oranges, Lemons, Citrons, Peaches, Apples, Pears, Grapes, Apricots, Melons, and numerous others, all of which produce their fruits in abundance, and ripen them to perfection. One of the most important indigenous plants is the New Zealand Flax (Phormium tenax). In Auckland a large quantity of rope and cordage is made from this fibre, amounting in one year to 1057 cwt., of the value of £2406.

—— The South Essex, Leyton, Walthamstow, Woodford and Wanstead Floricultural Society will hold their summer show of flowers, fruits and vegetables, during the second week in June.

—— A *Daily News*' telegram from Paris on March 30 states that an official decree has been published prohibiting the importation into, and the transit through, France of Potatos from the United States or Canada. Dead leaves, as well as sacks and barrels or other articles which have been used for the packing of Potatos, are included in this prohibition.

—— We learn from a correspondent that at Parkfield House, near Worcester, the residence of Mr. Lea, a gentleman who has recently formed an interesting collection of Orchids, was to be seen a short time since a remarkable specimen of Dendrochilum glumaceum, in the finest possible condition, and bearing 117 spikes of bloom. Taking the number and vigour of inflorescence into consideration, it was by far the finest specimen our correspondent had seen, reflecting the highest credit upon the intelligent gardener, Mr. Cox.

—— A marble bust of the late Mr. William Masters, executed in 1833 by his fellow townsman, H. Weekes, R.A., has been presented by the family to the Canterbury Museum, of which the deceased gentleman was the founder, and for many years one of the most energetic supporters.

—— Mr. G. Walker, gr. to Mrs. Honeywood, Mark's Hall, Essex, informs us that he has now coming into flower a fine plant of Chamærops humilis, with five spikes; and Verschaffeltia Melanochætes, with one spike. We have not heard of the last-named plant flowering in this country before, and the event is the more interesting as the plant has only been introduced about four or five years.

—— An influential meeting of the residents of Richmond and its locality was held at the Masonic Hall on Wednesday evening last for the purpose of establishing the proposed Horticultural Society: Colonel Burdett, J.P., presided. Richmond is to

be the Society's centre, and it will include in operations the important parishes of Twickenham, Isleworth, Mortlake, Petersham, and Ham. Already the large sum of 160 guineas has been promised. A large committee—including the names of such well-known horticulturists as Messrs. Kinghorn, H. Little, Bohn, Peel, James Clark, Steel, and Woodbridge of Syon—was elected, and they will proceed to arrange a schedule of prizes as early as possible. It is expected that whilst the major portion of the competition will be limited to exhibitors residing within the district, the committee will be enabled to offer some open prizes of such an amount as will induce growers from a distance to compete. The first exhibition will probably be held during the month of July, and no exertion will be spared to render it one worthy of the famous royal suburb.

—— A new substance has lately appeared in Germany in the form of an extract or Essence of Chicory, for use as a substitute or as an addition to Coffee. Chicory is very largely grown and used on the Continent, much more so than in England, and the residue of the root after the extraction of the essence makes an excellent food for cattle.

Home Correspondence.

The Wild Daffodil.—Calling on my son, Mr. G. Maw, who resides here, I have taken up the last number of the *Gardeners' Chronicle*, and wish to say with reference to a paragraph headed "Wild Daffodil" that a few years ago I transplanted a considerable number of the normal singly flowered bulbs from a meadow a few miles off, into my own meadow adjoining my house, and some also into my garden. On the second year after transplantation nearly all became double, and at this time not one of those in my meadow remains single, and very few in the garden. This was a disappointment, for I greatly prefer the single to the double Narcissus Pseudo-Narcissus. The change was evidently produced by change of soil. *J. H. Maw, Benthall Hall, near Broseley.*

—— Will your correspondent "R." do me the honour to send me a bloom of one of the double wild Daffodils he has produced by two years' cultivation? I shall really esteem it a great favour. I am free to confess it will give me as much surprise and pleasure as a blue Dahlia. I believe I am acquainted with almost all the great growers of Narcissi in this country, and I imagine every one of them would regard such an occurrence as more than passing strange. I have for years been endeavouring to obtain bulbs of Narcissus Pseudo-Narcissus fl. pl., but in vain. It was not to be heard of anywhere till last year, when Mr. Barr kindly sent me three bulbs, which, with a few others, he had succeeded in discovering, after a world-wide search, in one single locality. "R." will find his bulbs most valuable if he has got hold of the genuine article. The great yellow Daffodil, so common in gardens, and so freely naturalised in meadows and orchards, has nothing to do with N. Pseudo-Narcissus: it is the double variety of N. major; but I think my hair would almost stand on end if some fine spring morning I were to visit one of the many naturalised clumps of this flower which I have known for the last thirty years, and find that the blooms had become single. *H. Harpur-Crewe, Drayton-Beauchamp Rectory, Tring, March 27.* [We have received other letters on this subject, the publication of which is unavoidably postponed. Eds.]

Eccentricity of Growth is probably much commoner than is generally supposed, and may often be traced to the injuries caused by boys climbing young trees time after time, and destroying the bark and young wood on the upper side of branches close to the trunk until decay sets in. I am speaking of lateral branches alone. I was much surprised one morning on going to Mr. Lawes' chemical laboratory at Harpenden, at seeing a large branch of an Elm tree lying on the ground, more especially as it was a vigorous and not an old tree from which it had fallen. On examining the branch, I found that the growth was nearly all below the original centre,—that is, in a diameter of 18 inches 15 were developed below the pith. It had at length grown too heavy for the slender support afforded by the partially decayed 3 inches on the upper side, and pulled itself out from the trunk. Since that I have always mistrusted Elm trees. We frequently lounged on the grass immediately beneath this ponderous branch, which fell one fine still morning without the slightest warning. *W. B. H.*

The Victoria Regina Violet.—With this I send a few blooms each of Violets The Czar and Lee's Victoria Regina, gathered from plants growing side by side in the open ground, strong stools planted out last May. When Mr. Lee submitted plants of his Violet to the attention of the Floral Committee at South Kensington last February twelvemonths, it was mentioned that it did not present a sufficient advance upon The Czar to make it deserving a certificate. Now I have found that both under glass and in the open air the Violet Victoria Regina presents a considerable advance over The Czar in size of flower, breadth of petal, and depth of colour. The blooms sent for your opinion are the best to be found on either plant, and truly represent each variety. They were gathered from a cold, dry east border, swept by the recent cold winds and very dry. *Alex. Dean, Bedfont.*

Jaborandi. — Medicinal matters always have a general interest, especially if not well understood; hence these remarks about the Jaborandi plant, which you noticed at p. 406 in your issue of March 27. When travelling in Southern Brazil, in the provinces of Santa Catharina and Paraná (which are distant about 20° of latitude from Pernambuco, which you referred to), I took an especial interest in this particular plant, and learned that it came from Piper Jaborandi, Vell.; Ottonia anisum, Spreng.; Ottonia Jaborandi, Kunth. (in *Linnæa*, xiii. 519). It is used there as a diuretic and sialogogue, and as a simple household drug. They administer a decoction to the dogs before starting out hunting, in order to animate them and make them more spirited and better suited for spying out and confronting the game—dogs in that country taking a great part in these pursuits. It would be well for European hunters to make experiments and state the efficiency of this drug, supposing it to be the true one as found in the province of Santa Catharina. The Jaborandi (with the accent on the last letter, pronouncing it as an *e* or German *i*) is a small, insignificant-looking, thin-growing shrub. Its leaves are oblong, acuminate, shortly petiolate, about 3—4 inches in length and about 1½ inch broad; the texture is somewhat thin; the stem, or rather branches, generally as thick as a blacklead pencil or thinner; the height of the shrub not exceeding 2—3 feet, according to its position. The medicinal properties belong to the roots, these keeping for some length of time in a dry state. The taste is a sharp but exceedingly agreeable burning of the tongue and palate, not to be encountered in any other congener of the numerous family. Specimens which I collected will probably be found in the Museum of Berlin, where I sent the rest of my herbarium, which was unfortunately greatly reduced by the Cupim (Termite or white ant). I believe there is a drawing of the Jaborandi in the *Flora Fluminensis*. The genus Piper, so richly represented throughout all South America, is, I believe, at present only very partially known, but it will undoubtedly furnish new additions to medicine, especially on the western side, in Peru, where so many species occur of a particularly aromatic and acrid, a true medicinal, taste. This supposition is enlarged by the circumstance of many Pipers growing in large and even compact masses, and the plants are generally content with a meagre stony soil, unprofitable for other vegetable culture, as specially concerns the Peruvian Cordilleras. We have an instance at hand in the Piper angustifolium, in general use under the name of Matico. *G. Wallis, Botanical Traveller.*

Vegetables.—One of the most useful Lettuces in cultivation is the small Cabbage Lettuce, called Commodore Nutt. The most useful Beet for summer use is the new Egyptian Turnip-rooted. Do not grow it too large, as I grew some of mine (10 inches across); they are too coarse when grown so large, but the small ones are very sound and of quick growth. I have some now as solid as cricket-balls. Sulham Prize Pink Celery kept first-rate with me: what I am now using is as firm and crisp as can be expected at this season of the year. Sandringham is a good white for early use. A good Pea, required to grow about 3 feet, is Maclean's Best of All. Cucumber growers who require plenty of fruit, not for exhibition, will do well to still grow Rollisson's Telegraph (true). Two useful dwarf Kidney Beans are Canadian Wonder and Black-seeded Negro. The most useful Turnip for use during February and March is Orange Jelly. *C. Osman, S.M.D. Schools, Sutton.*

Sulham Prize Celery, and Lee's Early Kidney Potato.—Let me endorse all that was said in last week's *Gardeners' Chronicle* of these two excellent vegetables; the latter I have grown for the last two years, and think it the best of all the very early Potatos. I look upon these, and Canadian Wonder French Bean, as really valuable additions to our stock of vegetables. *D., Dual.*

Summer Pruning.—In compliance with the solicitation of "T. W. T.," I very cheerfully proceed to narrate the circumstances that led me primarily to believe that cutting or pruning certain descriptions of trees and shrubs in summer was attended with different and better results than by doing so in winter. There was an old Thorn hedge, very old, and very full of gaps, which the shepherd cut branches from at all seasons to fill up the gaps in it, and it required only a passing glance to see that from the snags or stools cut in summer the young shoots were both more numerous and stronger than from those cut in early spring or in winter. In forestry operations branches overhanging roads have to be lopped off whenever they come in contact with the traffic, and, as is well known, the branches, when once clothed with foliage, and wet with rain or dew, yield to the weight, and this necessitates much summer lopping or pruning of all species of trees not thought of in winter. Under such circumstances it is often found desirable to cut the intruding branch at some considerable distance from the stem rather than close to it, not unfrequently leaving a bare arm projecting from the trunk—by no means a beautiful object for the time being—but encouraged by seeing many other bare arms by degrees gain spray, branches, and foliage, they were left in like manner, but doubts in some cases entertained about their ever gaining branches and foliage again. On comparison of these summer-pruned roadside trees with others pruned in winter, it was quite evident that the former produced soray and branch much more certainly and abundantly than the latter. On pruning Birch trees in winter it very seldom happens that a large branch denuded of all its smaller branches will ever again reproduce them, while if cut during summer the second season will probably see it again well clothed with new spray. "T. W. T." wishes to know how these results are produced, but that I cannot inform him. My own humble opinion, however, is, that a knowledge of the physiology of plants will enable any one to form a likely theory of it. The following is mine: The sap is attracted to the upper part and extremity of the branches, and after undergoing certain mysterious chemical changes, distributes itself over the whole structure of the tree, but most abundantly between the bark and the last or outer layer of wood. There are lying also beneath the bark, probably on the outer surface of the last-formed layer of alburnum, latent buds, ready at any time, when stimulated by certain favourable influences, to start into life, and manifest themselves in the form of young shoots and branches. Now, in the case of old and comparatively dry and sapless stems, there is nothing to stimulate or provoke life in these latent buds; but when the sap has first ascended the tree, changed its properties, and descended between the bark and sap, and in close connection with those latent buds, there is nothing unlikely, when the stem is severed, that a successful effort should be made to produce shoots below, which, but for the advantages the sap had gained in first ascending the tree, it would not have been able to produce. Hence the advantages of summer over winter pruning or cutting-over certain species or descriptions of trees and shrubs, which from old age and weak constitution would not reproduce young shoots. I would not advise the leaving of Osiers upon the stool till the sap ascends, unless in case of very old stools which it is intended to reduce in height by cutting-over below the crown. Bleeding is certainly produced more profusely by spring cuttings than winter, but I am not certain that the plant is thereby more weakened, for the sap, while it almost pours for a short time from the wounds of Birch and Sycamore, also runs from the wounds in winter whenever the least mildness of weather prevails. I hope to make this subject more plain at some future time; meanwhile those having cutting or pruning of any old or weak kinds of subjects to perform, so that their growth may be most certainly and satisfactorily promoted, should do the work in summer rather than winter. *C. Y. Michie, Cullen House, March 29.*

Grape Rooms.—The Grape room is hardly yet become an important feature in all large garden establishments. Probably there is still considerable prejudice against that mode of storing cut bunches of Grapes, and in not a few places the stock of old Grapes, after the incoming of the new year, is not so abundant that a special store-room is needed; possibly, however, there would be a stronger disposition to hold over a stock of Grapes for late consumption if it were generally realised that they may be cut any time after Christmas, and be kept sound and almost perfect for four months if properly stored. What a saving of labour, of cost of firing, and of strain upon the Vines, is obtained when the entire crops are cut and safely housed in a small and properly arranged store-room. It is nearly five years since I first drew attention in these pages to the admirable Grape room at Heckfield; since that time it it has been constantly used all through the winter months, and with the most satisfactory results, only one new idea being added to the original plan, and that is the simple one of allowing all the old wood beyond the bunch to remain when the bunches are bottled, as it is found that the berries are kept plumper in consequence. Mr. Wildsmith is not only a first-class Grape grower, but his advice is always read with interest as that of an eminently practical man. Readers who have not seen Heckfield have, of course, to take all that Mr. Wildsmith may say for granted, but I make bold to say that there are not too many private establishments where the visitor could look into the Grape room and see in the most perfect state of preservation a hundred or more good bunches of Lady Downe's, all cut two months previously, and from which not half-a-dozen

berries in a decayed state have to be cut away in a fortnight. At a moderate computation these Grapes would have weighed 150 lb., and when it is remembered that high-class Grapes are quoted in the market at some 15s. per pound, it becomes obvious that this crop of Lady Downe's so preserved is rendered with the advance of the season of considerable value. I should think that our leading fruiterers might make a good hit by establishing Grape rooms on their own premises, as they would then be enabled to buy up whole houses of Grapes at once and at a cheaper rate, and store them where they could be had at a moment's notice. Mr. Wildsmith holds that the great secret of successful Grape storing consists in the fact that the crop must be thoroughly ripened before being cut; the Grape is then much less liable to change, and maintains its good qualities for a longer period. With Kemp's Grape rail a large number of bunches may be stowed in a small space, but at Heckfield the shelves on which the bottles are placed are elevated in three tiers around the walls, and thus the Grapes are brought nearer to the eye line than if placed near the floor. A little ventilation and a very little fire-heat suffices to keep the atmosphere and the temperature all that can be desired. *A. D.*

Interpretation of Schedules.—On examining the schedule of prizes to be awarded at the horticultural exhibition to be held in Manchester in May next, I find there are two or three matters which seem to require explanation, and, as most horticultural societies are interested, it has occurred to me that the *Gardeners' Chronicle* would be the best source to apply to for reliable information. In class 25 prizes are offered for three pots of Lilium auratum. Of course it is quite competent for one exhibitor to grow as many bulbs in each pot as he chooses; but in classes 35, 36, and 37 prizes are offered for sixteen, ten, and six Orchids in flower. Now suppose half a dozen plants are put together in a mass in one pot, as is very frequently the case—the result being that the lot is made up of double, triple, or even a greater number than is stated in the schedule—would such a collection be entitled to the prize, or ought it not to be disqualified? Again, supposing a prize were offered for six Pelargoniums or Cinerarias, and the exhibitor, to make up a great show, introduced several plants in a pot, would that fact form a disqualification or not? Such practices are, unfortunately, becoming very common, to the great discomfiture of the honest exhibitor. If masses of plants, whether Orchids or other things, are desirable, why should it not be so stated in the schedule? But to offer prizes for six plants and allow a dozen to be exhibited in six pots seems an absurdity. *A Twenty Years' Subscriber.* [This is rather a difficult subject. As to the Lilies, the object is to secure a display, and therefore more bulbs than one are permitted. Orchids often grow in masses, which are more or less broken up when they are imported, and "specimens" are sometimes made up by putting together some of the separated pieces, but we do not think this is often done to such an extent and in such a way as to be a real grievance. Pelargoniums and such-like subjects would be assuredly disqualified if found to be made up. The conditions in this latter case are totally different from that of Orchids, though if these are too unscrupulously "manufactured" at the last moment we should be ready to disqualify them. Eds.]

Abies Douglasii.—I fully endorse all that is said by your correspondent, Mr. J. Sheppard, in favour of this magnificent tree, but it has one drawback—an utter inability to bear exposure to wind. I am acquainted with one of the original seedlings, now a fine piece of timber, which lost its head as soon as it overtopped the neighbouring trees, and that appears almos invariably to be the rule. A large plantation might protect itself; but they so soon overtop other trees that, when scattered among them, their growth is cut short in a few years. I may add, that I have found seedlings from the tree above-mentioned to be far superior to any which I have purchased. *H. K.*

Seedling Lilies.—If your correspondent, R. J. Elwes, wishes specimens of two-year-old plants of Lilium auratum, I shall be very happy to supply him with them for the purpose he requires them. I may also state that I have raised seedling Lilies, but have not as yet been successful in obtaining decided crosses, although attempts have been made to fertilise them with other sorts. Auratums have in most instances come with slight variation, such as are common amongst imported bulbs of that sort. Lilium speciosum (lancifolium) rubrum? came pure white, and L. giganteum, which flowered with me last year raised from seed ripened in the open air, had no marked difference, although careful fertilisation was attempted. I find, however, that this latter sort seeds so freely when left to itself, that it is necessary to take it in a very early stage of its flowering for the process of manipulation. I have opened the petals before their expansioo, and clipped off the anthers and fertilised the stigma as soon as it appeared shining and waxy, and have by this means gathered ripened seed, which is now sown, and in due time should vegetate—the sorts auratum and scarlet Martagon being made the males. *J. Webster, Gordon Castle, N.B.*

Gardenia Stanleyana.—In your notice of the above plant (see p. 374) you observe that "at first there was evidence of its being a free-blooming plant, but subsequent experience has proved it the reverse," &c. As I lived at Knowsley during the time Whitfieldias were under cultivation I have a vivid recollection of two varieties existing there, and designated the free *versus* the shy-flowering variety. I also remember that one of the plants known as the shy-flowering variety, and much the largest and oldest plant in the collection, did bloom, to the best of my recollection, once only, and it was remarked at the time that the blooms were of a paler colour throughout than the other. They do like bottom-heat and liberal treatment otherwise. I mention the above as an illustration of the fact that there are forms or varieties of certain species of plants which are more or less shy to bloom or fruit, neither is this peculiarity confined to any class or family of plants—it is, I believe, traceable to all. *Robert Bullen.*

Sulham Prize Pink Celery.—I quite agree with Mr. Ingram (p. 408) with regard to the keeping qualities of this Celery. I have some of it now in the ground alongside Sandringham Dwarf White and Haywood's White Queen, and one and all are remarkably good for the season (March 29). *H. W. Ward, Longford Castle Gardens, Salisbury.*

Hardy Hybrid Begonias.—It may interest some of your readers to know that now is the best time of the year to procure tubers of these beautiful and most easily cultivated plants, which only require to be allowed to start into growth in small pots in a cold house (as they actually dislike and resent any kind of forcing by artificial heat), and about the middle of May they should be turned out of the pots into a well-prepared bed in the garden filled with light rich friable soil, in which they will grow rapidly, and soon make nice bushy plants and begin to produce their bright showy blossoms about the middle of June, from which time till they go to rest about the middle of November they continue to produce flowers almost without intermission. The flowers are almost invariably produced on long footstalks from the axils of the leaves, in bunches of three, consisting of the large and handsome male flower in the centre, and a smaller but equally bright and longer lasting female flower on each side. About the commencement of September, when the nights begin to get chilly, the plants should be lifted with good balls and put into good-sized pots, when for the next couple of months or more they will form most acceptable ornaments for the conservatory shelf or drawing-room table. The hybrids, to which the above remarks especially refer, are those raised by Mr. V. Lemoine, of Nancy, France; and as the parents from which all his seedlings originally sprang were the hardy variety B. Veitchii, and the beautiful foliaged B. Pearcei, nearly all his hybrids partake of the hardy nature of the one parent and the ornamental foliage of the other, while the blossoms are nearly all modifications of and most of them improvements on those of the first-named parent. I should specially recommend the following varieties, which I know to be really distinct and beautiful, and with which I may safely say none of your readers who invest in them can fail to be pleased:—1, Camoens; 2, C. Glijm; 3, Corail Rose; 4, Mastodonte; 5, Rubens; 6, Velours. The tubers travel quite safely in a tin box by post, and the very moderate prices at which they are offered by the raiser puts them within the reach of almost every lover of flowers. Mr. Lemoine also offers two new varieties for the first time this season, named respectively Molière and Corneille, the latter often producing semi-double flowers. His fine double scarlet-flowered variety, named Monstruosa, of which a woodcut and description were given in the fourth part of the *Revue Horticole* for last year, has not yet been sufficiently increased to enable the raiser to distribute it; he hopes, however, to have sufficient stock to be able to do so before the summer of next year. *W. E. G.*

Lee's Hammersmith Early Kidney Potato.—I can fully endorse the recommendation Mr. Brown has given at p. 408 of Lee's Early Kidney Potato. I have grown it for the last two or three years, and am perfectly satisfied with it. It forces well. I have been sending it to table for the last three weeks, and it is spoken very highly of. It is very prolific, and nice and floury and of excellent flavour when cooked. But as a garden Potato in general I find very few, if any, to excel Myatt's Prolific. *H. W. Ward.*

Protecting Materials.—I was very much pleased with and, I hope, profited by reading your article (p. 372) on the protection of fruit trees. As to the material to be used, we do not appear to have much more choice than we had several years ago, though in almost every other department of textile manufacture there is a great increase in the variety of choice, if not in improvement of quality, from the finest "Lyons" to the coarsest "shoddy." When will manufacturers turn their attention to an improved covering, not only for our walls but also for our frames? As to the material for our walls, the most efficient and easy to apply is canvas on rollers, the canvas to be secured to the wall under the coping, the roller to be drawn up by two cords run through two pulleys at the top. But an important question to be asked is, Why do we cover the trees? Because their growth is too early for the season. Then comes another question, When is the best time to begin to cover? I think the earlier in January the better, but until the blossom-buds are ready to burst I would reverse the order of general practice by keeping the canvas rolled up at night, also in the day unless the sun is shining—on every clear day keep the canvas down, to keep the sun from shining on the wall where there are any branches. By so doing you will have a considerably later spring for your trees, consequently much less danger of the flowers or fruit being injured by the late frost. Those who have no appliances ready to use and late frosts prevail, will find a substitute not to be despised by nailing to the wall flat branches of Yew, the common Spruce Fir, or Abies Douglasii. These will be of considerable assistance in saving the crop. They will want going over frequently with a pair of pruning scissors, to cut out those sprays that are not wanted; this will give more light to the flowers and young shoots as they grow. *David Walker, Gr. to B. H. Collins, Esq., Dunorlan, Tunbridge Wells, March 29.*

DISA GRANDIFLORA.

This fine Cape Orchid is not nearly so often seen as its merits entitle it to be: any one who may have had the pleasure of beholding a good quantity of it in full beauty cannot readily forget the brilliancy of its large scarlet and yellow flowers, which are borne on tall leafy stems, something after the style of the herbaceous scarlet Lobelia, but the individual flowers of the plant in question are many times larger and much more brilliant, to which may be added a singularly grotesque form, which is at the same time extremely fascinating. One of the reasons, perhaps the main reason, why this most beautiful Orchid is not cultivated wherever a Chinese Primrose or a Fuchsia is grown is because it will only succeed under a special treatment, and either that treatment must be afforded by the natural conditions of the structure in which it is placed, or it must be procured by daily attention. It is a plant which will not forgive neglect. The soil most suitable for the Disa is a good sound peat, such as would do for Heather, but not so fibry as the peat usually used for Orchids, to which should be added a good quantity of good clear sharp river sand—silver-sand is not coarse enough—and some dry horse-droppings, which should be well mixed together, taking care not to break the peat up too fine. Select a broad pan in preference to a pot, and well and carefully drain by placing the crocks in such manner that they will not readily choke; if the drainage is thrown in in the careless slip-shod manner so usual now-a-days failure may be expected. Cover the crocks with a little sphagnum moss, and fill the pan to the rim with the above compost, on which place the plant, keeping it well raised up so that no water may lodge about the stems. The best time to pot these plants is about the beginning of November, after the shoots have nicely risen to the surface. After potting place in a cool, moist, but airy house or pit, not in too much sunshine, and syringe overhead six or seven times daily; it is better to syringe than to water—in fact, the Disa should never be watered with a pot during this stage, but be kept continually wet on the foliage by syringing; the soil by these means will be kept sufficiently wet without any additional watering. When the flower-buds are nearly ready for expanding the syringe should be laid aside and the water-pot called into use, commencing again with the syringe as soon as the young shoots make their appearance after the blossoming period is over. *William Denning, Norbiton.* [Our illustration, fig. 90, is of a plant 3 feet 6 inches high, grown by Mr. Denning, in Lord Londesborough's collection. Eds.]

Reports of Societies.

Glasgow and West of Scotland Horticultural: *March 25.*—The spring show of this Society, which was held in the City Hall, was publicly opened by Colonel Buchanan of Drumpellier, the President, who said he had been asked to inaugurate the spring show, the first of the year, by a public opening. This was, he believed, a new thing in Scotland, but in England it had been very commonly done, and with the best results. He hoped that the public opening in Glasgow might create additional interest in the exhibitions, and tend to promote the success of the show that day, as

well as the general financial prosperity of the association. The Society had now been established for nearly a hundred years, and its funds had been increasing pretty steadily, although not in the ratio the directors desired. The annual revenue had been about £1000, but the expenditure had been nearly as much, about £420 being distributed in prizes. He was sorry to say that the number of yearly subscribers only amounted to 150—a fact which was the more to be regretted, because the Society was one which merited support as much as any institution in the city. In other large cities and in England organisations of this description were quite successful, and he knew of no good reason why Glasgow should not possess a flourishing horticultural society. A man who was fond of flowers could not be altogether a bad man, and if this taste were cultivated it must less or more purify his moral nature, and raise him above the desire for the baser pleasures and temptations of large cities. In this view of the matter he thought no one should grudge 10*s.* or 20*s.* a year for the Society, and in such a city as Glasgow there were very many to whom such a sum was the veriest trifle. It was not unproductive expenditure. The Society was doing real practical work, and he trusted it would no longer be possible to speak of its annual subscribers as limited to 150. Colonel Buchanan then formally declared the exhibition to be opened, and introduced the Lord Provost, who said he was glad to be able to stand on the platform of the City Hall and take by the hand his American cousin, Mr. Grant, son of the President of the United States. Of all countries in the world it was most desirable that we should be at peace with America, whose population was so largely recruited from Britain, and it might indeed be said that the amity of the civilised world depended upon the preservation of the *entente cordiale* between America and this kingdom. His lordship went on to say that he had been asked to make a few remarks in the way of commending the claims of the Society. And yet, after all, what need was there for doing so? Those flowers which brightened the hall so greatly, those children of Nature tended by man, spoke far more eloquently than he could do on behalf of the association. All those whom he addressed, at least all such as had attained to years of discretion, remembered having at some period of their lives used the language of flowers, and perhaps made these exquisite productions of Nature give expression to thoughts which the tongue was too timid to declare. And so he might now safely leave the flowers to plead their own cause, or at least to furnish the spirit and essence of such an appeal. For himself, he should quit the flowery paths of speech and turn to practical matters, because, after all, a Lord Provost was nothing if not practical. Now, the practical counsel he had to give was, that they should all follow the advice of Colonel Buchanan and subscribe to the funds of the Society, which at present did not receive the support it was entitled to. He trusted that stigma would now be removed. One thing he would like to recommend, namely, the desirability of encouraging cottage gardening. All round Glasgow a great many houses were now being built for the industrial classes, and he thought it would be of great importance to encourage cottagers in giving their leisure hours to the cultivation of flowers and plants. There was also in the city—probably if was due to the climate—a great lack of the window gardening so common in London, Paris, and other large cities. The poor people living in very humble quarters in these busy communities, and shut out almost from the light of heaven, sought to overcome the depressing nature of their surroundings by growing a pot of Mignonette or a Geranium in the window-sill, with a canary overhead. His lordship concluded by again appealing to the citizens to give increased support to the Society.

Fig. 90.—Disa grandiflora, as grown by Mr. Denning at Norbiton.

The exhibition thus formally inaugurated was a highly attractive one. The favourable change in the weather from searching east winds and pressing cold to that of auspicious mildness brought out such a display as we have seldom witnessed in the City Hall. Moreover, the novelty of a public opening attracted many. There were not, it is true, so many of the productions of gentlemen amateurs as have occasionally been seen on the tables; but the lack of these was more than compensated by the superb display from the various nurserymen in and around the city. The principal hall was brilliant with everything that is rare and beautiful in flowers, and what with the rich tints of Azaleas and Rhododendrons, and Dutch bulbs of every description, commingled with the graceful folage of Palms, Ferns, and those elegant coloured plants of which the Dracæna and the Croton are the most distinguished representatives the tables seemed to groan with Nature's beautiful productions.

Mr. James Anderson, Meadowbank Nursery, Uddingston, was successful in taking first honours among the nurserymen for a collection of plants. Of those exhibited many were rare and beautiful—more remarkable, indeed, for their rarity and their beauty as individual flowers and plants than for their size. Mr. Anderson's table stretched across 30 feet of the hall, and among its chief attractions were the flowering plants of Azaleas, of which there was a very large assortment; Orchids, of which there was a marvellously fine white and yellow Dendrobium thrysiflorum, and a clear white species with a deep orange eye called D. Jamesianum; the Amaryllis, from Brazil, which were very marked for their colours and prominent tints—the sorts called Pardina grandiflora and Vivid, the one spotted and the other bright scarlet, being highly attractive. The beautiful-leaved plants were very conspicuous, especially the young Dracænas, the Crotons, and the Palms, while not the least attractive were the upright Pitcher-plants, some of them in flower. One plant was particularly sought after, studded with tiny cruciform flowers and not a single leaf; this was a Spiræa [? Deutzia], which seemed to be new to most of the promenaders. Alongside of this table was one from Messrs. J. & R. Thyne, of the Great Western Nurseries, comprising large specimens of Palms and Azaleas, of which the striking amœna was the most beautiful. These, together with Yuccas and Ferns and choice foliage plants, rendered this table most interesting. On the other side was the bulbous collection of Mr. Peter Mackenzie, Gordon Street, better flowered and better put upon the table than we remember to have seen it; and on the platform was a very showy and fine collection from Messrs. Austin & McAslan, Coplawhill. The Rhododendrons and Azaleas, and indeed all the plants in this exhibit, were highly meritorious, and added much to the general attractions of the hall. This table was backed up by unquestionably the best flowered specimen Camellias, from Mr. Thos. Hill, Merrylee, and others, we have ever seen exhibited in Glasgow, and gave one a very favourable impression of the Camellia as an exhibition plant. We noticed that the pale carnation-striped variety called Jubilee was the best among light-coloured varieties, and the scarlet imbricata by far the best among dark ones. Messrs. Smith & Simons had an excellent table well arranged and filled with highly ornamental plants, among which were Palms and flowering plants, and the New Zealand Flax in splendid style, and

many other things suited for the general grower. Mr. William Montgomery had, as usual, a fine lot of small specimens, comprising most things in season at this time of year; and Mr. Wm. Paterson had a very good assorted lot, his Roses, Palms, bulbous plants, and Lily of the Valley being quite marked in character.

The private collections were limited, the best coming from Messrs. J. C. Wakefield, A. B. Stewart, Jas. Findlay, James Gordon, and Aitkenhead, the gardeners to these gentlemen distinguishing themselves both as culturists and as competitors. The Cœlogyne cristata and Adiantum farleyense, the most beautiful of Maidenhair Ferns, were splendid in the 1st prize collection, and the Cocos Weddelliana and Odontoglossum Hallii, a quite grotesque insect-looking plant, in the 2d prize lot, were of the highest excellence, and reflected much credit upon both Messrs. Fleming and Todd. The specimen Cyclamens exhibited by Colonel Buchanan, Drumpellier, were faultless as cultivated plants, and the highest meed of praise is due to Mr. Lewin, the gardener; while in the table plants from Rawcliffe Lodge, shown by Mr. Todd, the handsome outline of the plants and their rarity attracted the attention of all *connoisseurs*. The Aralia Veitchii, Calamus ciliaris, Geonoma gracilis, and Cocos Weddelliana were simply superb. The Hyacinths from Mr. Peter Mackenzie were in greater force and finer than ever. The blue and white Lord Palmerston, the King of the Blues (a superb Hyacinth), the bright red Macaulay, the pale lavender Lord Derby (than which there was nothing finer exhibited), the rosy, close-headed Von Schiller, the blue General Havelock, the pure white Alba maxima, and many others nearly equally good, shone out in most of the collections. Mr. John Sutherland had a very creditable lot. Mr. George Irvin, Port Glasgow, and Mr. M. Miller, Bothwell, had really superb heads of bloom, the latter exhibitor having the finest foliage plants, and the former the largest heads of bloom. Both were highly meritorious exhibits. The Narcissus, the Crocus, the Tulips, and the miscellaneous bulbs were very fine, as also the Deutzias and the Rhododendrons, the latter particularly rich in the saloon, from the gardens of Garscube, exhibited by Mr. James Graham, and from Mr. James Beveridge, who put up grandly flowered plants of Rhododendron Countess of Haddington, a sort comparatively new to commerce. Mr. D. Y. Stewart, of Barassie, exhibited an excellent basket of Black Alicante Grapes.

The amateurs were in strong force, and exhibited many articles that would have vied in excellence with gardeners. It is well that this department of horticulture is so well attended to by the promoters of the Society, as it encourages many gentlemen to give up somewhat of their spare time to flower cultivation. A silver cup is to be awarded for this department at the future shows of the Society. The secretary, Mr. F. G. Dougall, was untiring in his efforts to promote the comfort of all concerned, and not a little of the success of the show is due to his efforts, ably seconded as he was by Mr. C. M. Williamson, the treasurer.

The directors of the Society and their friends, with the judges, dined together in the afternoon, at Mr. C. Wilson's, West Nile Street, the chair being occupied by Mr. D. Duncan, and the duties of croupier discharged by Mr. Eadie.

Royal Botanic: *March* 31.—This Society's first spring show may be said to have been a little above the average merit of its predecessors, and favoured with comparatively warm, if not particularly bright, weather, there was an excellent attendance of visitors in the afternoon. There were only two competing collections of twelve stove and greenhouse plants, but both were very neat and fresh. The best came from Mr. J. Ward, gr. to F. G. Wilkins, Esq., of Leyton, who staged, amongst others, a specimen of Cypripedium villosum with about three dozen flowers; Phajus grandifolius, with four spikes; a good Lycaste Skinneri, Odontoglossum triumphans; a nicely flowered Eriostemon buxifolius; Cytisus racemosus elegans, a large and well furnished specimen; and a fine plant of Anthurium Scherzerianum, with four of the finest spathes we remember to have seen, and which measured 5½ inches in depth and 4 inches across. Mr. G. Wheeler, gr. to Sir Francis Goldsmid, Bart., Regent's Park, who took the 2d prize, had nicely flowered but not large examples of Chorozema Lawrenceanum, Cochliostema Jacobianum, Imantophyllum miniatum, Hedaroma tulipiferum, Azalea Marie, Franciscea calycina, Cypripedium barbatum, Dendrobium nobile, &c. The amateurs' class for six Azaleas was very well contested, and the specimens staged, while being of medium size, were beautifully flowered, and perfectly fresh. The prizes were awarded to Mr. J. Ward, Mr. G. Wheeler, and Mr. Coles, gr. to Mrs. Torr, Ewell, in the order named. In the nurserymen's class there was only one exhibitor—Messrs. William Cutbush & Son. Deutzias were also fairly well represented, but not so well as we have seen them before. The half-dozen specimens shown by Mr. James Douglas, gr. to F. Whitbourn, Esq., Loxford Hall, Ilford, and which easily won the 1st prize, were remarkably good examples of high cultivation, and differed in style from the plants ordinarily seen in being trained in the form of a hollow cylinder, which allows of the old wood being entirely hidden from sight. The 2d prize group, which came from Mr. Childs, included four standards, with bushy heads on clean stems, 3—4 feet in length, very useful plants in a large conservatory, no doubt, but not to be recommended for exhibition purposes.

The Hyacinth classes were well contested, and, on the whole, made a fair show, though we did not think the spikes were so fine, as a rule, as we have seen them in previous years. One class was for "twelve plants, any number of spikes," in which there were quite as many spikes which were simply fasciated as there were of plants with two and three spikes—proving the arbitrariness of the distinction which has been drawn. Every one knows that the finest spikes are those which come fasciated, and surely no one will claim that these should not be shown as single spikes. Fasciation being in a great measure the result of accident, which at present no grower can prevent or control except to a limited extent, it may reasonably be argued that if a bulb throws up two or three single spikes (by accident, which cannot be prevented) it cannot be unfair to show the whole tied up as one spike. We are of those who believe that whatever number of spikes a single bulb may produce should be legitimately and fairly entitled to be shown in any class; and we believe that by drawing such lines of distinction as are now attempted to be drawn, future competition will be confined to growers of the greatest numbers—for small purchasers, who are the real supporters of the bulb trade, in not being able to select their bulbs for a definite purpose beforehand, will, as a consequence, be debarred from competing—with the result to bulb importers of something very like killing the goose that lays the golden eggs. Of the class for any number of spikes it may simply be mentioned that Messrs. Cutbush and Son were 1st, Mr. Douglas, 2d; and Messrs. Barr & Sugden, 3d; for it can serve no useful purpose to say that this variety had two spikes, that three and the other four, where accident at present plays such an important part, though we think it most probable if the production of these fasciated spikes be encouraged their production will soon become something more than accidental.

In the amateurs' class for twelve single spikes, Mr. Douglas came in 1st, Mr. James Weir, gr. to Mrs. Hodgson, The Elms, Hampstead, 2d, and Mr. G. Potts, 3d—all showing well known varieties in very creditable order. In the corresponding class for nurserymen the prizes went to Messrs. Cutbush & Son, Messrs. Barr & Sugden, and Messrs. James Carter & Co., in the order named, the specimens shown being of the same average merit attained in the amateurs' class. Tulips were very attractive and good, Mr. James Douglas having the best twelve plants that were staged—a result especially creditable to an amateur in the presence of the larger growers. In the amateurs' class alluded to, next to Mr. Douglas came Mr. Child, gr. to Mr. Torr, and Mr. G. Toms—the productions in both cases being very creditable indeed. As in the nurserymen's class for Hyacinths, so in that for Tulips—the prizes went to the same firms, and in the same order of merit, viz., Messrs. Cutbush & Son, 1st, Messrs. Barr & Sugden, 2d, and Messrs. James Carter & Co., 3d.

For twelve Cyclamens there were only two competitors—H. Little, Esq., and Mr. James—who took the prizes in the order named. Mr. Little had the largest plants and the greatest variety in colour, while the smaller plants from Mr. James were a delightful *bonne bouche* to sticklers for floral formality, being so perfectly even in all points as to have the appearance of being cast in a mould rather than grown.

In the miscellaneous class, an all-important one at small shows, Messrs. George Paul & Son exhibited a very fine bank of forced Roses in pots, the plants being well furnished with foliage and flowers of first-rate quality. Mr. Turner, of Slough, contributed a striking group of Ivies, amply furnished and neatly trained on oval-shaped wire trellises; a still more attractive collection of standard plants of Aucuba japonica vera, which were most splendidly furnished with berries, and a basket of plants of the semi-double lavender-blue Violet, Lady Hume Campbell. Groups of stove and greenhouse plants came from Mr. G. Wheeler and Mr. B. S. Williams—the latter showing amongst others a large and very fine plant of Imantophyllum miniatum, the pretty blue Tillandsia Lindeni, Puya Altensteinii, with white flowers enveloped at the base in scarlet bracts; Aerides Fieldingii, Trichopilia suavis, Lycaste Skinneri, Encholirion corallinum, with a fine spike of waxy green flowers inclosed in dull crimson sheaths; Geonoma gracilis, Anthericum variegatum, with white margins to its long green leaves; and an elegant Alsophila Van Geertii. From Mr. William Paul came a very attractive group of small but well furnished plants of Camellias, two boxes of cut blooms of the same flower, and examples of the fine Waltham White Primula. A fine batch of Cyclamens of the most approved type came from Mr. James, and Messrs. Barr & Sugden and Messrs. James Carter & Co. each sent large collections of Hyacinths. The first-named firm were also contributors of a nice group of Narcissi, and the latter of Tulips. A choice group of seedling Cinerarias came from Mr. James, who also took the 1st prize for nine with admirably-flowered specimens. From Mr. W. Stevens, gr. to G. Simpson, Esq., Reigate, came a specimen of Dendrobium fimbriatum oculatum, which measured 3 feet through, and nearly the same in height, evenly and regularly flowered all over—a wonderfully fine specimen.

Mr. William Paul's Spring Show.—Mr. Paul's exhibition opened in the Western Arcade in the Royal Horticultural Society's gardens, South Kensington, on Saturday last, and closes to-day. To say that it has been very successful is only to repeat what has been previously said of other enterprising efforts of a similar nature which Mr. Paul has carried through, and it says much for the resources of the establishment at Waltham Cross that he should have been able to stage such an extensive and admirable collection of flowering plants, in spite of the extremely adverse weather he has had to contend against. Hyacinths and Tulips were shown in greater numbers than any other class, and being arranged in masses, with groups of Camellias, Roses, Spiræas, Silver Tricolor Pelargoniums, Azaleas, Clematis, Primulas, Narcissus, Deutzias, &c., intervening—the whole had a very good effect. All the plants were of excellent quality, and the bulk of the Hyacinths and Tulips were quite up to Mr. Paul's high standard of excellence. Amongst the Roses we noticed the new Star of Waltham, which does but strengthen the good opinion which we formed of it when first shown last year. Amongst the new Hyacinths, Baron Beust, single, porcelain-blue, with fine reflexed bells; Von Moltke, very dark single blue, with white centre; Admiral de Ruyter, with the back of the petals of a Cambridge-blue tint and large bells; and Snowspike, single white, with petals of great substance, good bells and spike, were the best.

Messrs. William Cutbush & Son's Exhibition at Highgate has been open all the week, and well deserved the extensive patronage which has been accorded to it. On Easter Monday no less than 2000 persons passed through the show-house, which, though small, was full of flowering plants, the Hyacinths, of course, having the lion's share of the space, as might be expected from the high reputation which the firm has gained for its culture. The front and one side of the house was most tastefully arranged with Hyacinths, broken up into groups by small masses of dwarf-flowering Camellias, Deutzias, Lily of the Valley, Cyclamens, Azaleas, Cytisus, and the usual etceteras *ad libitum*—the bright colours on these as on the other sides of the house, which were filled with Narcissus and Tulips, by a large mass of Camellias in the centre, the rich green foliage of which formed a striking and pleasing contrast.

Garden Operations.

(For the Ensuing Fortnight.)

PLANT HOUSES.

Greenhouse Hard-wooded Plants.—In plants with variegated or handsome leaves that are used for the decoration of halls, rooms, &c., we are obliged to depend considerably upon such as require more or less heat to grow them; these answer the purpose very well during the warmer portion of the year, but in the chilly autumn and winter they are soon rendered useless. Provision should be made against this, by the timely preparation of a selection of the most appropriate plants for winter use, and that will grow and exist in a greenhouse temperature. The number to select from is not nearly so large as is to be found amongst the occupants of the stove; nevertheless there are many that will do good service for mixing with the usual flowering greenhouse subjects, forced or otherwise, in use at the dull season, and there is no better time than the present for laying in such as will be of use for the purpose under consideration. *Lomatia leptophylla*, *heterophylla* and *ferruginea*; *Grevillea robusta*, *longifolia* and *rosmarinæfolia*; *Eurya latifolia variegata*, *Bambusa Fortunei variegata*, *Acacia lophantha*, *Aralia crassifolia*, *quinquefolia* and *trifoliata*; *Aspidistra lurida variegata*, *Farfugium grande*, *Rhopala corcovadensis* and *elegans*, *Ficus elastica*—all these plants will succeed with ordinary greenhouse treatment as to soil, air, and water, and a mixture of good fibrous loam and peat in equal proportions, with a moderate addition of sand, will answer for them. They should not be grown in pots larger than necessary to support them in a healthy growing state without over-luxuriance, as, for the purposes they will be required, this would render them less calculated to keep in good condition; moreover, in such places as they will be wanted to do duty in, the pots are often

required to be plunged in others of an ornamental character, or in vases, so that it is an advantage to grow them in pots as small as they will succeed in, to assist which liquid manures may with safety and advantage be given to all subjects of this character. As a small plant for indoor decoration *Isolepis gracilis* is very useful. It is easily increased, for a plant that fills a 6-inch pot moderately, will divide into a score of bits that in a season will make nice plants; it should be grown in quantity, and is very effective when stood in front of, and as means of hiding, larger pots—its drooping habit fitting it for such a position. *T. Baines.*

KITCHEN GARDEN.

Remove the protecting material from about the crowns of *Globe Artichoke* plants, and replace it with a mulching of manure about 3 inches thick. If the dressing of this estimable kind of vegetable was more commonly understood, it would be generally more extensively cultivated. Artichokes, when properly prepared, if only plain boiled and seasoned, are very delicious. To secure large heads of tender quality, which is the chief object with this subject, young vigorous plants are indispensable, and well enriched soil where moisture abounds at the roots is also necessary for the plants to make growth. We seldom retain plants more than two years without shifting them. For ordinary purposes a new plantation should be made every spring at about this time; these plants will give a limited supply of heads this autumn, and produce them abundantly next season. In dividing the plants, different modes prevail; some prefer the suckers entirely separated from the old roots, and plant them out, singly or otherwise; we, however, retain a part of the old roots, to sustain vitality in the suckers during the period new roots are being emitted, and chose pieces with three or four offsets on them, and displace others above this number. Plant rather deeply, about 4 feet apart every way, and mulch at once to prevent evaporation. *Rhubarb.*—Plantations of this should be seen to now, and any deficiency of roots through being lifted for forcing purposes should be made up. In most private establishments the supply is maintained by having recourse to a division of those roots which have been forced; if such were laid-in in the manner indicated in this Calendar, they will now be fit for planting out, and should be divided and transferred to the space set apart for the purpose—about 4 feet apart every way. Those roots which will be required to give an early supply next winter should not be plucked at all this season, but unrestricted growth allowed, so as to insure a mature development at the earliest period. This remark is also applicable to *Asparagus* and *Seakale* roots which are intended for the same purpose. Seakale roots which were cut into lengths, as before directed, will now be callused over, and should be planted in well prepared ground in rows about 2 feet apart and 1 foot asunder. Where the soil is strong and heavy, a coat of ashes half an inch thick on the surface will be beneficial. Where seedling plants are preferred, sow at once in drills about the same distance apart as recommended for planting. Prick the surface of the beds over where the roots have been forced under pots, and apply a surface dressing of well decomposed manure. If not already done, complete expeditiously the planting out of autumn-sown *Cauliflower*, *Cabbage* and *Lettuce*, and the Tripoli section of *Onions.* Make another sowing of the Brassica tribe about the middle of the month, and include that superb variety of autumn *Broccoli*, Veitch's Autumn Giant, and other kinds for spring use, amongst which may be named Snow's Winter White, Frogmore and Knight's Protecting, Penzance, Chappel's Cream, Wilcove, and Mayer's Gigantic. Sow likewise *Turnips* and round *Spinach* occasionally, also *Radish*, *Lettuce*, and *Mustard* and *Cress*, and the *Australian Cress*, which is most useful for salading at this season.

Salsify and *Scorzonera.*—These roots are very much esteemed at some places; where such is the case extra attention should be given to them by affording a place for them where the soil is deep and rich in manure. In sowing the seed, scatter it thinly in drills 18 inches apart and 2 inches deep. *Chicory*, the roots of which will be required for blanching for salading in the winter, should be sown in the same manner as Parsnips; a few dozens of good roots of this is generally ample for ordinary requirements. When the plants of a former sowing of *Broccoli*, &c., are large enough to be handled, they should be thinned out in the seed-beds, or otherwise be pricked out into prepared beds, to secure a sturdy habit. Choose a sheltered situation, and make a sowing of *Celery*; those plants which are raised under hardy conditions are preferable for the general planting to those which under other circumstances frequently become drawn up weakly. Sparrows are sometimes very destructive to the Onion crop, pulling up the plants as fast as they emerge from the soil. If so, place a few strands of flimsy twine across the beds; this invariably checks, if it does not stop them altogether.

Late Forcing Department.—Continue, as advised, to ventilate freely whenever favourable all growing crops of vegetables which are in frames or pits. If necessary, water *Potatos* before soiling them up; too much of this element under these conditions will, however, deteriorate the flavour. Thin out later crops of *Carrots*, and plentifully supply them with moisture. Prick out *Celery* from seed-pans, and sow *Tomatos*, *Capsicums*, *Sweet Basil*, *Knotted Marjoram*, and *Summer Savory*. Pot *Tomatos* into fruiting pots, and remove all side growths; one stem is enough for plants in pots. *G. T. Miles, Wycombe Abbey Gardens.*

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
For the Week ending Wednesday, March 31, 1875.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 Years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 60 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
	In.	In.	°	°	°	°	°	°			In.
Mar. 25	30.17	+0.39	56.8	39.5	17.3	47.0	+ 4.7	40.0	77	W. : WSW	0.00
26	30.04	+0.27	55.7	44.9	10.8	48.8	+ 6.3	41.5	76	S.W. : S.S.W.	0.00
27	29.88	+0.11	54.4	39.8	14.6	46.2	+ 3.5	37.0	71	WNW : WSW	0.01
28	30.08	+0.32	47.5	37.5	10.0	41.8	− 1.2	37.5	86	NNW	0.00
29	30.27	+0.51	51.8	40.0	11.8	44.3	+ 1.0	38.9	81	WNW : N.W.	0.00
30	30.31	+0.55	53.2	42.7	10.5	47.0	+ 3.3	42.6	85	WNW : W.	0.00
31	30.35	+0.60	55.4	41.8	10.6	48.4	+ 4.4	43.0	82	NNW : NNE : E.	0.00

Mar. 25.—Fine, bright, partially cloudy, and very mild throughout.
— 26.—Fine, mild, and partially cloudy in morning. Overcast, and dull in afternoon and evening.
— 27.—Fine, bright, mild, and light clouds prevailed throughout. A smart shower of rain fell at 6.15 p.m.
— 28.—Fine, dull, cloudy, and mild throughout.
— 29.—Overcast, dull, mild, and nearly calm throughout.
— 30.—Overcast, mild, though bright at intervals throughout the day.
— 31.—Overcast, dull, and mild throughout. Fog in morning.

—— In the vicinity of the metropolis the reading of the barometer at the level of the sea increased from 30.14 inches at the beginning of the week to 30.18 inches by the afternoon of the 21st, decreased to 30.07 inches by the afternoon of the 22d, then turned to increase to 30.38 inches by the morning of the 25th, and decreased to 30.03 inches by the end of the week. The mean daily readings were above their averages throughout the week. The mean reading for the week was 30.23 inches, being the same as that of the preceding week, and 0.26 inch above the average.

The highest temperatures of the air at 4 feet above the ground varied from 41½° on the 21st to 56¾° on the 25th, the mean value for the week being 50¼°. The lowest temperatures of the air ranged between 31¾° on the 23d and 45° on the 26th; the mean for the week was 36½°. The mean daily range of temperature in the week was 14°, varying from 6½° on the 21st to 18° on the 24th. The mean daily temperatures of the air, and the departures from their respective averages, were as follows:—21st, 37°.4, — 4°.4; 22d, 39°.5, — 2°.4; 23d, 38°.1, — 3°.9; 24th, 40°.7, — 1°.4; 25th, 47°, + 4°.7; 26th, 48°.8, + 6°.3; 27th, 46°.2, + 3°.5. The mean temperature for the week was 42°.5, being 0°.3 above the average, as deduced from sixty years' observation.

The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in the sun's rays, were 111°, 105°, and 103½°, respectively, on the 23d, 26th, and 27th, but on the 21st 54° was the highest reading. The lowest readings of a thermometer on grass, with its bulb fully exposed to the sky, were 27° and 27½° on the 22d and 23d, but on the 26th 41° was the lowest reading; the mean for the seven low readings was 31°.9.

The direction of the wind was variable, and its strength gentle.

The weather during the week was generally fine, mild, and cloudy.

Rain fell on two days; the amount collected was 0.02 inch.

In England, the extreme high day temperatures ranged between 64° at Sunderland and 51½° at Bradford, the general average all over the country being 55¼°. The extreme low night temperatures varied from 38¾° at Liverpool to 25¼° at Eccles, with a general average of 30¼°. The mean of the extreme ranges of temperature in the week was 25°, the greatest range being 32°, at Sunderland, and the least, 14°, at Liverpool. The mean high temperatures observed by day ranged from 54½° at Sunderland to 48¾° at Liverpool and Leeds, with an average value of 50¼°. The mean low temperatures observed by night varied between 41½° at Liverpool and 34° at Norwich, the general average being 37½°. The mean daily range of temperature in the week was 13°, ranging from 16½° at Manchester to 7½° at Liverpool. The mean temperature of the air for the week from all stations was 42¾°, being 4° lower than the value for the corresponding week in 1874; the highest occurred at Sunderland, 45½°, and the lowest at Norwich, 40½°. The average fall of rain during the week was five-hundredths of an inch; the amounts varied from two-tenths of an inch at Liverpool to one-hundredth at Sunderland; at Birmingham and Wolverhampton, however, no rain fell.

The weather during the week was generally fine, mild, dull and cloudy.

Snow fell on March 21 at Manchester.

In Scotland, the highest temperatures ranged from 56° at Edinburgh and Perth to 53° at Greenock and Paisley, the general average over the country being 54½°. The lowest temperatures varied between 35½° at Glasgow and Leith and 30° at Paisley; the general average was 33½°. The mean range of temperature in the week was 21°. The mean temperature of the air for the week was 45½°, being 1½° lower than the value for the corresponding week in 1874. The highest was at Edinburgh, 46½°, and the lowest at Aberdeen, 44½°. The fall of rain varied from five-tenths of an inch at Greenock to one-tenth at Aberdeen and Leith. The average fall over the country was three-tenths of an inch nearly.

At Dublin, the highest temperature was 58°, the lowest 38°, the range 20°, the mean 47½°, and the fall of rain 0.20 inch.

JAMES GLAISHER.

Enquiries.

He that questioneth much shall learn much.—Bacon.

44. Sweet Nancy.—I shall be glad if some of your correspondents will kindly inform me if there is such a flower as the "Sweet Nancy," or whether it is a local name for any flower. *E. F.*

Answers to Correspondents.

Alocasia macrorhiza variegata: *Notts.* Take off the top and strike it—in moist heat, of course. If the roots are healthy you will also get cuttings from the old stem. As the plant has very fleshy stems, take care they do not rot.

Books: *A Young Beginner.* Your first question is so vague that we cannot answer it. You may obtain a cheap gardeners' dictionary (Johnson's) from Messrs. Daldy & Sons, York Street, Covent Garden, W.C. —*W. T. E.* Write to Mr. E. H. May, 171, Fleet Street, E.C., for the book you want.

Camellias: *G. L. A.* Certainly, to be "always in the habit of cutting Camellia flowers freely," especially in the case of young plants, injures them greatly. When the plants attain to some size and bloom sparingly, then only may the flowers be cut constantly. Why not have resort to the expedient practised by growers for market, viz., remove the blooms without cutting the wood, and wire the flowers, by fixing two wire cross-ways through all the petals and thus forming an artificial stalk with the four ends underneath? *W. E.*

Creeper: *Subscriber.* Tacsonia Van Volxemii, or Lapageria rosea.

Fig Trees: *J. O.* From your report we are inclined to believe that the tops or branches of your large Fig trees are dead. The roots are somewhat on the move, and shoots may be produced from the bottom of the stem. It is this that has caused the bursting of the stem. Below the sap is still active, above it is dried up. The application of heat so soon after planting such large trees was injurious; they ought to have been allowed to break gently, of their own accord; even now do not excite them too much until the roots have taken possession of the soil. You need not thin the young fruits on the young trees: they generally do that sufficiently of themselves.

Frost-Proof: *Fudge* raises some objections to a recent statement in a leading article. The expression "frost-proof" is, it is true, liable to misapprehension. The point of most practical importance is that the blossoms were frost-safe under such copings as described in the article in question, while those not so protected were destroyed. This safety was reached through or by the copings, hence the expression "frost-proof." Doubtless the copings do moderate the energy of radiation, especially when smeared over with white-wash; and they likewise surround the blossoms with conditions more favourable for resisting cold. Putting together the cold they resisted, the heat they conserved, and the increased power of endurance with which they furnished the blossoms, *Fudge* may easily discover the causes of the success of glass copings as protectors of fruit tree bossoms.

Fumigator: *Notts.* Dreschler's fumigator may probably be had of some of the London seedsmen who lay themselves out for the supply of horticultural requisites. We do not give prices, but we believe it is not a very expensive article.

Fungi: *A. Hayter, Salisbury.* Your specimens belong to a coarse variety of the Horse Mushroom; there is nothing specially peculiar in their thus growing in a somewhat odd place and a little out of season.

How to Clean Cider Barrels: *X. X.* The *English Mechanic* gives the following directions:—

Pour in lime-water, and then insert a trace chain through the bung-hole, remembering to fasten a strong cord on the chain, so as to be able to pull it out again. Shake the barrel until all the mould inside is rubbed off. Rinse with water, and finally pour in a little whiskey.

MUSHROOMS: *Subscriber. How to Grow Mushrooms*, by W. Earley (Bradbury, Agnew & Co.).

NAMES OF PLANTS: *A. Bennett.* 1, Veronica longifolia; 2, Centaurea, next week; 3, Sisymbrium Columnæ; 4, Rumex pulcher, probably; 5, Valeriana dioica; 6, Iberis pinnata, var.; 7, Atriplex patula, var. —*W. Ingle.* Echeveria fulgens, sometimes called E. retusa and E. splendens.—*J. H. S.* The white variety of Scilla bifolia.—*Mrs. Charles Maynard.* 1, Narcissus minimus; 2, Rhododendron dauricum; 3, Daphne Mezereum album.—*E. G.* Pinus Pinaster.—*T. H.* Kennedya rubicunda (Australia).—*A. Bennett.* We are unable to name the Centaurea without better specimens.—*Mrs. Bartlett.* Polystichum angulare grandiceps; and a Diplazium which is too young for determination.—*Gardener, Notts.* Selaginella erythropus.

PAMPAS-GRASS: *A Very Old Subscriber.*—We cannot tell you how to clear out the old growth without pulling the plant to pieces. For our own part, we should most certainly let such a fine plant alone.

PARAFFIN STOVE: *Amateur.* We know nothing about the stove you mention.

PAXTON'S CALENDAR: *Cantab.* Paxton's *Cottagers' Calendar* may be had from our publisher, for 4*d.*, post free.

POTATO EXHIBITION: *A Potato Grower* writes to suggest that the intended exhibition should be held in the Royal Horticultural Society's Gardens, South Kensington, on the same day as the fungus show—October 6. Our correspondent should have sent his suggestion to the committee of management, but we do not think that body would be likely to act upon it, as some at least of the promoters are not satisfied with the way in which the Society has treated the "noble tuber."

RABBITS INJURING YOUNG TREES: *D. S.* A mixture formed of coal-tar three parts, lard one part, and flowers of sulphur one part, boiled together and applied, will deter these rodents from nibbling the bark. Why not strew a few Ash branches around the young plantations, as rabbits greatly prefer partly dried bark, and that of the Ash in particular. *W. E.*

COMMUNICATIONS RECEIVED.—T. H. — W. F. R. — J. C. — J. F. R.—A. D.—A. B. M.—S. J.—J. N.—J. G. B.—A. H. —O.—B. D. S.—P. B.—An Exhibitor R. H. S.—W. D. F.—H. G. R.—G. W.—J. S.—J. K.

Markets.

COVENT GARDEN, *April* 1.

Although we have a light supply, it is equal to the demand at present, business generally being quiet during the holidays. Another large cargo of St. Michael Pines of fair quality is to hand, and we hear of more to arrive during the ensuing week. Some new Grapes have been offered from Jersey, and a slight improvement has taken place in those supplied by our home growers. *Thos. Taylor, Wholesale Apple Market.*

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, per ½-sieve	2 0–	3 0	Oranges, p. 100	.. 8 0–	12 0
Chestnuts, per bush.	10 0–	20 0	— Tangierine, doz.	1 0–	2 0
Grapes, English,			— Malta, per doz.	2 0–	3 0
per lb.	..10 0–	20 0	Pears, p. doz.	.. 4 0–	12 0
— foreign, do.	1 6–	4 0	Pine-apples, p. lb.	.. 3 0–	6 0
Lemons, per 100	.. 8 0–	12 0	Pomeloes, each	.. 0 6–	1 0
Medlars, per doz.	..	....	Shaddocks, each	.. 2 0–	3 0
Nuts, Cob, p. lb.	.. 2 0–	..0	Strawberries, per qt.	1 0–	2 0
			Walnuts, p. bush.	..16 0–	..

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, Fr., doz.	4 0–	..	Horse Radish, p. bun.	3 0–	5 0
Asparagus, English,			Leeks, per bunch	.. 0 2–	0 4
per bundle	.. 8 0–	12 0	Lettuces, per doz.	.. 1 6–	..
— French, p. bund.	20 0–	30 0	Mint, per bundle	.. 1 6–	..
Beans, French, p. 100	6 0–	..	Mushrooms, per pott.	1 0–	2 0
Beet, per doz.	.. 1 0–	2 0	Onions, young, bun.	0 4–	0 6
Broccoli, p. bundle	.. 0 9–	1 6	Parsley, per bunch	.. 0 9–	1 0
Brus. Sprts., p. bush.	9 0–	..	Parsnips, p. doz.	.. 0 9–	1 0
Cabbages, per doz.	.. 1 0–	2 0	Peas, per quart	.. 8 0–	..
Carrots, p. bundle	.. 0 6–	0 9	Radishes, per bunch.	0 2–	0 4
— French, do.	.. 1 6–	..	— black, Turnip, do.	.. –	0 6
Cauliflowers, per doz.	2 0–	6 0	Seakale, per bundle	2 0–	3 0
Celery, per bundle	.. 1 6–	2 0	Shallots, per lb.	.. 0 3–	..
Cucumbers, each	.. 1 0–	2 6	Salsify, per bundle	.. 1 6–	..
Endive, per doz.	.. 1 0–	2 0	Sprue, French, bund.	1 6–	..
Herbs, per bunch	.. 0 2–	0 4	Turnips, per bundle.	0 6–	..

Potatos:—Early Shaws, 110s.; Early Regents, 120s.; and Early Dons, 120s per ton.

SEEDS.

LONDON: *March* 31.—In consequence of the recent fine weather, we have now a very brisk demand for agricultural seeds. Considerable quantities of red Clover seed are being sold into the country at full prices, consequently stocks in London are getting into very narrow compass. Of large purple home-grown red there is but little offering. White Clovers keep in steady request at last week's currencies. Alsike is neglected at a still further decline. A large business on former terms has been doing in Trefoil seed. For foreign Italian and Scotch Rye-grasses there is an improved demand. Spring Tares experience an active inquiry at hardening values. In white Mustard and sowing Rape seed quotations tend upwards. *John Shaw & Sons, Seed Merchants*, 37, *Mark Lane, E.C.*

WANTED, a MAN to take charge of Houses in which Palms, Ferns, Azaleas, &c., are grown. With a nursery training preferred.—DRUMMOND BROTHERS, Larkfield Nursery, Edinburgh.

WANTED, a respectable YOUTH or young MAN who has been accustomed to Tying Plants for the London Markets. Must have had experience.—Apply, in first instance, by letter only, stating age, where last employed, and wages expected, WOODROFFE AND SON, The Westbourne Nursery, Harrow Road, W.

WANTED IMMEDIATELY, as BOOK-KEEPER and SALESMAN, in a large Provincial Nursery, an energetic Man, who thoroughly understands his business. Apply, stating age, salary expected, and where experience was obtained, to J. E. E., *Gardeners' Chronicle* Office, W.C.

WANTED, a HEAD SHOPMAN.—B. S. WILLIAMS requires immediately a first-class Head Shopman; a middle-aged Man preferred, and one who has already conducted a Retail Seed business. Liberal salary given.—Apply by letter in the first instance to B. S. WILLIAMS, Victoria and Paradise Nurseries, Upper Holloway, N.

WANTED, as UNDER SHOPMAN, for a Retail Seed Shop, a young Man.—State wages and all particulars, in own handwriting, to GEORGE COOPER, Seed Merchant, 29, Iron Gate, Derby.

WANTED, a steady, active MAN, who understands Nurserywork.—SAMUEL HARTLEY, Headingley Nursery, Leeds.

WANTED, ONE or TWO young Men, as IMPROVERS (under Glass), to work under the Foreman. Must have some knowledge of Plant Growing, &c.—E. WHITE, Bournemouth and Victoria Nurseries, Bournemouth.

WANTED, TWO or THREE MEN used to Nursery Work.—Apply, stating wages, &c., to EDWARD HOLMES, Whittington Nursery, Lichfield.

WANTED, TWO young MEN for general Nursery Work, and must be well up in Budding, Grafting, and making Cuttings. Situation permanent to steady industrious Men.—R. W. PROCTOR, Ashgate Road Nurseries, Chesterfield.

WANTED, an active OUTDOOR MAN, well used to Rose Budding. Good character indispensable. Wages £1 per week.—Messrs. PERKINS AND SONS, Park Nursery, Coventry.

WANTED, a steady, respectable LAD, to work under a Gardener; must have been brought up to the work, and be willing to make himself generally useful.—The GARDENER, A. J. Stanton, Esq., The Thrupp, Stroud, Gloucestershire.

WANTED, good JOBBING HANDS. Constant employment; 20s. per week.—WILLIAM HOLMES, Frampton Park Nursery, Well Street, South Hackney, E.

WANTED, for a small Nursery in Somerset, a FOREMAN who can Bud, Graft, and Work-up Nursery Stock. A permanent and comfortable situation, with cottage, if married.—Apply by letter, with particulars, NURSERYMAN, Messrs. Nutting & Son, 60, Barbican, E.C.

WANTED, TWO good NURSERY LABOURERS; state wages, reference, and age. Also a CARTER.—GEORGE J. WOOLLETT, Nurseries, Caterham, Surrey.

WANT PLACES.

To Gardeners in Want of Situations,

WHOSE CHARACTERS WILL BEAR STRICT INVESTIGATION.

THE PINE-APPLE NURSERY COMPANY devote special attention to this important matter—proper Men to suitable Situations. For a GARDENER, or for a SITUATION, please send full particulars to Mr. JOHN BESTER, the Pine-Apple Nursery Company, Maida Vale, London, W.

B. S. WILLIAMS, having at the present time several very excellent GARDENERS upon his Register, is desirous of placing them in Situations where great experience and trust are required. B. S. W. would at the same time beg to intimate that when a Gardener is applied for that the filling of the situation should be left with him, as that would prevent unnecessary correspondence and delay.—Victoria and Paradise Nurseries, Upper Holloway, London, N.

Head Gardeners.

JOHN LAING can at present recommend with every confidence several energetic and practical Men, of tested ability and first-rate character. Ladies and Gentlemen in WANT of GARDENERS and BAILIFFS, or GARDENERS for First-rate Establishments or Single-hand situations, can be suited, and have full particulars by applying at Stanstead Park and Rutland Park Nurseries, Forest Hill, London, S.E.

Gardeners and Under Gardeners.

WM. CUTBUSH AND SON beg to state that they have at all times on their Books MEN of VARIOUS QUALIFICATIONS, whose characters will bear the strictest inquiry. Any Gentleman making application would save time by clearly stating the duties to be undertaken, wages offered, &c., so that suitable Men may be selected.—Highgate Nurseries, London, N.

GARDENER (HEAD).—Age 26, single; has a good practical knowledge of Flower and Kitchen Gardening, and Stove, Fruit, and Plant Houses.—A. L., 18, Bedford Place, Old Dover Road, Blackheath, S.E.

GARDENER (HEAD).—Age 34, married; thoroughly practical, understands Gardening in all its various branches. Can be highly recommended. Twelve years' character.—GARDENER, Stoke Common, Slough.

GARDENER (HEAD).—Age 35, married; thoroughly competent. Would undertake Management of Land if required. Good character.—G. L., Mr. Wm. Paul, Nurseries, Waltham Cross, N.

GARDENER (HEAD).—Age 38, married.—R. GRAY, Gardener to E. Tonks, Esq., is at liberty to engage with any Lady or Gentleman requiring a thorough practical Gardener of great experience in all Departments. First-class certificates from present and former employers.—R. GRAY, Packwood Grange, Knowle, Warwickshire.

GARDENER (HEAD).—Age 40, married, Scotch; understands Vines, Pines, Early and Late Forcing of Fruit and Vegetables, and can take the Management of Land. Good character.—W. F., Post Office, Ascot, Staines.

GARDENER (HEAD).—Age 48, married, no incumbrance; thoroughly understands the profession. Management of Land if required.—J. W., 2, Grove Cottages, Mill Road, Carshalton, Surrey.

GARDENER (HEAD), where two or more are kept, to any Lady or Gentleman requiring the services of a thoroughly competent Man.—Age 30, no incumbrance; has been a successful Exhibitor of Plants, &c. A comfortable and good situation is more desired than a high salary. Five years' good character.—S. H. R., Flaneswood, Sevenoaks, Kent.

GARDENER (HEAD), where one or two are kept.—Age 34, married, small family: thoroughly understands the profession in all its branches. Four years' good character. Wife no objection to the Management of Poultry or Dairy.—T. BARBER, Bandon Hill, Beddington, Croydon, Surrey.

GARDENER (HEAD), to any Nobleman or Gentleman requiring the service of a good practical Man.—Age 30, married; understands the Growing of Fruits, Flowers, and Vegetables. Good references as to abilities, &c.—J. WILSON, Allington Hall Gardens, Grantham.

GARDENER (HEAD), to any Lady or Gentleman requiring the services of a thoroughly practical Man.—Age 34, married. Eleven years' good personal character from present employer.—B. W., Grove House, Twyford, Berks.

GARDENER (HEAD).—Married, one child; a good practical Working Man, of great experience in the Growth of Stove and Greenhouse Plants, Grapes, Melons, Cucumbers, Kitchen Gardening, Pleasure Grounds, Stock, &c. Wife good Dairywoman. Good personal character from present employer.—D. H. RUSHETT, Faversham, Kent.

GARDENER (HEAD).—Scotch; thoroughly acquainted with the general routine of Hothouses, Kitchen and Flower Gardening, Laying-out and Remodelling of Pleasure Grounds, &c. Can produce first-class testimonials from leading places in Scotland, England, and Ireland.—J. M., 2, Henderson Place, Bonnington, Leith, Edinburgh.

GARDENER (HEAD, or good SINGLE-HANDED).—Age 31, married, two children; thoroughly understands Vines, Melons, Greenhouse Plants, and Flower and Kitchen Gardening. Good personal character.—GARDENER, Cromwell House, Havering, near Romford.

GARDENER (HEAD, WORKING).—Age 27, married; understands the Growing of Fruits, Flowers, Plants, &c., and the General Management of a Garden. Can be well recommended.—GEORGE MORRISON, 53, Trafalgar Street West, Scarborough.

GARDENER (HEAD, WORKING).—Age 30; understands Forcing, Vines, Stove and Greenhouse Plants, and the general routine of Flower and Kitchen Gardening. Good references.—R. T., 10, Swain's Lane, Highgate, N.

GARDENER (HEAD, WORKING).—Age 33, married; thoroughly understands all branches of the profession. First-class character.—S. R., 9, Durham Street, Chelsea, S.W.

GARDENER (HEAD, WORKING).—Age 34, married, two children; has a thorough knowledge of the profession in all its branches. Has had good experience in Laying-out Grounds, Planting, &c. Three and a half years' good character from present employer. No objection to a new place.—The GARDENER, Yateley Hall, Farnborough, Hants.

GARDENER (HEAD, WORKING).—Age 35, married, two children; understands the entire Management of a Gentleman's Garden. Three and a-half years' undeniable character from last situation; eleven years in the family; satisfactory reason for leaving.—J. G. HAROLD, Nurseries, Sittingbourne, Kent.

GARDENER (HEAD, WORKING).—Age 35, married, no family; twelve years' experience among Vines, Cucumbers, Melons, Greenhouse Plants, &c., also Flower and Kitchen Gardening. Good character.—J. B., 1, Havelock Road, Hammersmith, London, W.

GARDENER (WORKING).—Age 36, married, no family; understands Vines, Melons, Cucumbers, and Flower and Kitchen Gardening. Wife good Laundress. Good character.—J. G., Hanger Vale, Ealing, W.

GARDENER (HEAD, WORKING).—Middle-aged. Twenty-eight years' experience in Pines, Vines, Peaches, Melons, Cucumbers, Strawberries, Orchard-house, Plant Growing, Orchids, &c.—J. G., 4, Zetland Road, Birkenhead.

GARDENER (HEAD, WORKING), where two or more are kept.—Age 25, married, one child; understands Gardening in all its branches. Five and a-half years' good character.—H. TRUELOVE, Leigh Park, Havant, Hants.

GARDENER and GENERAL MANAGER.—D. BUCHANAN, seventeen years Gardener and General Manager to the late and present Capt. Trotter, Dyrham Park, Barnet, Herts, is now at liberty to engage with any Nobleman or Gentleman requiring the services of a first-class Man in the above capacity, or as Gardener only. Has had large experience in Breeding Stock, Designing and Erecting Buildings, Hot-water Work, Laying-out Grounds, &c. Is desirous of obtaining a place where first-class fruit is required. Character unexceptionable, and testimonials from several of the best men in England and Scotland.

GARDENER (SINGLE-HANDED).—Age 34, married, no family; understands Flower, Kitchen, and Fruit Gardening. Good character.—A. B., 1, Oneida Cottage, Prince's Road, Richmond, Surrey.

GARDENER (age 37, married, two children—youngest aged 12).—GEO. HUMPHREY, over eight years Head Gardener to C. F. Kemp, Fox Bush, Tunbridge, is at liberty to treat with any Lady or Gentleman requiring the services of a thoroughly practical Man. Has had great experience in Laying-out Grounds, the Transplanting of large and choice Trees, in which he has been very successful. Highest testimonials as to character and abilities—The Gardens, Fox Bush, Tunbridge, Kent.

GARDENER (SECOND).—Age 22, single; ten years' good practice, well accustomed to Houses, Forcing, &c. Good character.—D. D., J. Leather's, 7, Chapel Road, Crayford, Kent.

FOREMAN, where four or five are kept.—Age 26.—Can be well recommended.—S. A., Post Office, Potter's Bar, Middlesex, N.

FOREMAN, in a Nobleman's or Gentleman's Establishment.—Age 28; eleven years' experience. Good references and character.—G. G., Post Office, Faversham, Kent.

FOREMAN, in a good Establishment.—Age 23.—Seven years' experience, over two in present situation. First-class references.—A. B., Post Office, Worksop, Notts.

GARDENER (UNDER).—Age 21. Willing to make himself generally useful. Two and a half years' character. Country preferred.—C. W., Patching, Newsagent 60, High Street, Putney, S.W.

GARDENER (UNDER), in a Gentleman's Establishment, where he could further improve himself in the Houses.—Age 20. Good reference.—T. C., Plaxtole, near Sevenoaks, Kent.

GARDENER (UNDER), in a Nobleman's or Gentleman's Garden, where he can improve himself.—Age 20. Good character.—X. X., Chas Farm, Frant, Sussex.

GARDENER (UNDER), in a Gentleman's Garden, where there is an opportunity of improvement.—Age 21.—F. N., Morcott, Uppingham, Rutland.

GARDENER (UNDER), in a good Establishment.—Age 20; has been used to Forcing Pines, Vines, Peaches, and general Garden-work. Three years' good reference.—W. SQUIBB, Minterne Gardens, Cerne Abbas, Dorchester.

GARDENER (UNDER, or under a good Foreman).—Age 20; used to Forcing, &c. Good character.—A. C., 34, Manor Street, Clapham, London, S.W.

JOURNEYMAN, in a large Establishment.—Age 20. Twelve months' excellent character.—G. W., Edith Weston, Stamford.

JOURNEYMAN.—A GARDENER, who is parting with his Journeyman (age 20), would be glad to obtain a situation for him under a good Foreman or Second. Five years' good character.—H. BURNHAM, Gardener, Hunsdon, near Ware, Herts.

IMPROVER, under Glass, in a large Establishment.—Age 18. Four years' experience. Good character.—Apply, stating full particulars, to T. BURGOYNE, Lower Hergest, near Kington, Herefordshire.

BAILIFF.—Age 40, married, no incumbrance; thoroughly understands the Management of Heavy and Light Land, also the Breeding, Buying, Selling, and Management of Stock, the Erection and Repairing of Farm Buildings, Draining and Reclaiming Waste Land. Wife understands Dairy and Poultry.—J. B., Messrs. Cripps & Son, Nurserymen, Tunbridge Wells, Kent.

SHOPMAN, or TRAVELLER.—Has for many years travelled the Midland Counties, Lancashire, and Yorkshire, North of England, South of Scotland and Ireland; is well known amongst Gardeners, Stewards, &c. Would be glad to treat with any House to open up a connection over the above ground.—B. D., *Gardeners' Chronicle* Office, W.C.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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THE

GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

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CONTENTS.

SALES BY AUCTION.

Lilium auratum Bulbs and Coniferous Seeds.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, April 12, at half-past 12 o'Clock precisely, 5000 magnificent BULBS of LILIUM AURATUM, just arrived from Japan in very fine condition; a large quantity of RARE CONIFEROUS SEEDS, mostly collected by M. Roezl; also some choice GLADIOLI, &c.

On view the morning of Sale, and Catalogues had.

Highly Important Sale of East Indian Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, April 14, at half-past 12 o'Clock precisely, unusually choice EAST INDIAN ORCHIDS, just to hand, in the best possible condition, about starting freely into growth. Amongst others are fine plants of the lovely Vanda coerulescens, Dendrobium heterocarpum, D. primulinum, D. thyrsiflorum, D. Farmeri, D. cretaceum, D. capillipes, D. Falconeri, D. Wardianum, D. crassinode; Aerides testaceum, A. affine roseum, &c.; established plants of Phalænopsis grandiflora and P. amabilis varieties, and 300 Odontoglossums from the vicinity of Santa Fè de Bogota.

On view the morning of Sale, and Catalogues had.

Important Sale of Established Orchids.

MR. J. C. STEVENS begs to announce that he has received instructions from the Council of the Royal Horticultural Society to SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, April 15, at half-past 12 o'Clock precisely, a Collection of ESTABLISHED ORCHIDS, including some fine specimens of Cypripedium villosum, fine specimens of the rare Cattleya exoniensis, Lælia anceps Dawsonii, Phalænopsis grandiflora, &c.; also a remarkably fine lot of Cattleya Trianæ, many of them in bloom.

On view the morning of Sale, and Catalogues had.

Lilium auratum, Splendid Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, April 15, a consignment of very fine LILIUM AURATUM BULBS just arrived from Japan in splendid condition, and lotted to suit the rade and private buyers.

On view the morning of Sale, and Catalogues had.

Sale of Flowering Orchids.

MR. J. C. STEVENS has received instructions from Messrs. J. Backhouse & Son, of York, to include in his SALE, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, April 15, about ONE HUNDRED and SEVENTY ORCHIDS, in bloom or showing flower-spikes, amongst which will be found several specimens of a fine var. of Masdevallia Harryana, Odontoglossums Roezlii, triumphans, Phalænopsis, Pescatorei, Blumii, gloriosum, citrosmum, &c.; also numerous Dendrobiums, Cattleyas, Oncidiums, Cypripediums, &c., all in fine health.

On view the morning of Sale, and Catalogues had.

Important Sale of Specimen Stove and Greenhouse PLANTS, removed from Albury Park, Guildford.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on FRIDAY, May 7, at half-past 12 o'Clock precisely, SPECIMEN STOVE AND GREENHOUSE PLANTS, BRITISH AND EXOTIC FERNS, formed for Exhibition purposes by William Kemp, gardener to His Grace the Duke of Northumberland at Albury Park, Guildford, who is giving up exhibiting plants. They consist of well-grown specimens of Azalea indica, Cape Ericas, Epacrises, Genetyllis, Aphelexis, Phœnocoonas, Chorozemas, Dracophyllum, Boronias, Adenandras, Acrophyllum venosum, Polygalas, Hibbertias, Stephanotis, Allamandas, Clerodendrons, Francisceas, Rondeletias, Combretums, Pandanus, &c. This well-known collection has taken numerous prizes at the London and Provincial Shows, viz.:—Regent's Park, South Kensington, Crystal Palace, Reading, Guildford, Tunbridge Wells, Godalming, &c. Also two EXHIBITION VANS, with good springs and patent axles. The whole for Sale without reserve.

On view the morning of Sale, and Catalogues had.

Extensive Consignment, per s.s. "Tanjore," for ABSOLUTE SALE.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Tokenhouse Yard, City, E.C., on TUESDAY, April 13, at half-past 12 o'Clock precisely, about 10,000 LILIUM AURATUM, just arrived in remarkably fine condition; also a quantity of valuable Japanese and Chinese CURIOS, consisting of a beautiful assortment of Porcelain and other Vases of various designs, Garden Seats, Dessert Services, choice Inlaid and Lacquered Cabinets, Tables, Screens, Trays, and numerous other novelties; together with thirty Specimen AZALEAS, 2 feet 6 inches to 4 feet by 2 feet through, coming into flower, including Criterion, Perfecta, Elegans, Fielder's White, Virgin Queen, and others.

On view the morning of Sale. Catalogues may be had at the Mart, and of the Auctioneers and Valuers, 98, Gracechurch Street, London, E.C.

Kingston-on-Thames.

By Order of the Executors of the late Mr. Bruce.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Tokenhouse Yard, City, E.C., on MONDAY, April 26, at 1 for 2 o'Clock punctually, a compact, valuable FREEHOLD ESTATE, known as Bruce's Nursery, and situate in the Richmond Road, Kingston, Surrey, possessing a highly important frontage of 332 feet 6 inches to the high road, by 594 feet depth, comprising about 4 acres 2 roods of very eligible Building Land, together with the substantially brick-built Detached Residence standing thereon. The Property offers great scope for profitable subdivision and re-sale in small plots, or for the creation of ground rents.

Cards to view, with printed Particulars and Plans, may be had of R. B. WHEATLY, Esq., Solicitor, 7, New Inn, W.C.; and of the Auctioneers and Estate Agents, 98, Gracechurch Street, E.C., and Leytonstone, E.

Theobald's Park, Waltham Cross.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from Mr. Alderman Cotton (who is leaving the neighbourhood upon the expiration of his tenancy) to SELL by AUCTION, on the Premises as above, on TUESDAY, April 27, at 11 o'Clock, the whole of the choice COLLECTION of STOVE and GREENHOUSE PLANTS, 150 Fruiting and Succession FINES; also the LIVE-STOCK, and GARDEN and FARM IMPLEMENTS and EFFECTS.

On view the day prior to the Sale. Catalogues had of Mr. STEPHENS, on the Premises; and of the Auctioneers and Estate Agents, 98, Gracechurch Street, E.C., and Leytonstone.

WANTED, one SPAN-ROOF and one LEAN-TO GREENHOUSE, in good condition. Address, stating sizes and description,
A. D., La Bagatelle, The Grove, Blackheath, S.E.

WANTED to RENT, a large Private GARDEN with a quantity of Glass, or a FRUIT and FLORIST'S ESTABLISHMENT near London.
ALPHA, Mr. Thomas Frewins, New Street, Henley-on-Thames, Oxon.

TO BE LET, without either Premium or Valuation, or the LEASE to be SOLD, a NURSERY, near the Lewisham Railway Station, containing an area of about 35,000 feet, and comprising Forcing, Camellia, Greenhouses and Propagating Pits, ten in all, and principally Heated with Boilers and Piping. Apply to
Messrs. C. D. FIELD AND SON, Agents, 15, Borough, S.E.

FOR DISPOSAL, a genuine London SEED and FLORIST BUSINESS. Splendid position. Good cash trade. Double-fronted shop. Low rent.
M. A., *Gardeners' Chronicle* Office, W.C.

Victoria Estate, Kansas, U.S.—To Farmers and OTHERS.

FINE STOCK FARMS of 640 Acres and upwards, to be SOLD, Freehold, from 12s. to 50s. per acre. Grass in its natural condition unsurpassed for feeding Sheep and Cattle. For PAMPHLET containing full particulars respecting this Property, apply to
ROBERT W. EDIS, Esq., F.S.A., 14, Fitzroy Square, London, W., Architect to the Estate.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS: also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.
Mr. WEBB, Calcot, Reading.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

New Double Petunia,

"MRS. WILSON."—The above is a fine Double Crimson variety, striped and edged with white, very fine and distinct. It received three First-class Certificates last year. Good Plants, now ready, 3s. 6d. each, post free 3s. 9d.
T. JACKSON and SON, The Nurseries, Kingston, Surrey.

Verbenas, Verbenas.

JOHN SOLOMON offers White, Scarlet, Purple, Pink, Crimson, Rose and other mixed sorts, good strong spring-struck cuttings, well rooted, at 6s. per 100, 50s. per 1000, package included. Cash to accompany all orders from unknown correspondents.
Islington Nursery, Park Street, Islington, N.

GIANT ASPARAGUS PLANTS, the best that money can procure, all certain to grow, 2s. 6d. per 100. This delicious vegetable does not require half the expense usually incurred in planting it. See RICHARD SMITH'S SEED LIST for 1875.
Extra strong SEAKALE, 2s. per dozen.
RICHARD SMITH, Nurseryman, Worcester.

VINES, extra strong leading sorts, close-jointed and well ripened; SEAKALE, ASPARAGUS, and RHUBARB, extra strong, for forcing; ROSES, FRUIT, FOREST, and ORNAMENTAL TREES, STOVE and GREENHOUSE PLANTS, &c.
Priced Descriptive CATALOGUE, post-free.
DICKSON AND ROBINSON, 23, Market Place, Manchester.

Mangel Wurzel Seed.

BOLTON AND CO. beg to call attention to their fine stock of MANGEL WURZEL. They particularly recommend their—
CHAMPION YELLOW GLOBE.
CORNER'S DEVONSHIRE YELLOW GLOBE.
BERKSHIRE PRIZE YELLOW GLOBE.
MAMMOTH LONG RED.
IMPROVED RED GLOBE.
GOLDEN-FLESHED TANKARD.
All at moderate prices, to be had on application.
BOLTON AND CO., Seed Merchants, Wood Green, London, N.

FUCHSIA PROCUMBENS (New Zealand).
Orders are now being Booked for this great novelty in Fuchsias, and will be executed in strict rotation. For particulars see large advertisement in the *Gardeners' Chronicle* of March 20 and 27 (pp. 382 and 393.)
Will begin to send out on April 27, at 10s. 6d. each; six plants, 60s.; twelve plants, 110s.
"I can now state with confidence that this plant has proved hardy here on rockwork during the late severe winter."
FRANCIS R. KINGHORN, Sheen Nursery, Richmond, Surrey.—April 7.

Cheap Plants!

WILLIAM BADMAN offers the following plants for present potting:—
VERBENAS, Purple, White, Scarlet, Crimson, and Rose, good plants, from single pots, 2s. per dozen, 12s. per 100; rooted cuttings, 1s. per dozen, 6s. per 100, 50s. per 1000.
LOBELIA, speciosa (true), from cuttings, 3s. per 100, 20s. per 1000.
CALCEOLARIA, Yellow Bedding, 1s. per dozen, 6s. per 100, 50s. per 1000.
HELIOTROPIUMS, fine dark varieties, 1s. per dozen, 6s. per 100.
AGERATUM, Imperial Dwarf, blue, makes a fine bed, 1s. per dozen, 5s. per 100, 40s. per 1000.
IRESINE, Lindeni, crimson leaf, fine, 1s. per dozen, 6s. per 100.
COLEUS, Verschaffelii, 1s. per dozen, 6s. per 100.
STELLARIA, aurea, new golden edging plant, 1s. per dozen, 4s. per 100, 30s. per 1000.
PELARGONIUMS, Silver edge—May Queen and Flower of Spring, 2s. per dozen, 15s. per 100.
" Gold leaf—Crystal Palace Gem, 2s. per doz., 15s. per 100.
" Tricolor—Mrs. Pollock, 2s. 6d. per dozen, 18s. per 100.
Terms cash, package included.
Cemetery Nursery, Gravesend.

CHARLES B. SAUNDERS, NURSERYMAN, &c., Jersey, respectfully offers choice CARNATION and PICOTEE SEEDS at 2s. 6d. per packet of 100 seeds: fine strong VINES, best sorts, 24s. to 30s. per dozen: Evergreen OAKS, in or from pots, 2 to 6 feet high, 50s. to 150s. per 100.
March 18, 1875.

FLORISTS' FLOWERS.—Named exhibition varieties of Carnations and Picotees, 6s. per dozen plants; Pinks and Pansies, 4s. per dozen; Pentstemons and Antirrhinums and Phloxes, 4s. per dozen: all good plants and first-class sorts. LISTS of above, and other plants, in great variety, for two stamps. Trade terms on application.
WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

Imported American Potatos.

CHRISTMAS QUINCEY, Peterborough, begs to state that his FOURTH importation this season has arrived, and are offered to the Trade and Retail Customers at 20 per cent. less than his Price List. SNOWFLAKE, BROWNELL'S BEAUTY, EXTRA EARLY VERMONT, by the hundredweight or ton; EUREKA, ACME, NONSUCH, EARLY GEM, COMPTON'S SURPRISE, CLIMAX, and LATE ROSE, by the pound, stone, or hundredweight.

To the Trade.

PRIMROSES, Double, at per dozen, viz.:—
Large Yellow, of sorts, 4s.; Early Sulphur, 4s.; Purple-crimson, 4s.; Purple, 3s.; Pearl-white, 2s. 6d.; Cream-white, 2s. 6d.; Lilac, 2s. 6d.; Single Magenta, 2s. 6d.; Single Mauve, 2s. 6d., 13s. per 100.
POLYANTHUS, Double, 3s. per dozen; ROCKET, Double, Rose-white, 2s. 6d. per dozen; HELLEBORUS NIGER, 4s. per dozen; DAISIES, Double, in six sorts, 1s. 6d. per dozen; PANSY, Double, 2s. per dozen.
A. LAMB, Pear Tree Hill, Lisburn.

CHRYSANTHEMUMS:—12 new varieties of 1874, 3s.; 12 older sorts, 2s.; 100 Chrysanthemums, including 15 new varieties of 1874, for 18s.; 50s. for 100.
FUCHSIAS:—6 new varieties of 1874, for 4s.; 12 varieties of 1873, for 4s.; 100 Fuchsias, in 50 sorts, for 14s.; 50, in 25 sorts, for 8s.; 12 varieties, 2s. 6d.
LOBELIA, pumila grandiflora, 1s.; IRESINE, Lindeni, 1s. 6d.; MESEMBRYANTHEMUM, cordifolium variegatum, 1s. 6d. per dozen.
The above sent post free for cash with order.
J. LEIGH, Sandy Lane Nursery, Lowton, near Newton-le-Willows

Vines.—To the Trade

S. BIDE can still supply good strong PLANTING VINES, in Pots, of the undermentioned varieties, at 30s. per dozen (a special price for a large quantity will be given on application):—Tyminghan Muscat, Madresfield Court, Black Hamburgh, Mrs. Pince's Black Muscat, Lady Downe's Seedling, Burchard's Prince, Seacliffe Black, Frankenthal Hamburgh, Ferdinand de Lesseps, Black Morocco, Primaral's Frontignan, Black Barbarossa, Sweetwater, Trovern Muscat, Bowood Muscat, Muscat of Alexandria, White Nice, Duchess of Buccleuch, Rasin de Calabre.
S. BIDE, Alma Nursery, Farnham, Surrey.

Carnations, Picotees, and Pinks.

ISAAC BRUNNING AND CO. beg to announce that they have this Season a very fine and extensive Collection of the above to offer, strong plants of which are now ready for sending out. LIST of Varieties and Prices, together with Illustrated SEED CATALOGUE, on application.

Our ONE GUINEA COLLECTION of CARNATIONS, &c., contains six pairs of choice Show Carnations, six pairs of choice Show Picotees, twelve pairs of Show Pinks, and twelve choice mixed Carnations and Picotees for borders.

Carriage and package free on receipt of Post Office Order. Half of the above quantities, 11s.

"Belgrove, Queenstown, County Cork, Ireland.
"February 15, 1875.

"Mr. W. E. Gumbleton has this day received the Carnation and Picotee Plants, with which he is much pleased, and would like another dozen of either the same or other varieties."
ISAAC BRUNNING AND CO., Great Yarmouth Nurseries.

AMERICAN CRANBERRY PLANTS.—There are doubtless many thousands of acres of Swamps, Bogs, and Marshes throughout the United Kingdom, which are now comparatively worthless and unproductive, that may be made to yield a handsome income by cultivating this delicious fruit. We are now prepared to furnish strong and well-rooted Plants, in any quantity, carefully packed for transportation, at the following prices, which includes cost of packing and delivery on board steamer, with full directions for planting and subsequent cultivation. 10,000 plants are required for an acre.
Prices: 1000, 20s.; 500, £1 10s.; 1000, £8.
WHITE'S CRANBERRY CULTURE, 120 pages, illustrated, sent post paid upon receipt of 6s.
Cash or satisfactory reference to accompany the orders. No orders accepted for less than 1000 plants. Remittances can be made by Draft or Postal Order on New York. Address—
B. K. BLISS AND SONS, Seed Merchants, 34, Barclay Street, New York.

Grass Seeds.

BOLTON AND CO.'S stock of NEW GRASS SEEDS for PERMANENT PASTURE is now complete. It comprises all the best varieties of Fescue, Poas, Meadow Foxtail, Cocksfoot, &c., and the mixtures are arranged to suit the different kinds of soil.
Prices can be given either by measure or by the acre, but in sending orders it is desirable as far as possible to mention the nature of the soil on which they are to be sown.
BOLTON AND CO., Seed Merchants, Wood Green, London, N.

GERANIUMS:—Mrs. Pollock, Sophia Dumaresque, 3s. per dozen; Lady Cullum, Sophia Cusack, Louisa Smith, 3s. 6d. per dozen; Thos. Moore, Lord Derby, Wm. Underwood, 2s. 6d. per dozen; 12 varieties of doubles, including Jewel, J. J. Lowe, and Aline Sisley, for 3s.; Dr. Denny's second set, Rienzi, Lord Macaulay, &c., for 5s., in rooted cuttings, for 3s. 6d.
PANSIES:—100, in 40 choice varieties, for 18s.; 50, in 25 sorts, for 10s.; 12 varieties, 3s.; Cloth of Gold, the finest yellow, 2s. 6d. per dozen, 16s. per 100; Great Eastern, the finest white, 2s. 6d. per dozen.
CALCEOLARIA, Golden Gem, 5s. per 100, 40s. per 1000.
J. LEIGH, Sandy Lane Nursery, Lowton, near Newton-le-Willows.

STRONG and EXTRA STRONG VINES. —Thoroughly well ripened without bottom-heat. Prices on application to
JAMES DICKSON AND SONS, Newton Nurseries, Chester.

Fuchsia Cuttings.

H. CANNELL has now an immense quantity of the above in fine condition for striking, at 5s. 6d. per 100, in not less than ten first-class varieties. Post-free.
New Florist Flowers and Florist Flower Seed Merchant, Woolwich, S.E.

STELLARIA GRAMINEA AUREA—100 cuttings sent post free for 2s. 6d. This is quite distinct from Golden Feather, and certainly the best yellow carpet-bedding plant ever introduced; quite hardy.
H. CANNELL, New Florists' Flowers and Florist Flower Seed Merchant, Woolwich, S.E.

SURPLUS STOCK of ENGLISH-GROWN POTATOS.
The following sorts at 20 per cent. lower than List prices:—Mona's Pride Ashtops, Rivers' ditto, Breese's Prolific, Breese's Peerless, Paterson's New Prince, Climax, Hundredfold Flukes. By the hundredweight, sack, or ton.
The following sorts at 10 per cent. lower than List prices:—Myatt's Prolific Regents, Early Rose, Red-skinned Flourball. In 5 or 10 ton lots.
Wholesale PRICE LISTS on receipt of Trade Card.
Two-year CONNOVER'S COLOSSAL ASPARAGUS PLANTS, in any quantities
ASPARAGUS SEED, 3s. 6d. per lb.; POTATO SEED, 2s. 6d. per oz., free by post.
CHRISTMAS QUINCEY, Potato Seed Grower and Merchant, Peterborough.

Verbenas for Sale.

S. BIDE can now supply, for cash, Verbenas, spring-struck, strong, and free from disease of any kind, including Purple King, Scarlet, White, Pink, and many other varieties (of which a list may be had on application), at 8s. per 100, package free. PELARGONIUMS, show and fancy, of the best varieties, 40s. per 100. GERANIUMS, plain-leaved and zonal, strong autumn-struck plants, 10s per 100. CENTAUREA CANDIDISSIMA, struck last autumn, and well established, in large 60 pots, 40s. per 100. AUREA FLORIBUNDA and other CALCEOLARIAS, 8s. per 100. HELIOTROPES, light and dark, 8s. per 100.
S. B. would particularly wish to draw the attention of his numerous customers to his fine stock of VERBENAS for this season, which are the admiration of all who see them; and would request that all orders should be sent to him as early as convenient, as he was unable to supply many who applied late last season—general satisfaction being expressed by all those who favoured him with their orders.
S. BIDE, Alma Nursery, Farnham, Surrey.

NEW ROSES for 1875.—Splendid plants, with magnificent foliage, in forty-three Continental varieties, now ready. LISTS, with raisers' descriptions, post free.
HENRY BENNETT, Manor Farm Nursery, Stapleford, Salisbury.

PEACHES and NECTARINES, in pots, forced and well furnished with fruit. Strong healthy trees of the best leading varieties at 10s. 6d. each, carriage paid to London.
THOMAS RIVERS AND SON, The Nurseries, Sawbridgeworth, Herts.

PYRUS, or CYDONIA MAULEI.—Plants of this hardy ornamental and useful new Japan Fruit, now sending out, price 21s. each, usual discount to the Trade.
Illustration sent on application. See *Gardeners' Chronicle*, 1874, i. 757, ii. 740; and the *Florist and Pomologist* for March.
WM. MAULE AND SONS, The Nurseries, Bristol.

Pelargoniums for the Million.

JAMES HOLDER'S unrivalled COLLECTION of Show, French, and Fancy Varieties, strong Plants, distinct sorts, at 40s. per 100; 25s. for 50; or 15s. for 25. Hamper and packing included. Extra strong plants at 9s. and 12s. per dozen. Cash. CATALOGUES free on application.
Crown Nursery, Reading.

DAHLIAS.

JOHN KEYNES
Has the finest COLLECTION of DAHLIAS in the WORLD, Old and New.
Amateurs will be treated most liberally.
CATALOGUES NOW READY.

The NEW VERBENAS raised by ECKFORD now ready.

Dahlias will be sent out the first week in May.

A VERY SELECT LIST OF THE NEW ROSES.
Plants now ready.

SALISBURY.—April 2, 1875.

To Propagators and Plant Growers.
The most useful material for the attainment of successful and rapid culture is
COCOA-NUT FIBRE REFUSE.—Price 1s. per bushel, or 6d. per bushel for quantities of 20 bushels and over.
DAGNALL AND TILBURY, Steam Cocoa-nut Fibre Works, Farm Lane, Walham Green, S.W.

Fibrous Peat.

BROWN FIBROUS PEAT, best quality, for Orchids, Stove Plants, and Potting, £6 6s. per Six-ton Truck-load. BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, New Holland Plants, &c., £5 5s. per Six-ton Truck-load. Delivered on rail at Blackwater, South-Eastern Railway, or Farnborough, South-Western Railway.
WALKER AND CO., Farnborough Station, Hants.

Sphagnum, or Peat Moss, for Orchids.

FRESH SPHAGNUM MOSS, 10s. 6d. per sack.
WALKER AND CO., Farnborough Station, Hants.

PEAT.—A few hundred tons of a SUPERIOR quality delivered at the Blackwater or Farnborough Stations for 17s. a ton. Apply to
W. TARRY, the "Golden Farmer," Bagshot, Surrey.

COCOA-NUT FIBRE REFUSE.—The best and cheapest in the Market. Price on application. Truck holding 300 bushels, 45s. free on to rails. From Messrs. Ewing & Co., Royal Norfolk Nurseries, Norwich:—"Your refuse is of first rate quality." From Mr. E. Hollamby, The Nurseries, Groombridge, Tunbridge Wells:—"The five trucks refuse arrived. It is highly satisfactory." From Messrs. Cranston & Mayos, King's Acre, near Hereford:—"For plunging and forcing your refuse is invaluable." H. WRIGHT, Steam Fibre Works, Heneage Street, Brick Lane, London, E.

THE LONDON MANURE COMPANY
(ESTABLISHED 1840)
Have now ready for delivery, in fine dry condition—
CORN MANURE, for spring sowing.
PURE DISSOLVED BONES.
PURSER'S BONE MANURE.
PURSER'S BONE TURNIP MANURE.
SUPERPHOSPHATE.
NITROPHOSPHATE.
NITRATE of SODA, SULPHATE of AMMONIA, Genuine PERUVIAN GUANO, &c.
116, Fenchurch Street. E. PURSER, Secretary.

ODAMS' MANURES, FOR ALL CROPS.
Manufactured by the NITRO-PHOSPHATE and ODAMS' CHEMICAL MANURE COMPANY (LIMITED), consisting of Tenant-Farmers occupying upwards of 150,000 Acres of Land.
Chairman—ROBERT LEEDS, Castle Acre, Norfolk.
Managing Director—JAMES ODAMS.
Sub-Manager and Secretary—C. T. MACADAM.
CHIEF OFFICE—109, Fenchurch Street, London, E.C.
WESTERN COUNTIES BRANCH—Queen Street, Exeter.
Particulars will be forwarded on application to the Secretary, or may be had of the Local Agents.

MILLER AND JOHNSON
(ESTABLISHED 1855)
Manufacture the highest quality of
ARTIFICIAL MANURES
For ROOT, CORN, and GRASS CROPS.
36, Mark Lane, London, E.C.

GISHURST COMPOUND.—Used by many of the leading Gardeners since 1859, against Red Spider, Mildew, Thrips, Greenfly, and other Blight, in solutions of from 1 to 2 ounces to the gallon of soft water, and of from 4 to 16 ounces as a winter dressing for Vines and Fruit Trees. Has outlived many preparations intended to supersede it.
Sold Retail by Seedsmen, in boxes, 1s., 2s., and 10s. 6d. Wholesale by PRICE'S PATENT CANDLE COMPANY (Limited).

SIMPSON'S RED SPIDER, THRIPS, &c., ANTIDOTE. Testimonials of the highest order on application. Per quart, condensed, 6s. Supplied to Seedsmen and Chemists.
Prepared by JOHN KILINER, Wortley, near Sheffield.

RUSSIA MATS.—A large stock of ARCHANGEL and PETERSBURG, for Covering and Packing—Second sized ARCHANGEL, 100s.; PETERSBURG, 60s. and 80s.; superior close Mat, 45s., 50s., and 55s.; PACKING MATS, 20s., 30s., and 35s. per 100; and every other description of MATS at equally low prices, at
J. BLACKBURN AND SONS, Russia Mat and Sack Warehouse, 4 and 5, Wormwood Street, E.C.

RUSSIA MATS, for Covering Garden Frames.—ANDERSON'S TAGANROG MATS are the cheapest and most durable. Price List, which gives the size of every class of Mat, forwarded post free on application.
JAS. T. ANDERSON, 7, Commercial Street, Shoreditch, London, E.C.

MARENDAZ AND FISHER, RUSSIA MAT MERCHANTS, Importers of RAFFIA FIBRE, &c., Manufacturers of TWINES, TIFFANY, NETTING, &c., 9, James Street, Covent Garden, W.C.
N.B.—A large quantity of Tanned NETTING for Fruit Trees, &c., in stock.

MILDEW.—Ewing's Infallible Cure. ("The finest of all antidotes." WM. EARLEY.) Retail of most Seedsmen, at 1s. 6d. per bottle—1s. 10d. per bottle, if packed for travelling, of the Manufacturers,
EWING AND CO., Norwich.

SHAW'S TIFFANY and ELASTIC NETTING for Shading and Protecting. Sold by all respectable Seedsmen. For Circulars and Prices apply to
JOHN SHAW AND CO., Tiffany Manufacturers, 29, Oxford Street, Manchester.

GRAVEL.—Tenders are invited for about sixty loads of Gravel for the Paths in Eccleston Square Garden, Pimlico, S.W. Address, stating price per load delivered,
AUGUSTUS SCOVELL, Esq., 39, Eccleston Square, S.W.

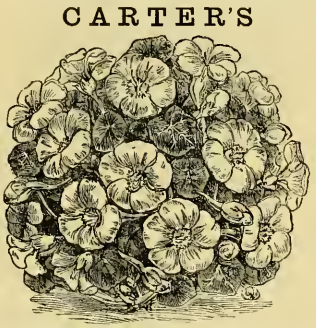
CARTER'S
HOME-GROWN
FLOWER SEEDS,
Harvested on Carter's Four Large Seed Farms in Essex.

Carter's Assortments of Seeds of the prettiest and most exquisitely perfumed English and Continental Flowers.

CARTER'S COLLECTION A, FLOWER SEEDS, price 10s. 6d. (free by post or rail), contains:
An assortment of 12 choicest varieties French Aster.
An assortment of 6 choicest varieties German Stock, large-flowered.
12 showy hardy Dwarf Annuals, including Tom Thumb Nasturtium, Saponaria, Blue Nemophila, &c.
6 hardy Perennials, including Alyssum saxatile, Cineraria maritima, Wallflower, &c.
3 choice varieties of Everlasting Flowers for Winter Bouquets.
½ oz. Mignonette, New Crimson Giant.
2 oz. Sweet Peas, mixed.
12 showy tender Annuals (to be sown in frames and then transplanted or sown in the open borders at the end of April, for summer and autumn blooming, including choice Phlox Drummondi, Balsam, Celosia, Amaranthus ruber, Perilla nankinensis, Zinnia, &c.

Larger Collections, 15s., 21s., 42s., and 63s.

CARTER'S



NEW NASTURTIUM RUBY KING
(With dark-coloured foliage), per packet, 1s. 6d.
A seedling variety of that type of Dwarf Nasturtium originated by us—viz., the dark-foliaged or King of Tom Thumb section—the popularity of which is now universal, from the fact of their bright colours contrasted with dark foliage, compact habit, and duration of bloom, rendering them quite equal in effect to bedding Geraniums. The colour of the new variety now offered is quite unique and distinct—pure pink shaded with carmine—and forms an effective contrast with the varieties already in cultivation.

CARTER'S (The Queen's Seedsmen), 237 and 238, HIGH HOLBORN, LONDON, W.C.

TO THE TRADE.

MANGEL WURZEL SEED.

H. & F. SHARPE

Are now offering the following varieties of the above-named Seeds, of 1874 growth, and raised from the finest selected Stocks, and from picked transplanted Bulbs, viz.:—

SHARPE'S SELECTED SMALL-TOPPED YELLOW GLOBE,
BERKSHIRE PRIZE YELLOW,
NORMANTON YELLOW GLOBE,
CHAMPION YELLOW GLOBE,
LARGE YELLOW GLOBE,
ELVETHAM LONG RED,

GIANT LONG RED,
MAMMOTH LONG RED,
IMPROVED RED GLOBE,
IMPROVED ORANGE GLOBE,
GIANT LONG YELLOW,
GOLDEN TANKARD YELLOW,
WHITE SILESIAN SUGAR BEET.

For Special Prices (which are low this season) and further particulars apply to
H. AND F. SHARPE, SEED GROWING ESTABLISHMENT, WISBECH.

American Plants without Peat.

WM. MAULE AND SONS beg to offer the choicest Hardy English and Continental RHODODENDRONS, with Belgic and other AZALEAS, at 30*s.* per dozen, £10 per 100.

The Plants are grown in a stiff Loamy Soil, on an exposed and elevated situation, and will thrive in any soil free from Lime, Iron, or Chalk. Large Bushes of the Ponticum and Caucasicum varieties, 4 to 5 feet high and as much through, 60*s* per dozen. April and May is the best time for planting.

The Nurseries, Bristol.

Hollies.

ANTHONY WATERER respectfully invites the attention of Holly buyers to the very fine Stock to be seen growing at Knap Hill. It comprises upwards of Thirty Thousand Plants, from 3 to 10 and 12 feet high, of the finer Gold, Silver, and Green-leaved kinds, affording a choice in size and variety such as can be met with in no other Nursery in Europe. Every Plant has been recently removed, and will be guaranteed.

The Stock of Common Green Hollies alone occupies 5 acres of land, and Purchasers will find them in large numbers of all heights up to 15 feet.

Knap Hill Nursery, Woking, Surrey.

WILLIAM POTTEN'S PLANT LIST for 1875 is now ready, which contains one of the largest and choicest collections of Geraniums and other Bedding Plants, and will be sent to all applicants post free.

W. P. can supply the following good plants in single pots:—
Double PETUNIA, King of Crimsons, 2*s.* 6*d.* per dozen.
12 other good Double varieties, 3*s.*
12 vars. good COLEUS, 2*s.* 6*d.*
12 select Zonal GERANIUMS, 3*s.*
12 select Double do., 3*s.*
12 select Gold and Silver Tricolors, 6*s.*
12 select Gold and Bronze, 4*s.*
Camden Nursery, Sissinghurst, Staplehurst, Kent.

Variegated Bedding Geraniums.

ALFRED FRYER offers the following GERANIUMS at per dozen for cash:—Golden Tricolors: Mrs. Dunnett, 3*s.* 6*d.*; Louisa Smith, 3*s.* 6*d.*; Mrs. Pollock, 3*s.* 6*d.*; Sir Robert Napier, 3*s.* 6*d.*; Sophia Dumaresque, 3*s.* Silver Tricolors: Miss Burdett Coutts, 3*s.* 6*d.*; Mrs. John Clutton, 3*s.* Golden Bronze: Aurie, 3*s.* 6*d.*; Bronze Beauty, 3*s.* 6*d.*; Kentish Hero, 2*s.* 6*d.*; Roi de Siam, 3*s.* 6*d.*; Waltham Bronze, 3*s.* 6*d.* Baskets and packing, 6*d.* per dozen, or 3*s.* 6*d.* per 100 extra.

PRICED LISTS post free.

ALFRED FRYER, The Nurseries, Chatteris, Cambridgeshire.

TO BE SOLD, CHEAP—to clear the ground, required for building at once:—
ROSES, Standard, very fine, 10*s.* per dozen, 75*s.* per 100.
PINES, Austrian, 2 to 2½ feet, 7*s.* per 100, 60*s.* per 1000; 2½ to 3 feet, 8*s.* per 100, 70*s.* per 1000.
PINUS EXCELSA, 18 inches to 2 feet, 10*s.* per doz., 75*s.* per 100.
BERBERIS DARWINII, 2-yr. seedlings, 15*s.* per 1000; 18 inches to 2 feet, 10*s.* per 100.
COTONEASTER SIMMONDSII, 12 inches to 15 inches, 20*s.* per 100.

W. BARRON AND SON, Elvaston Nurseries, Borrowash, Derby.

New and Choice Ferns.

W. AND J. BIRKENHEAD, having a Collection of many thousands of the most beautiful and choice BRITISH and EXOTIC FERNS, and giving their cultivation special attention, are prepared to supply large or small quantities at most reasonable prices.

CATALOGUES on application. Special quotations for large quantities.

Fern Nursery, Sale, near Manchester.

Spring Planting.

FOREST TREES, ORNAMENTAL TREES, and SHRUBS, a large stock at moderate prices.

CATALOGUES free on application.

THE LAWSON SEED AND NURSERY COMPANY (Limited), 106, Southwark Street, London, S.E., and at Edinburgh.

New White Lobelia,

"DUCHESS of EDINBURGH."—This variety possesses an excellent compact habit, and is a good free grower. The flowers, which are produced in great abundance, retain their purity of colour the entire season. Received a First-class Certificate at the Royal Horticultural Society, Kensington, 1874.

Good Plants are now ready, 2*s.* 6*d.* each.

CHARLES TURNER, The Royal Nurseries, Slough.

CRANSTON'S NURSERIES, Established 1785.—The following CATALOGUES are just published, and will be forwarded on application:—
DESCRIPTIVE CATALOGUE of ROSES (1874 and 1875).
DESCRIPTIVE CATALOGUE of FRUIT TREES.
DESCRIPTIVE CATALOGUE of CONIFERS, SHRUBS, and FOREST TREES.
DESCRIPTIVE CATALOGUE of BULBS. Address,
CRANSTON AND MAYOS, King's Acre Nurseries, near Hereford.

To Planters and the Trade.

MESSRS. MASTERS AND KINMONT beg to call the attention of Planters and the Trade to their stock of the following trees, which can be furnished at low prices:—
LIMES, 7 to 9 feet, clean grown.
THORNS, of sorts, Standard and Pyramid, including Paul's new Double Scarlet.
ASH, Weeping, 6 to 10 feet stems, good heads. [nock.
WILLOWS, Weeping, American, Babylonian, and Kilmar-
ELMS, of sorts, grafted, 5 to 7 feet, including Huntingdon, fastigiated, and cork-barked.
BIRCH, 8 to 10 feet.
PHILADELPHUS, of sorts.
VIBURNUM, of sorts.
LILAC, of sorts.
OAK, Scarlet, 6 to 8 feet.
YUCCA RECURVA, very fine.
ROSES, Standard and Half-Standard.
Dwarf, on Manetti.
CURRANTS, Black.
GOOSEBERRIES, of sorts.
ABIES CANADENSIS, 3 to 5 feet.
AUCUBA JAPONICA, 1 to 2 feet.
CUPRESSUS SEMPERVIRENS, 2½ to 4 feet.
Exotic and Vauxhall Nurseries, Canterbury.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION, for the relief of decayed Farmers, their Widows and Orphans.

Patron—HER MAJESTY THE QUEEN.
President—HIS GRACE THE DUKE OF RICHMOND.

Allowances to Pensioners.

Married	£40 per annum.
Male	£26 ,,
Widow and unmarried Orphan Daughters	£20 ,,

Every information to be had of the Secretary, by whom Subscriptions and Donations will be thankfully received.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.—The FIFTEENTH ANNIVERSARY FESTIVAL, in aid of the Funds of the Institution, will take place at Willis's Rooms on SATURDAY, June 5, at 6 o'Clock.

H.R.H. The PRINCE OF WALES, K.G., in the Chair.

Dinner tickets, 21*s.*, application for which should be made to the Secretary not later than May 22.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.—The ANNUAL GENERAL MEETING will be held at Willis's Rooms, St. James's, on WEDNESDAY, June 16, at 11 o'Clock precisely, and the ELECTION of PENSIONERS will take place on the same day, at half-past 11 o'Clock.

All Subscriptions shall be deemed payable on January 1 in each year; and no Contributor shall vote in respect of an Annual Subscription while the same is in arrear.

Offices of the Institution—
No. 26, Charles Street, St. James's, London, S.W.

To the Trade.—Surplus Stock.

THOMAS IMRIE AND SONS, Ayr, offer the following:—
BEECH, 15 to 18 ins., 10*s.* per 1000; 1½ to 2 feet, 15*s.* per 1000.
PINUS AUSTRIACA, 1½ to 2 feet, 10*s.* per 1000.
POPLARS, Ontario, 6 to 8 feet, 6*s.* per 100.
STRAWBERRIES, prepared runners, 10*s.* per 1000.
POTATOS, Victoria, £5 per ton.
,, Milky White, £6 per ton.

March, 1875.

Rhododendrons.

HENRY FARNSWORTH, Matlock Bank, Derbyshire, has to offer a fine stock of the following, at a moderate rate:—
3-yr. Seedling, fine.
3-yr. Seedling and 2-yr. transplanted.
3-yr. Seedling and 3-yr. transplanted.
4 to 8 inches good stuff; 6 to 10 inches bushy.
For prices and samples apply as above.

New Fuchsia procumbens.

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SATURDAY, APRIL 10, 1875.

THE APPLE OF LITERATURE.

NOTHING comes more naturally in the translations of the ancient authors of Greece and Rome, and in the Authorised Version of the Old Testament, than the word "Apple." Nothing at the same time is more unlikely than that the fruit so named is definitely intended, except upon rare occasions; and as for the scriptural allusions, with this fruit the Hebrews were probably not even acquainted. As a rule, the name appears after the same manner as "Rose" and "Lily," all three terms belonging to that beautiful class of poetical appellations to which people resort, almost by instinct, when a term at once intelligible and picturesque is wanted, either as a metaphor, or as a name for some new object, the general idea of which will be well covered by the name of an old and familiar one. With such terms language cannot dispense. They constitute part of the currency of human speech. There is a tacit understanding that they are not to be accepted too literally. Shakspeare's "Lilies of all kinds, the flower-deluce being one," might quite unobjectionably be paraphrased "Apples of all kinds, the Pomegranate being one." Popularly, we speak of the Pine-apple (which name, by the way, originally belonged to the cone of the Pine tree, still in certain districts called the Fir-apple); also of the Love-apple, the May-apple (Podophyllum), the Star-apple (Chrysophyllum), the Thorn-apple (Stramonium), and the Custard-apple (Anona). The Colocynth, in similar manner, goes by the varied names of the Bitter-apple, the Dead-Sea-apple, and the Sodom-apple. In this practice we simply imitate the practice of the ancients, who employed *μῆλον* and *malum* in precisely the same way, calling the Quince the Cydonian *μῆλον*, the Citron the Median or Assyrian *μῆλον*, the Apricot the Armenian, and the Peach the Persian *μῆλον*. These are the names by which the respective fruits are distinguished in Theophrastus and Dioscorides, and Pliny is content to translate them into Latin. To-day, accordingly, we only follow in a sort of reverent obedience to classical examples. Things of this description are like the bubbles on a stream—to find the originals we must go back to the fountain amid the hills. The Pomegranate, it should be added, was the Punic or Carthaginian *μῆλον*.

That the veritable Apple was known and named in primæval times is likely enough. The philological fact is simply that what in the beginning may have been a term of special application, subsequently became a collective or poetical one, poetry being addicted to resemblances; or possibly the process was *vice versâ*, the collective term becoming individualised. Whichever it may be, from ages immemorial *μῆλον* and *malum*, or as we say in English, "Apple," have served for any description of fruit that is in any degree of Apple shape and Apple complexion, and that grows singly on the branch, or nearly so, as contrasted with clustered fruits, such as Dates and Grapes. When, in the ancient authors, a qualifying geographical adjective is prefixed, we may see that a particular fruit is intended; but in the absence of this it is impossible to know certainly what is meant; probably, when *μῆλον* and *malum* stand alone, instead of "Apple," it would be safest, if we desire exactitude, to understand "Quince," for this seems to have been the *μῆλον* or *malum par excellence*. In the *Iliad* (ix. 538) *μῆλον* appears to denote fruit in general. In the *Odyssey* it may perhaps denote genuine Apples, as that charming passage where Ulysses reminds his aged father that when a little boy he had given him for his own garden "thirteen Pear trees, and ten Apple trees, and forty Fig trees." "I asked each of thee, being a child, following thee through the garden, and thou didst name and tell me each."* The original words are *ἴγχνας, μηλέας*, and *συκέας*. In the presence of the exquisite picture, so simple and natural, one almost becomes careless of the question in hand. How tenderly it recalls to mind that little bit of early paradise—our own first little plot—where in the golden days of "lang syne" we learned how to feel and to see. Truly the great poets are for all the ages—"the sun of Homer shines upon us still!" Apple trees, or *μηλέας* rather, grew likewise in the gardens of King Alcinous, where "white-armed Nausicaa" was accustomed to pursue her daily walk.† In the verses of writers succeeding Homer the name soon becomes frequently recurrent, and now the fruit, whatever was intended, takes the picturesque and renowned place it has held ever since, being dedicated to the Goddess of Love and Beauty.

The dedication did not date, as often supposed, from the thrice-famous judgment delivered on the summit of Mount Ida, when Paris received from Venus the fatal gift, remembered ever since in the phrase "Apple of Discord." The genuine reason is disclosed in a metaphor in Theocritus,‡ which, no doubt, well-pleased Boccacio, and which has many parallels in the poets alike of his own age (B.C. 280) and of later times.§ It serves also to indicate that the Quince rather than the Apple was the *μῆλον* pre-eminently, for the Apple, though smooth, is not downy, whereas the Quince is noted universally for its soft and velvety surface. Very pretty, indeed, are the associations under which, with the *prestige* in question, the Apple, so-called, now constantly appears; as when, for example, the shepherd in Virgil, giving an account of his first knowledge of Nisa, says it was while he was yet a boy, and he helped her to gather "Apples wet with dew," therefore in early morning. The picture, as a whole, is imitated from the Sicilian, in whose steps Virgil so often treads, only that while in the latter we have Apples, the earlier poet says "hyacinthine flowers."‖ Take, again, the picture of the sprightly Galatea, whose practice was, figuratively, "to pelt with Apples," or, as the Greeks expressed it, *μηλοβόλειν*—Galatea never, with Olivia, letting concealment,

> "Like a worm i' the bud,
> Feed on her damask cheek." ¶

Almost everywhere in the Virgilian poems the allusions to *mala* seem to point decidedly to Quinces—beautifully depicted, for example, in the epithet of "whitening" as they become ripe, and in the "*cana tenera lanugine mala*;" and when we call to mind how greatly this fruit was esteemed among the ancient Romans, when converted, literally, into "marmalade," it is but reasonable that it should have acquired prominence in the literature of fancy and imagination. There is always, however, in all the poets, a certain amount of suggestion of the genuine Apple. The Quince, being austere, does not seem quite suited for a present to a favourite, which the *mala* elsewhere became in Virgil; and one is almost induced to think that here the word was employed in place of *poma*, which also, as at the present day, denoted Apple-formed fruits in general, and sometimes,

* xxiv. 336—344. † vii. 114—120. ‡ xxvii. 48.
§ *Vide*, for example, Aristophanes, *Eccl.* 903, and *Lysistrata*, 155.
‖ *Ecclogue*, viii. 37—41. Theocritus, *Idyll*, xi. 25—27.
¶ *Ecclogue*, iii. 64—65.

perhaps, the Apple specifically. In a broad and comprehensive sense, such as was never accorded to *mala*, it was extended to fruit of all kinds, even Nuts; so that one's idea of Pomona, the kindly goddess of the orchard, who takes her name from *pomum*, must not be too rigorously confined to care of the Apple alone. Ovid gives the name of *poma* to the berries of the Arbutus, which in southern countries are good to eat; also to Mulberries.* The limited sense of genuine Apple appears to be conveyed in the *felicia poma* of the same author,† and in the *mitia poma* of *Eccl.* i. 81—the epithet in each case conveying the idea of mellowness, such as is usually predicated of the Apple alone, and the context implying that they were eaten just as gathered, which Quinces, at all events, would not be.

Something round enough to be rolled across the greensward is clearly intended in the famous story of Hippomanes and Atalanta, where the maiden loses the race through stopping to gather up the too tempting *poma aurea;* but what these were, Quinces or "Golden Pippins," dyed gloriously in the sunshine, there is no one now to tell, and the imagination may translate in the way it likes best. So with the famous "golden Apples of the Hesperides," in the story of which is wrapped up an immense amount of beautiful meaning, the clue commencing in the above-named metaphor in Theocritus. When Hera became the wife of Zeus, the divinities presented her with appropriate bridal gifts, Gaia—the earth personified—providing a tree which bore "golden Apples." Hera was the only really married goddess of all who sat on "beautiful Olympus." Practically she was the great presiding goddess of universal Nature, and these "golden Apples" were essential to her completeness. The tree was placed in charge of three chaste young ladies — the Hesperides—and by them it was safely kept in a secluded spot far away in the west, safe from intrusion and curiosity. There is no occasion here to go into the significance minutely. Every particular has its meaning; in the whole range of fable and myth it is impossible perhaps to find anything more delicate or more in harmony with all the best principles of Nature and virtue. Constantly in the front as a poetical emblem, no wonder that in the hands of the painters of the Temptation of Eve, the Apple should be represented as the fruit of the "tree of knowledge."‡ All things pure and good of necessity in this world get perverted; hence it is no wonder either that the Apple is a metaphor for all sorts of seductive things. It is curious to observe how in the times we call our own, and with perfectly different associations, it reappears in the doubtful story of William Tell, and in the unauthenticated anecdote of Sir Isaac Newton.

With these various and curious facts before us, it is quite reasonable to anticipate that when in the Old Testament, which abounds in collective and poetical expressions, we come once again upon the Apple, we shall not be far wrong if we approach it in the expectation of a metaphor. Very beautiful are the utterances in which it occurs:—"As the Apple tree among the trees of the wood, so is my beloved among the sons. I sat down under his shadow with great delight, and his fruit was sweet to my taste." (Song of Solomon, ii. 3.) So in verse 5, "Comfort me with Apples;" so again in vii. 8, where the breath of the bride is compared to the scent of the fruit; and so, yet again, in viii. 5. In Joel (i. 12) the Apple is enumerated among the precious fruits of the country, and takes its place, with the others, as a symbol of something in the spiritual life of man that it behoves him to cherish diligently and faithfully. "The Vine is dried up, and the Fig tree languisheth; the Pomegranate tree, the Palm tree also, and the Apple tree; even all the trees of the field are withered, because joy is withered away from the sons of men." And lastly, we have that beautiful verse in the Proverbs—"A word fitly spoken is like Apples of gold in pictures of silver;" *i.e.*, in baskets or dishes, such as it is customary to place upon table at times of repast. Scriptural words and phrases, when there is no clear and incontestable evidence as to their precise meaning, must be interpreted by the light of the sciences which are open to human research. There is no such evidence as to the signification of the words rendered "Apple" and Apple tree; we must fall back, therefore, as in similar cases, upon comparative language. What this will supply has been illustrated in the meaning of μῆλον and *malum;* and it is at once remarkable and interesting to find at the very outset that the same kind of difficulties pertain to the translation of all three, and that they respectively throw light upon one another. The Hebrew term is *tappûach*, also written *taphuah, tappuah*, and *taffuah*. The Septuagint translates it by the identical word μῆλον, and as long ago as the time of Charles II. we find the pious and learned Bishop Patrick, author of the celebrated *Commentaries*, stating his belief in its being a purely collective term. At the present day the Arabs apply it to the berries of the Mandrake, calling them *tappûach-al-Shaitan*, "Satan's Apples." Etymologically, *tappûach* denotes something of delightful odour—something that, as we say ourselves of various fruits, "breathes fragrance." Consequently it will apply well to many of those called μῆλον and *malum*, and immediately to the Quince, which in colour also, as already seen, gives the idea of "Apples of gold." Though the Quince may have been included in the *tappûach*, there are many obvious reasons why it should not have been meant specifically, the impression of John Ray notwithstanding;* and as for the genuine Apple, as said above, this was probably not even known to the ancient Hebrews. *G.*

(To be continued.)

* *Met.* iv. 89 and 165, x. 101. † *Ibid.*, ix. 92.

‡ "That the Forbidden Fruit was an Apple" is the topic of Sir Thomas Browne's curious chapters in the *Vulgar Errors*, and which by the analyst of these matters should not be overlooked.

* *Hist. Plant.*, vol. ii., p. 1453.

RHEUM NOBILE.

We extract from Dr. Hooker's *Illustrations of Himalayan Plants* the following details concerning this truly noble plant, which is now once more in the hands of many of our nurserymen, who will, we trust, be more successful than before in rearing the plant:—

"The present is certainly the most striking of the many fine alpine plants of Sikkim; and though in every botanical character, as also in the acid juice of the stem, a genuine Rhubarb, it differs so remarkably in habit and general appearance from any of its congeners, that at first sight it could not be recognised as one of them. I first saw it from a distance of fully a mile, dotting the black cliffs of the Lachen Valley at 14,000 feet elevation, in inaccessible situations, and was quite at a loss to conceive what it could be; nor was it till I had turned back the curious bracteal leaves and examined the flowers that I was persuaded of its being a true Rhubard.

Fig. 91.—Rheum Nobile in its native habitat (reduced sketch).

"The individual plants of Rheum nobile are upwards of a yard high, and form conical towers of the most delicate straw-coloured, shining, semi-transparent, concave, imbricating bracts, the upper of which have pink edges; the large, bright, glossy, shining green radical leaves, with red petioles and nerves, forming a broad base to the whole. On turning up the bracts the beautiful membranous, fragile pink stipules are seen like red silver-paper, and within these again the short-branched panicles of insignificant green flowers. The root is very long, often many feet, and winds amongst the rocks; it is as thick as the arm, and bright yellow inside. After flowering the stem lengthens, the bracts separate one from another, become coarse red-brown, withered and torn; finally, as the fruit ripens they fall away, leaving a ragged-looking stem covered with panicles of deep brown pendulous fruits. In the winter, these naked black stems, projecting from the beetling cliffs, or towering above the snow, are in dismal keeping with the surrounding desolation of that season."

New Garden Plants.

Masdevallia muscosa.*

This is a very queer little thing, reminding one of a Moss Rose by its stiff-haired peduncle and ovary. It belongs to the group of Masdevallia Echidna,

* *Masdevallia muscosa*, Rchb. f., sp. n.—Pedunculo hispido setoso subbifloro; floribus heterochronicis; ovario dense papuloso; sepalis basi coalitis, sepalo superiori triangulo longe caudato, monto bene angulato; sepalis lateralibus triangulis

Xipheres, crinacea, but it is quite distinct in its lip. The sepals are triangular, with long tails, yellowish, perhaps with reddish nerves. They are 1 inch long. The lip, with its deep violet bearded blade, is rather curious, as are the singular petals, terminating in linear subterete ends, which are crowned by a broader retuse point. I have made use of a name Mr. Wallis had once proposed for another species, gathered by him, but named before from other specimens. Our plant comes from New Grenada, and I have to thank Mr. Bull for good dried flowers. It was discovered by Mr. Shuttleworth. *H. G. Rchb. f.*

Masdevallia Gustavi.*

This is one of those species with rather unequal sepals, rather small flowers, standing in a raceme, and trifid petals—such a plant as M. polysticta, pachyura, tridens, amanda, melanopus, caloptera — which I refer to the Amanda group. The flowers appear to be yellowish, with numerous port-wine-colour dots and yellow tails. They scarcely reach half an inch in length, and usually stand in their original position, having the lateral sepals rising upwards. The small leaf has a long, very thin petiole. It may be recommended to those who love the species just named. Our plant has a very celebrated discoverer, to whom it is dedicated — Mr. Gustav Wallis, who found Maranta Lindeni, Dichorisandra musaica, Odontoglossum vexillarium, and so many good things. Yet I cannot complain of Mr. Wallis' specimen being too rich, it consisting of two flowers only. Hence I was much pleased to get satisfactory materials from Mr. Bull, gathered by Mr. Shuttleworth. We may expect soon to see this little gem in our gardens. *H. G. Rchb. f.*

Odontoglossum Weirii.†

This comes near Odontoglossum tetraplasium, but is quite distinct, amongst other points by its much longer column. The panicle is widely diffuse; the flowers being as large as those of a very good Odontoglossum præstans. I have the impression that they were white and lilac, but this is merely a guess from the dry specimens. The blade of the lip is wavy, acute, densely covered with velvet. The calli of the two species are totally different.

The plant was discovered in New Grenada, by Mr. Weir. I gladly accede to the wish of Mr. Bateman, who most kindly favoured me with very good specimens, but it would have been named from my own sense of justice in honour of a collector, who even sacrificed his health for the cause he served so well. It is a pity the plant is not alive in Europe, at least within my knowledge, but as New Grenada is now-a-days the perhaps too much frequented hunting-ground of eight collectors, we are not sure when it may appear; whenever it does so it will be a great satisfaction to me. *H. G. Rchb. f.*

HEDYCHIUM GARDNERIANUM.

At one of the recent meetings of the Royal Horticultural Society, Mr. Bennett, of Hatfield Gardens, exhibited a fruiting spike of Hedychium Gardnerianum which attracted general attention from its striking appearance as well as from the rarity with which it is seen in this country. A general view of it is given at fig. 92, on a reduced scale, but no woodcut can produce the effect of its brilliant colours. The fruits or seed-vessels are aggregated together into a close spike, each one springing from the axil of a bract, and ultimately splitting up into three leathery orange-yellow valves with the seed attached to the middle of each. Those seeds are of a rich shining crimson colour, and are surrounded by an arillus like the mace surrounding the Nutmeg, of nearly equal brilliancy. Nature sometimes combines colours in what we should call a daring way. Few of us would venture to combine orange and crimson, or would expect that so splendid a result would ensue as in this case, but probably the green leaves and bracts toned down the crude colours and caused them to blend. Again, if we consider what is the probable use of this brilliant colour, we can only infer that it is an attraction to birds who would eat and digest the outer softer portions and reject the true seed, and in this way effect the dispersion of the seed.

The structure of the seed with its vitellus partly surrounding the embryo is characteristic of the Scitamineæ, and is found in but few other natural families.

So gorgeous is the fruiting spike that we trust gardeners will henceforth secure the ripening of the fruits by artificial fertilisation, which would not be difficult to accomplish.

Fig. 92.—Hedychium Gardnerianum (half nat. size).

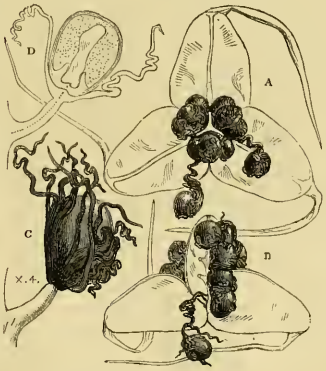


Fig. 93.—Hedychium Gardnerianum.

A, B, Top and side view of capsule, with remains of the tubular inner perianth; C, Seed clothed with its arillus, four times natural size; D, Section of ditto, showing embryo and vitellus.

FUNGUS-HUNTING AND FUNGUS STUDY:

THEIR CHARMS AND INFLUENCES.

Surely my friend, Mr. Worthington Smith, must have been subject to a fit of depression by the long, foggy and dreary winter that has made so many persons victims to influenza and bronchitis, when he arrived, in the review of Mr. Cooke's recent work upon fungi, at the lamentable conclusion that after many years' experience the study of fungi "is in no way commensurate with the labour of the study." But every observant naturalist must be prepared to endorse the word that the Roman emperor, Severus, uttered on his dying couch, let him take whatever department of the domain of Nature he selects for examination—"*Laboramus!*" Close attention and labour—sometimes to little purpose—is the necessary concomitant of investigation in every department of natural history; and at times a little disappointment that mental exercise is ineffectual to overcome every difficulty, depresses the mind of the student; but he soon rises from momentary depression to renewed activity, and I do not believe that my studious and carefully-observant friend will, as he threatens, really abandon his pleasant researches on foot in woods and thickets, to mount his Rosinante and "go fox-hunting" instead. An ugly fall in attempting a leap would be more unpleasant than a difficult mental exercise, and the brush of "the varmint," if he got it, would not, I think, be a sufficient "reward" in his estimation.

We all know the difficulties attendant upon continuous researches in any department of natural history, especially in the minuter tribes; but Mr. Smith's depreciatory tone would equally apply to the study of mosses, lichens, the numerous families of Algæ, and the Infusoria. Time and trouble are inevitable for an investigator, but when we admit with the moralist that "Virtue is its own reward," the true lover of Nature will, or ought to be, equally satisfied with the pleasure and satisfaction that is the result of successful research; while the discovery of a new plant is as delightful to the prying botanist as the discovery of a new island or even desert rock is to the voyager. Mr. Smith justly complains that the "literature of fungi is very expensive," and it is likely to be more so if, as he suggests, fungology is in future to be "confined to the attention of the few." On the other hand I wish the study of fungology to be so extended that works on the subject may have a remunerative sale, and at a moderate price. Sowerby's *English Fungi*—so essential to the student of Agarics in particular, who may recognise a drawing or plate, though failing to master a technical description—is difficult to obtain, and its price is deterrent; but if there were lovers of Agarics and fungi in general sufficient to tempt the experiment, why could the public not enjoy another feast of "English Fungi," with additions and corrections, under the skilful editorship of Mr. Smith himself, with engravings made from his own beautiful and accurate drawings? Such a work a lover of funguses would devoutly wish for, but I quite admit that, if my friend's advice is taken, and the public frightened from the examination of fungi, the work would not pay. Dr. Bull, of Hereford, has well shown that a general interest may be imparted to funguses, and "forays" in quest of them, and though his researches for sauces to flavour the edible ones have rather an Apician smell, suggestive of mere table luxuries, yet I would rather side with the sagacious physician by making trial of all the funguses fit to be eaten, and thus extend a wholesome vegetable diet, while, like him, I would make drawings of all that came under my notice. Thus poisonous species may be known and avoided. At the same time, while I would as far as possible extend a popular knowledge of fungology, I should neither desire nor expect that every gatherer of funguses would be as technically skilful in their knowledge and terminology as Mr. Smith, or the "king of the Mycenæ," the unwearied investigator, Mr. Berkeley.

But looking only at the pleasure of the pursuit, I do not hesitate to declare that I would much rather, any autumnal day, go fungus-hunting with a few friends as enthusiastic as myself, than don the scarlet and appear at the cover-side to gallop over country

æque caudatis; tepalis a basi lata linearibus apice dilatatis retusis sublobatis carnosis; labello a basi cuneata oblongis ovato retusiusculo apiculato ciliolato; carina per basin; columna pede in gibbera duo supra labelli unguem exeunte; columna brevi rostello erecto.

* *Masdevallia Gustavi*, sect. Amandæ, Rchb. f., sp. n.—Folio tenuissime ac longe petiolato, lanceolato, obtuse acuto; racemo nunc folium excedente, pluriflorо; bracteis cucullatis abbreviatis; ovariis crispo alatis; sepalo impari galeato cauda laminam non æquante; sepalis paribus multo angustioribus crenulatis; tepalis curvis a cuneata basi dilatatis serratis, apice retuse tridentatis univenis; labello trifido, laciniis lateralibus medianis semioblongis obtuse acutis; lacinia media ligulata obtusa, carinis ternis in lacinia antica elevato incrassatis; columna gracili apice acuta.

† *Odontoglossum Weirii*, Rchb. f., sp. n.—Paniculа ampla diffusa multiflora; ramis primariis validis; bracteis oblongis acutis; ovaria pedicellata æquantibus; sepalis cuneato-lanceolatis acutis; tepalis cuneato-oblongis acutis; labelli carinis basilaribus extrorse bilaminatis ligulatis, lobatis, antice acutis; carinis parvis crassis geminis interpositis; callis lobatis crassis tribus antepositis; falculis tribus extrorsis utrinque; lamina labelli oblonga acuta crispa velutina; columna clavata, labellum dimidium superante.

at the risk of my neck, and, as is often the case, lose the fox after all! The angler, who may stand bobbing his line by the brookside for hours together, may perhaps get his reward in a few fish put into his basket, or he may not get a bite; and however delightful this may be to a contemplative man who may consult his *Walton*, and know how to treat a worm "as if he loved it," I greatly prefer an active search among woods and meadows for funguses, and eat the fish caught by other people when I get home. I may here quote what Dr. Badham has said as to the pleasure and excitement of fungus-hunting, at the same time that he makes an apology for the angler as not entirely making play for the frying-pan, and showing that Dr. Johnson's definition of an angler was not quite correct. "In fishing it is not the fish we catch which alone repays us for our toil, it is the wandering as the rivulet wanders, at its own sweet will; the exercise, and the appetite consequent upon it; the prize in natural history; the reciting aloud, or reflecting as we walk, and, when it is pleasantly warm, the *molles sub arbore somni*, which console us for the lack of sport. On the same principle Mushroom hunting may be recommended to the young naturalist, not only for the beauty of the objects which he is to sure to come upon, but also because in that most beautiful of months (September), whether at home or abroad, it brings the wanderer out of the beaten paths to fall in with many striking views which he would not otherwise have explored. The extremely limited time during which funguses are to be found, their fragility, their infinite diversity, their ephemeral existence—these, too, add to the interest of an autumnal walk in quest of them."

To the colours and infinite diversity of the fungoid tribes may be added the scents with which several of them pervade the air—some exquisitely fragrant, others pungently fœtid—and I have frequently found pleasure in tracking Clitocybe odorus in woody places, Trametes suaveolens, and other scented species, which otherwise my eye would not have detected. After more than thirty years' attention to fungi, chiefly in the autumnal months, though I cannot now wade through damp woods with the same impunity as formerly, yet my love of the pursuit is the same, and I have hundreds of drawings to show my friends, who are often astonished at the diversity of colour that the various species present to view, justifying Tennyson's remark of fungi—

> "Which in autumn-tide do star
> The black earth with brilliance rare."

Perhaps there is more difficulty in determining the species of fungi than with those of the flowering tribes of plants, but every botanist is aware of difficulties even there, and the diversity of opinion is often very perplexing. In every department in the present day changes of nomenclature, and "involved and distracting terminology," is an evil that, as was once said in Parliament by an eminent statesman of the influence of the Crown, "has increased, is increasing, and ought to be diminished." But, unpleasant as it is, we must not be frightened at hard names, but digest them as well as we can, not adding to the unpronounceable number, unless to compliment some Russian or Polish friends!

Mr. Smith also complains of "pygmies innumerable," and no doubt it must be so if the microscope is used as it now is most extensively. But among the Cryptogamic tribes is it not an incitement to their study that there is almost a certainty of finding something new—an addition, it may be, to science? And though I would not myself care to go down to posterity on the back of some inconspicuous algal or microscopic fungus, still there is a charm in discovery; and, far from being afraid of "the vast number of minute species," I should feel inclined to say with respect to the "armies that come into the field," Be it so, if Nature wills it; for if my powers of observation fail, as they must, and I am obliged to pause from exhaustion of physical powers, as Linnæus did, and it must be the case with the most enthusiastic, others can take up the thread of examination where I have left off, and "rising wonders sing," as the poet Thomson expresses it, for the benefit of future generations. At all events, let us not give way to a desponding spirit, or deter others from observation and research, even among the fungi, as if a "difficult mental exercise" was to be eschewed, and there was not a considerable amount of pleasure superadded as a balance to tortured thought and the valuable time employed.

Mosses upon rocks get burnt up under the blaze of summer, and no doubt then think existence of no use to themselves or the world; but they revive with the moisture of autumn, and display their fructification in the spring as beautiful as ever. So the naturalist is at times tired and perplexed, but his love of Nature and observation never quite deserts him, and he again returns to his work like a giant refreshed. I trust, therefore, that my thoughtful friend, Mr. Worthington Smith, will not in a despairing mood burn his books and drawings, or destroy his microscope, or, on mature reflection, wish fungus knowledge to be limited to a select few, although the "reward" he sighs for, and which he as well as other diligent workers deserve, may be slow in coming, or, as too many have experienced, does not come at all. *Edwin Lees, F.L.S., Green Hill Summit, Worcester, April 2.*

NEGLECTED PLANTS.

Couve Tronchuda.—The Portugal Kale, or Couve Tronchuda, bears a sufficient family resemblance to the wild Cabbage which hangs on the once-united faces of the opposite cliffs at Dover and Cape Blanez, to be easily recognised as the plump descendant of a lean and scraggy ancestor. Like its parent, too, it does not heart, which is one of its chief peculiarities, and also, perhaps, the reason why it remains a little known rather than a neglected vegetable. For few of those who do know it neglect it, at least, for their own household supply. But being loose made, somewhat brittle when fresh cut, and, therefore, less easily packed into a small compass, it is not so suitable for sending long distances to market as Savoys, Broccoli, Cauliflowers, and the solid-hearted summer Cabbages, many of which latter are of such excellent quality as to leave little to be desired. What the eye does not see the heart does not long for; and as Couve Tronchuda seldom makes its appearance in public, the wish to have it is thereby mainly confined to the amateurs who already possess it in cultivation.

And it is worth the amateur's attention. Many people grow in their kitchen gardens only such things as they cannot readily procure in their immediate neighbourhood, or which they like to have absolutely fresh gathered, or to gather themselves, or to force—such as Seakale, Asparagus, Strawberries—obtaining the commoner and coarser vegetables from out-door sources. For those, Couve Tronchuda is a plant to cultivate. It is a low-growing, open variety of Cabbage, manifesting a tendency to succulency in every part of its foliage, with fleshy, juicy leaf-stalks and leaf-ribs sustaining the green portion, which, gathered while tender and properly boiled, have a flavour something between Seakale and Broccoli, but coming in fit for table at seasons different to either of those useful vegetables. The colour of Couve Tronchuda is glaucous green, blanching, towards winter and in spring, to straw-yellow at the centres and on the young shoots. Not only does it make a good-looking and excellent dish when cooked, but while growing is a handsome, almost an ornamental, plant, very distinct, which is sure to attract the eye of any visitor to a kitchen garden who does not happen to have seen it before. For this reason, as well as for its culinary merits, it deserves the notice of those who exhibit collections of vegetables for prizes. Fairly judged, it ought to hold its own; and no competent judge would put a non-hearting Cabbage into competition with an Enfield Market or a Wheeler's Cocoa-nut, to the disadvantage of the former, if well-grown. Seed is to be had of the leading seedsmen. Couve Tronchuda is included in some of the collections especially suited to the amateur's garden; in one seed catalogue it figures with the synonym of Braganza Cabbage; in short, those who like to try it easily can.

But to give it a fair trial it must be taken and used at the right season and in a proper state. Seakale has often been condemned in France, because people cooked it without blanching it, found it bitter and tough, and then wondered at the queer tastes those English had! In like manner, if Couve Tronchuda be sown too early and cut in the dog days after suffering a month's drought, the chances are that the leaf-stalks and ribs will prove as hard as the stems of run-up Asparagus in September — unless we could be sure of having, what few people want, a long, wet, and sunless summer. On this account the middle of June is quite soon enough to sow it. The plants first taken from the seed-bed, planted in rich soil and watered in dry weather, will attain a useable size by the time when the nights have grown sensibly longer, the main crop of Celery is pushing on vigorously, and "dewy eve" falls every day earlier and earlier. The part to be eaten is the tender portion of the centre of the plant, which in other Cabbages would form the heart. The stumps, stripped of their leaves, may be left to form sprouts. Later plantings will come in during autumn and winter (if mild and open). Couve Tronchuda, rather a tender plant, would be called half-hardy, that is, not hardy at all when the winter is hard; but as it is never better than in spring, after a green Christmas, with January and February to match (the time when vegetables are becoming scarce), the gardener will do well to risk a late setting in a warm border, covering with handlights and a sprinkling of straw, in case of frost. Loudon (*Encyclopædia of Gardening*) states that the Couve Tronchuda, Tranxuda, or large-ribbed Cabbage, was introduced in 1821; and the dwarf variety, known in Portugal by the name of Murciana, in 1822, which, possibly, may be the sort now chiefly cultivated in England. On account of the tenderness of both, he advises the seeds to be sown in August and the plants kept in a frame till spring, and planted out at the same time as Cucumbers for an early summer crop; the succession to be kept up by spring and summer sowings. Couve Tronchuda is the Brassica var. costata of De Candolle. The *Bon Jardinier* just mentions it as *Chou à grosse côte*, of which there is a fringe-leaved variety, cultivated by the Paris gardeners under the name of *Chou fraisé* (*fraise* is not only a Strawberry, but also a frill or Elizabethan ruff), an excellent winter vegetable, intermediate between the hearting Cabbages and the *Choux verts*, or non-hearting Kales. *E. S. D.*

HARDY VINEYARD AT CARDIFF CASTLE.

There are instances on record of the cellars of some of our British nobles being pretty well stocked with wine the produce of Grapes grown in the open air on favourable spots on their own domains, such, for instance, as at Arundel Castle. The Most Noble the Marquis of Bute is at present engaged in preparing a piece of ground on his Cardiff estates for the formation of a hardy vineyard on a somewhat extensive scale. The ground selected is about 7 miles from Cardiff, at a place called Castle Coch, an old ruin which his lordship is having partly restored. This castle is situated on a tract of limestone some 500 acres in extent. It is well wooded to the north, east, and west, but lies quite open to the south, overlooking the Bristol Channel. The field selected here for the vineyard is about 5 acres in extent, having a good fall to the south. It is of a light loamy soil, 2 feet deep, resting on the limestone rock, and requiring no artificial drainage. The only precaution necessary before planting is trenching and slightly manuring with stable-dung. The Marquis, in his earnestness to put the practicability of open-air culture of Grapes in favoured spots in this country to fair proof, sent his intelligent gardener, Mr. Pettigrew, on a tour of inspection among the most noted French vineyards last autumn, preparatory to his lordship's desire being put into practice. Two thousand Vines will be planted this year, and the same quantity next year, and so on until the vineyard is stocked. They will be planted 3 feet apart each way, and it is proposed not to allow them to grow to a greater height than 3 feet. The varieties to be planted are Melier blanc and Gromier noir, in equal proportions, these being, from Mr. Pettigrew's observations on the Continent, the two most likely to succeed, they being very hardy and prolific. To further test the matter, 150 Chasselas de Fontainebleau are to be planted on the Castle walls. We earnestly hope the Marquis' experiment may turn out very successful. It may be added, the French system of culture will be adopted generally. *The Gardener.*

A REVIEW OF THE PROGRESS OF VEGETABLE PHYSIOLOGY IN 1874.

It is a frequent difficulty with those who are engaged in any branch of science to hold themselves *au courant* with the multitude of publications regarding it in periodical and other literature. Hence, a summary of progress is often useful, and we propose here to avail ourselves of such a summary, made by M. Micheli, in the *Archives des Sciences*, in which the advance of knowledge of plant physiology in 1874 (on the Continent chiefly) is passed under review.

Without professing to deal exhaustively with the subject, the author's paper treats first of the action of external agents (heat, light, &c.) on plants, and the physico-mechanical phenomena in the latter; secondly, the chemical part of plant physiology; while a third section is devoted to chlorophyll.

Growth of Plants.

A branch which grows is always turgescent. There is a certain tension between the cell-contents and their membrane; when this turgescence disappears growth ceases. Cellular membranes are extensible within a certain limit; beyond this their natural elasticity is the stronger; it stops the increase of volume of the cell and the entrance of new liquid particles into the interior. The object of growth is, then, to re-establish equilibrium between the tension exercised by the cell-contents and the elasticity of their membranes. Once this occurs the membrane is again extensible, and new liquid molecules can enter it. Such is, in substance, M. Sachs' theory of growth. The extensibility of cell-membranes plays an important part in it, and this has been specially studied by M. Hugo de Vries, who corroborates the theory just given. It has long been known that the elongation of cells is not uniform; at first slow, it is gradually attains to a maximum, then diminishes by degrees, till the organs have reached their definitive length. This is

probably due to variations in the extensibility of membranes, and M. de Vries examined this property in cells at different heights under the point of vegetation. He first studied the shortening which all branches undergo when they wither, a result due to escape of a part of the liquid contained in the cell; the interior tension diminishes, the elasticity of the membrane prevails, lessening the organ. The phenomenon should be at its maximum where the dilatation of membranes is greatest; that is, in the section of the branch whose growth is most rapid. And exact measurement confirmed this. For example, if we divide a peduncle of the Poppy into successive segments 2 centimetres in length, then (reckoning from above downwards) it is the third that will present the maximum elongation in a given time, and the third also which will contract most in withering. This contraction is well marked; in two hours and a half it was as much as 3.8 m.m. in 2 c.m., or 19 per cent.

In his direct experiments, the author's results no less conformed to theory. He operated in three ways: elongating the branches mechanically (with the hand), bending them, and twisting them. A part of the elongation obtained was destroyed by elasticity, but a part persisted. In these three cases, the maximum of extensibility should not coincide with that of growth; it could not be supposed that cellular membranes, already subjected to very strong tension, would show marked elongation under mechanical action. It was more natural to expect that the maximum this time would be nearer the point of vegetation, in the region where the cells, yet passive (so to speak), have before them the maximum elongation to accomplish. This was fully confirmed by experiment, and in the numerous branches M. de Vries examined the maximum artificial elongation was always in the first of the long segments of 2 c.m.

Root Growth.

The mode of growth of roots and the action of gravity on these organs have been the subject of interminable discussion among physiologists. M. Sachs has studied this subject *ab ovo*, and the results of his long and conscientious inquiry fall under the principal categories. The first, relating to mode of growth of roots, presents an interest specially theoretical. The elongation of roots, like that of stems, is not uniform for each cell; it is at first slow, increases gradually, reaches a maximum, then diminishes little by little, andfinally ceases. The extremity of the root is hard and fragile. The parts which have attained their definite length are, on the other hand, flexible, and have but little elasticity. Hence, M. Sachs has been led to renounce the theory (of Hofmeister and others), that the end of the root penetrates into the ground like a soft and plastic substance, moved by gravity. He thinks, on the contrary, that it is driven forward between the particles of the soil, with a certain force, by the segments placed behind and whose elongation is very rapid.

The second category of results consists of geotropic curves of the roots, and is highly interesting as regards the relation of plants to the ground. These curves are always ruled by two general laws. 1. The part which elongates is subject to the action of gravity; and in a horizontal root the curve is, for each segment, greater the more rapid the period of elongation in which it occurs. 2. Different segments that have reached the same period of development are more curved the more open the angle their axis forms with the vertical.

But the intensity of the geotropic action varies much in the roots of different orders. It attains its maximum in the primordial roots; these, when they have deviated from the vertical, are brought back to it by successive curves, and often conclude by forming an acute angle with their first direction. The secondary roots, on the other hand, proceed from the axis at a certain angle (proper angle), which varies according to the height; almost a right angle towards the collar, it becomes more acute as we approach the point. The action of gravity on these organs is limited; it attains its maximum, as in the preceding case, when the axis of the root forms with the vertical a certain angle, but from this moment, instead of diminishing gradually it ceases abruptly, and consequently a secondary root is never brought back to the vertical position. Lastly, the roots of the third order have no apparent geotropism, they issue always at a right angle from the axis which bears them.

The biological bearing of these facts is easy to comprehend. If the roots of the second and the third order were geotropic in the same degree as the primary roots, they would all merely form a dense bundle. They would be mutually injurious, and would utilise only a small part of the nutritive elements distributed in the soil. But according to M. Sachs' observations, it is quite otherwise. The primordial root, endowed with strong geotropic properties, descends directly into the ground; the roots of the second order, separating from it, penetrate obliquely into even deeper layers, always removing further from the principal axis. Besides, owing to the variable value of the proper angle, the roots withdraw the one from the other in proportion as they are elongated, the upper ones always running almost horizontally near the surface, the lower penetrating even deeper into the soil. Lastly, the layers of ground which escape these various actions are put under contribution by the roots of the third order, which radiate at a right angle round the secondary axis.

Movements in Plants.

The study of movements produced in irritable organs forms one of the most difficult chapters in vegetable physiology. Many observers are, however, agreed in attributing a prominent *rôle* in these phenomena to the displacement of a certain quantity of liquid, at least in leaves like those of the Sensitive Plant and Oxalis. This is the view taken by M. Pfeffer on the subject, in a memoir published in 1873. He has extended his study to the stamens of Cynareæ (Cynara Scolymus and Centaurea Jacea), which also have an irritability, easily observed; and with reference to these organs also, he concludes that the direct cause of the phenomenon is to be found in displacement of liquid, which passes from the interior of the cells into the intercellular passages, or into the vessels. He has observed the changes of volume in the staminal filaments under the influence of irritation, and has found that a thickening of 2 to 3 per cent. is far from compensating the shortening, which may be as much as 10 to 12 per cent. By micrometric measurement of the cells themselves he has confirmed this observation, and proved that their cavity notably diminishes. He has further proved that the elasticity of the membranes has nothing to do with the irritability; that filaments subjected to the action of chloroform possess the same elasticity, whether contracted or extended; and a stamen, in contracting, cannot raise the lightest weight.

M. Pfeffer thinks, therefore, that upon contraction of sensitive organs there is manifested an increase of the permeability of the cellular membrane or the protoplasmic utricle. The tension which always exists in the turgescent tissues then causes a little of the liquid to escape, and pass into the intercellular passages or into the fibrovascular bundles; the turgescence exists no longer, the organ bends; later, when the irritation ceases, the inverse phenomenon occurs.

M. Pfeffer has completed his researches by studying, in a late memoir, the mode of transmission of irritability from one point to another in Mimosa pudica. Without regarding the case as fully elucidated, he accepts the old theory of Dutrochet, which represents that the irritation is transmitted by means of a displacement of liquid through the fibrovascular bundles. One cannot suppose that there is from point to point a series of irritable cells accompanying the bundles, for if, by means of an anæsthetic, we render insensible the median folioles of a leaf, the irritation applied to the terminal foliole is none the less transmitted to the base of the leaf, and thence to neighbouring leaves.

M. Heckel, in his researches on the same subject, has come to an entirely different point of view. In his opinion, the irritability of the stamens of Mahonia, Berberis, and Sparmannia is due to the particular properties of the epidermic cells, which contract under the influence of an excitant. In the Synantheræ M. Heckel thinks the irritability of the stamens is much more general than is usually supposed. He has observed it not only in the Cynareæ and Cichoraceæ, but in many of the genera of Corymbiferæ such as Inula, Aster. As to the process of the phenomenon, his opinion is, that under influence of irritation the cells contract, and that thus the filament is shortened (theory of Cohn). According to his measurements (which contradict those of M. Pfeffer), the thickening of the filament compensates exactly the diminution in length. Thus he does not admit the possibility of a displacement of liquid, and absolutely rejects the view adopted by M. Pfeffer. Without wishing to pronounce here decisively as to the comparative merits of the two theories, it seems to us that some of the objections M. Heckel urges against a displacement of liquid are not well founded. He says, for example, that the filaments of Cynareæ do not contain lacunæ in which the liquid can be stored; now M. Pfeffer has precisely observed that in certain cases (Berberis) the absence of lacunæ was compensated by the presence of a spongy inter-cellular matter, which can absorb liquid. Further, M. Heckel has observed the irritability to persist in fragments of long isolated filaments of only 1 to 2 mm., and he concludes that here a displacement of water is impossible. It seems to us, on the contrary, that if we suppose an increase in permeability of the membrane, there is nothing to hinder the tension subsisting in an isolated cell from causing the escape of part of the contained liquid, which will then be simply deposited in the form of a drop on the exterior surface of the membrane.

We remark, lastly, that the view of the German physiologist leads us further into a knowledge of the phenomenon, since his explanation appeals only to a well-known property of membranes — permeability, the increase or diminution of which suffices to account for the changes of volume of the cell. In the opposite theory, the contraction of the cell depends on a peculiar and, we believe, quite unknown property in membranes.

In another investigation as to the movements of the stigmatic lamellæ of Bignoniaceæ, Scrophularineæ, and Sesameæ, M. Heckel attributes to the spiral vessels or tracheæ a particular *rôle* in transmission of the movement from one lamella to another; in most cases, indeed, the more sensitive the stigmata the more tracheæ do their tissue contain (the Mimulus, however, is an exception; though very irritable its stigmata contain in each lamella only one trachean bundle). This idea was suggested to M. Heckel by a note of M. Ziegler, on movement of the hairs of Drosera, into each of which one trachea enters, which the author regards as the probable cause of transmission of the irritation. Here, again, this mode of view seems to us to assume a problematical property of tissues. It is not possible, in the present state our knowledge, to say anything of the mode of action of tracheæ transmitting an irritation directly. The theory of displacement of liquid, on the other hand, would find, we think, a very logical application in the stigmata in question, which are formed in great part of a turgescent parenchymatous tissue. Perhaps the tracheæ may intervene here as receptacle for the liquid expelled provisionally from the cells.

Action of Light, &c.

The action of exterior agents, such as light and heat, has also been the subject of some interesting observations. Thus, *e.g.*, M. Winter has remarked a case of positive heliotropism in a Mushroom. The plants of this family are generally supposed to escape more or less completely the action of light. The instance referred to was that of the Peziza Fuckeliana of Bavy, which was cultivated in cases exposed to light on one side, and not only the styles, but the cupules themselves, turned energetically towards the light. The fructiferous cupule even appeared not to be capable of developing completely, except when it received in full the luminous rays.

M. Pedersen has studied the action exercised on vegetation by oscillations of temperature. The only researches we possessed on this subject were those of M. Köppen, who concluded that oscillations, regarded in themselves, had an unfavourable action. M. Pedersen does not accept this view. His experiments had reference to the growth of roots and seeds in germination. The plants were some of them subjected to sudden variations, plunged alternately, *e.g.*, in water at + 10° and + 20° C.; others, again, were placed in water which was cooled gradually. Comparison was made in each case with a plant immersed in water at a constant mean temperature. The result was in all cases the same. The roots exposed to a variable temperature were elongated a little more quickly than the others. This is no way surprising if it be proved that, all other things being equal, a higher temperature favours the rapidity of growth. And this was demonstrated in an experiment by the author, in which the elongation in the same time was 100 at 10°, 179 at 15°, and 316 at 20° C. Given these figures, it is evident that a plant which has passed six hours in water at 10°, and six hours in water at 20°, must grow more than a plant kept twelve hours in water at 15° C. The author considers, therefore, that oscillations of temperature in themselves have no influence on growth.

M. Krasan has shown that Wheat grains can bear a very high temperature without losing their germinative power, if the precaution be taken to partially dry them before the experiment. Grains which had lost 10 per cent. of their weight were exposed during ten and twelve hours to temperatures of 60° to 70° C., and even on one occasion of 90° to 100° = 212° F. They all germinated ultimately, only a little later than the others, which is easily explained by the desiccation of the tissues. *A. B. M.*

(*To be continued.*)

Natural History.

Toads, Snakes, and Adders. — The article by "R.," at p. 410, brought to my remembrance some of the facts which I learned in this place when foreman some twenty years ago. At that time we had an excellent collection of Dahlias, and they were put to "start" on a bed of leaves in one of the early vineries, where we were also very much troubled with earwigs and woodlice eating them. I got a lot of toads and placed amongst them, and found they were quite at home in their new quarters, and soon rid us of our enemies. My toads and I got great friends, and they became so tame that they would eat from my hand, and I was also an eyewitness to one of them taking off his jacket and making it up in a pill and bolting it. One day, during the month of July in the same year, I was gathering Strawberries in the open garden, and came upon a very large snake, which I killed. Seeing a large lump about its middle I placed my foot on its tail and took a garden rake and

worked the lump upwards, and in much less time than it has taken me to write I had worked it out at the snake's mouth—a fine live toad. He winked and blinked a bit, and then hopped off, no doubt well pleased with his change. Snakes reproduce their species by laying eggs, usually in a heap of some material which will produce warmth; sometimes the carpenters used to find their eggs in a heap of sawdust, and put them in a box. These put in a warm place soon hatched and became lively little fellows. Snakes used to crawl up the Ivy of the Castle and get in at the bedroom windows, and the boys on the estate sometimes found them in birds' and squirrels' nests in the Spruce trees at a good height from the ground; and this brings me to a very different reptile to the preceding, viz., the adder, which we all know is dangerous, its bite causing great pain, and sometimes death. Before the Fir trees were cut down round the Castle and garden, adders were very plentiful, and sometimes people were bitten. The remedy used was immediately to cut a chicken in two, and put the half on to the wound; this brings the poison out to a certain extent, and the part almost immediately becomes black. [!] The adder, unlike the snake, gives birth to her young, and will lie and bask with them in the sunshine; on the approach of any danger she utters a "hiss," and the young ones one after another enter her mouth, when she decamps with them to a place of safety. I know that this fact is disputed by many eminent men, but from this very parish I could find as many persons as there are weeks in the year (and some of them persons of education and intelligence), who have been eye-witnesses to it. I daresay I shall bring down upon myself a certain amount of ridicule for believing this, but I must say that from the abundance of such evidence I believe it to be the fact; and were adders as plentiful now as then, I should have no difficulty in sending you up the parent and offspring as described. At that time they were far too numerous, and often took up queer positions, but the most remarkable was in one of the lodges; the bedroom was on the ground floor, and there the mother found one coiled up in a vessel after the children had gone to bed. *J. Rust, Eridge Castle, Tunbridge Wells.* [It is singular that, with so much positive assertion, there should be so little proof of the many similar statements that have been made. See *ante*, p. 115. Eds.]

RARE CONIFERS.

Not long since we drew attention to some valuable Conifers, of which specimens and seeds had been collected by M. Roezl, in New Mexico, and sent to Messrs. F. Sander & Co., seed merchants, St. Albans, who were good enough to submit the specimens to us. These have appeared to be of sufficient interest to merit being figured, and our readers will now have the opportunity of judging for themselves how far we were warranted in the conclusions at which we had arrived regarding them.

Picea concolor, var. violacea.—The first species that we examined was one bearing this name. The reader is referred to our remarks upon it in the number for January 23, p. 105, and we now ask him to compare what we then said with the figure now before him (fig. 94). We said that, notwithstanding that it had been admitted as a good species by Parlatori, it appeared to us to be only a variety of Picea grandis; and we grounded our opinion on having seen grandis growing in its native Rocky Mountains, with all the characters that are present here. The characters which were supposed to differentiate it from P. grandis were its white colour, the same on both sides of the leaf, and its somewhat falcate form, and some supposed difference in the bract of the scale. The former, we already explained, are common attributes of P. grandis in Utah, where the hoary hue of the vegetation of the plains extends also into the mountains; and as to the more erect attitude and slightly bent leaf, the variation is very slight, and occurs also in P. grandis. As to the cone, any one who has had cones of P. grandis through his hands will, on looking at this woodcut, recognise its cone. The bract, also, in no respect differs from the bract of that species. The reader knows that in this country P. grandis does not exhibit the white colour which it so often bears in various parts of the Rocky Mountains and the Sierra Nevada, and it will be very interesting to observe whether the seed of the variety now received from New Mexico maintains the white colour of its twigs and leaves, or reverts to the semi-transparent olive-green hue that always characterises it in Britain, and as often as the white hue in Utah. There the colour seemed to depend a good deal upon the nature of the place, whether near a stream or barren and exposed—the more barren the more white—although it would be to generalise on imperfect premises were we to lay this down as absolute. There was, in fact, very great differences in the habit of trees of P. grandis growing side by side, especially when young. One would bear its leaves scattered thin and sparingly and wide apart; another would have its foli-

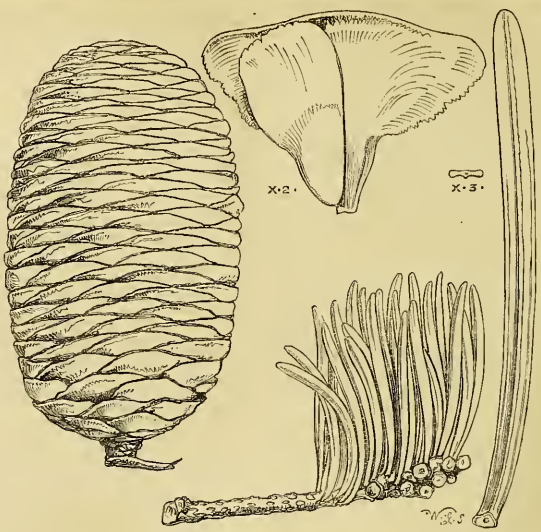


Fig. 94.—Picea concolor (Engelmann), var. violacea (Roezl).

Fig. 95.—Bract of P. concolor, var. violacea.

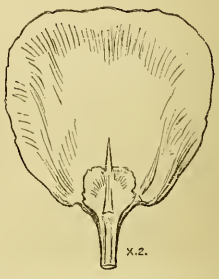


Fig. 96.—Bract of P. bifolia.

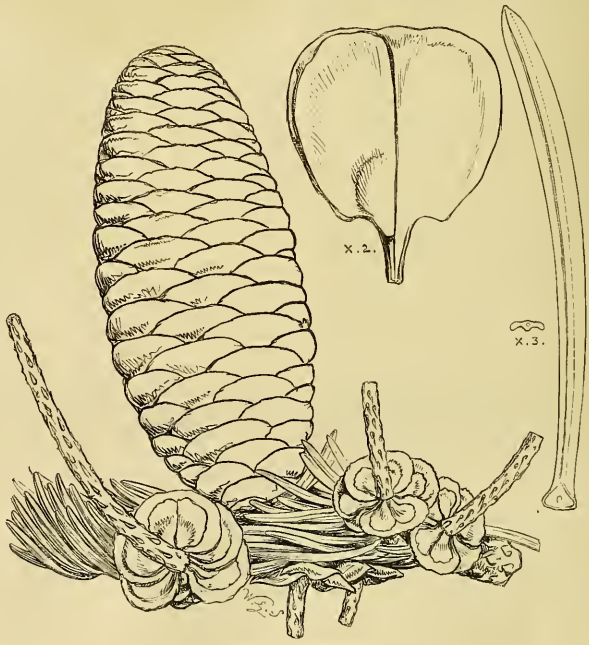


Fig. 97.—Picea bifolia.

age twice as thick; one would have long leaves, as in Iasiocarpa and Lowiana, another quite near it would have them only half the length. And even in colour a great difference was constantly to be seen: one would be of a darker green, another yellowish-olive, a third nearly white, and so on. For these reasons we have no doubt that the present species is a variety of P. grandis, but we shall hold ourselves open to correction when the young plants come up.

Abies (*Picea*) *bifolia*, Murr.—This, we believe, is the first time that seeds of this species have been introduced into Britain. We described it about ten or twelve years ago from specimens in the Kew Herbarium, brought home by Dr. Hector. It is not recognised as a good species by Parlatore, who makes it a synonym of amabilis; but we imagine that the accompanying cut (fig. 97) will satisfy Coniferists that in this he is in error. *Andrew Murray.*

BRITISH GARDENERS.—XV.

William Miller.

The name of William Miller is well-known amongst gardeners. The fine samples of late Grapes Mr. Miller was in the habit of exhibiting a few years since from the new vineries at Combe Abbey, and to which he modestly alludes in the accompanying very complete autobiographical notice which he has obligingly sent us, will not yet be forgotten by those who take interest in Grape growing.

"I was born at Knockdow, in the parish of Inverchoalin, Argyleshire, on November 29, 1828. My father was then gardener to the late James Lamont, Esq., of Knockdow; at his death to his son Alexander, and latterly to his son James Lamont, Esq., the present proprietor. My father went to this place as gardener in 1821, and having served three generations, extending over a period of fifty-two years, he died on August 3, 1873, in his eighty-fifth year. My mother, who survived him only five months, died on January 13, 1874, in her eighty-fifth year. Mr. Lamont erected at his own cost a tombstone over their grave, with a suitable inscription, stating their age and the number of years they had served faithfully and honestly in the Lamont family. Such an instance of long servitude and good feeling between employer and employed should not be overlooked. My father was initiated into the profession of a gardener in the first place amongst the market gardeners of Glasgow; afterwards at Rosedoe, Dumbartonshire, the seat of Sir James Colquhoun; and at Kelvin Grove, now the fashionable West-end park of Glasgow, under the late Mr. Ninian Niven, afterwards of Kier Gardens, Perthshire.

"I was educated at the parish school of Toward until I was fourteen years of age, when I was sent as dominie to teach two orphan grandchildren belonging to a wealthy sheep farmer in the neighbourhood. At the end of this service I was to enter a merchant's office in Glasgow, but this breaking down—for want of the necessary influence, I suppose—I was put to work under my father on the estate. My father at that time being general manager, I had great scope for observation, and in this way got early acquainted with the management of sheep and cattle, and fancied myself a very good shepherd.

"Plantations of Larch, Scotch Fir, Spruce, Oak, &c., were being plentifully made at that time on this and other estates on the West Coast for purposes of shelter, timber, &c.: I had a famous opportunity of taking part in these operations. The late Mr. Lamont was a man of great taste, and would insist upon having the outline of plantations, drives and fences eye-sweet. In the working out of these curves I have followed my father many a day with an armful of pegs. Here I learned to form the Hogarth line of beauty, which I never forgot. When still a lad, Mr. Lamont was not slow to acknowledge my aptitude to form a good curve. At that age I could measure a piece of land with any one. When a piece of land was set out for planting I was frequently sent by my father to get it surveyed, and to work out the number of plants required of the different kinds with which to plant it. There were no rabbits there in those days, and young plantations soon got up, and the thinnings were made available for estate purposes. Thinning plantations in Scotland was always carefully and neatly attended to; so also the pruning of young trees, and old ones, too, when they had been neglected in their earlier period of growth. Every cut must indicate a thorough mastership in the handling of the tool used.

"My elder brother, now at Clumber, who was at this time acting as foreman to my father in the gardens, left, and I was duly appointed to this charge. With the exception of a short time in spring, when a batch of men would be sent in to dig, and put in the general summer crops, I was mostly alone. Here I got initiated into the pruning and training of fruit trees, which has continued a favourite subject with me ever since; also the sowing of seeds by hand, the depth of drills, width apart, &c., for different seeds. This is a branch of gardening now almost overlooked by the coming race. The only glass at this place at that time was some Melon and Cucumber frames.

Mr. Lamont gave me to read *Harrison on Fruit Trees*, also *Loudon's Encyclopædia*, which latter work so fired me with the love of gardening that I was not long before I began to feel that if I meant to be a good gardener I must get myself out into the world a bit to obtain further knowledge of the higher branches of the profession. After duly apprising my father and Mr. Lamont of my intentions, and obtaining their leave to go, I went after a place, and succeeded in getting one. From this time began the troubles and difficulties of my life, and which have been such as gardeners generally are the peculiar sport of.

"My first place from home was at Erskine House, on the Clyde, the seat of Lord Blantyre. The veteran gardener at that time was Mr. George Shiels, a very superior man generally. He had the best walled garden at that time in the West of Scotland; and his fruit trees were in the best form of training and bearing that I have seen in any garden. Excellent Peaches were ripened on the open walls. Immediately on entry I got as a favour the management of the forcing houses, they chiefly consisted of Vine and Peach-houses, Cherries, Figs, and Vines were grown successfully on hot walls. The bothy here was a tolerably good one for those days. We each had a bed, although in the same apartment. In the evenings we read greedily, each paying for a pound of candles in turn. Our wages were not much, so they

were easily taken care of. Here I commenced horticultural drawing, which I have pursued ever since with more or less success, having always made and worked to my own plans. In consequence of having the care of the fires, which were all smoke flues, I never went to bed very early; and this prolonged my hours of study for some time after the others had gone to bed—with one exception only, and this was our out-door foreman, who fancied that he had discovered the 'real clue' to find out perpetual motion. Often this poor fellow, when he came in from work, and had taken his tea, would quietly go to bed and sleep for a few hours; and when we had retired, and all was quiet he would get up, and in the lonely midnight hours pursue his study of perpetual motion.

"At Erskine I only remained one year. On leaving I did not meet with a place to my mind, so I again put myself to school—this time entering myself for the winter at the Andersonian University of Glasgow. I entered as many classes as I thought I could manage. During my short stay here I improved my education much. For the further prosecution of my studies there I fell short of the one thing needful, so in spring a situation as journeyman gardener was obtained for me at Dysart House, under Mr. Laing, now the worthy nurseryman at Stanstead Park, Forest Hill. Shortly after my arrival at this place a vacancy occurred in the outdoor foremanship, to which I was appointed by Mr. Laing. I carried through this department for about a year satisfactorily, I believe, to Mr. Laing, and to my own great delight. One of the chief features of this place, which was a pleasant one, and neatly kept, was its Rhododendrons. My last year at Dysart was filled in as foreman of the houses. I was there at the time when Mr. Laing succeeded in flowering for the first time in this country Rhododendron Dalhousiæ.

"From this place I was sent by Mr. Laing to Mr. Fleming, then gardener to the Duke of Sutherland at Trentham. Here I encountered a wonderful change in the style of gardening, as compared with what I had been accustomed to in Scotland, to which style and practice I need not further allude here. Suffice it to say that during my two years' stay at Trentham I saw much practice which I booked and carried away, and I saw much also which I did not book but left behind. I was healthy and strong while there, for which there was much need. Whilst at Trentham I was sent three times to London with Mr. Fleming's collections of fruit—once to the Crystal Palace, when Mr. Fleming beat the late Mr. M'Ewen, of Arundel; once to Chiswick, when Mr. M'Ewen beat Mr. Fleming; and once again to the Regent's Park. During these visits to London I had drank deeply of gardening; and as it is said of those who once drink of the waters of the Nile, that they will live to do so again, it was my wish on these occasions that I might live some day to come back to London, and table my own fruit.

"At the end of two years of Trentham practice, I was sent to Gowran Castle, Ireland, as head gardener to the late Viscount Clifden, where I remained four years. During my stay here my time was occupied in improving the grounds, which I took great interest in. At Gowran I had most to do with the Hon. Leopold Agar Ellis, brother to Lord Clifden, who took great interest in the improvement of the place. Figs and Pears ripened to great perfection on the open walls. I did a good deal in Pear grafting. I recollect once grafting a Pear fruit bud; the bud expanded, set, and grew into a good-sized fruit.

"Some time in the year 1858 Mr. Fleming was promoted to the resident agency on the Trentham estate. Evidently he had formed a good opinion of me; for he sent for me from Ireland, with a view to my filling his shoes in the celebrated gardens of Trentham. I was for this purpose brought before the late Duchess of Sutherland. Whether it was from my Irish brogue, which I had caught strongly, or perhaps from my awkwardness, I cannot tell, but her Grace disapproved of me, so I went back to Ireland a disappointed man. The more fortunate, or perhaps unfortunate, man to receive the appointment was Mr. Wren, then gardener to the Duke of Leinster, at Carton. He held the situation a few months and then went off to New Zealand, where I am informed he is doing well, and where also most likely I should have gone had I been appointed to Trentham at that time.

"In the autumn of 1859 Mr. Fleming offered me, and I accepted, the bailiffship on the Home Farm at Trentham. I left Ireland and my friends there with a very sad heart, and have often repented most bitterly that ever I left the service of such a kind and indulgent family. I should perhaps mention here that the mother of Lord Clifden was Lady Dover, sister to the Duchess of Sutherland, and therefore, although at Trentham, I was still connected with the family. I accepted this situation with the hope that it might ultimately turn out to my advantage, but I was not long there before I found that my occupation was likely to prove a very unpleasant and a very uncomfortable one, and so it proved as time wore on. For the first time in my life I began to feel that in these situations a man's duties are not the most difficult things he has to contend with; but temper, whispers, and jealousies often beat the most assiduous and devoted of men; and these were the hidden rocks which compelled me to weigh anchor from Trentham. However, during my time as bailiff at Trentham I bought, in the rough, a good deal of valuable experience, which has since often stood me in good stead.

"I left Trentham in the spring of 1861, and obtained a recommendation to work with a spade in the new gardens then forming for the Royal Horticultural Society at South Kensington. I worked with great pleasure in these gardens for about three months, when, through the kindness of Mr. Eyles, and my earlier friends, the Hon. Leopold Agar Ellis, then M.P. for Co. Kilkenny, and Mr. Fleming, I obtained my present situation at Combe Abbey, near Coventry. One day, when working in the Society's new gardens, an incident occurred which, perhaps, you will allow me to relate. It was at dinner time, and I was in conversation with a young man named Macintosh, who formerly also lived at Dysart with my old master, Mr. Laing. He knew several of Mr. Laing's men whom I knew. Amongst them he told me there was one named Miller, who got on well; that from Dysart he went to Trentham, from Trentham to Ireland, and again back to Trentham, to some position on the estate. 'Ah!' added he, 'some men are fortunate; Miller is now a made man;' asking me in the same breath, 'Did you know him?' I replied in the affirmative that I knew Miller well, and that all he had said respecting his movements was quite true. On this reply he looked me hard in the face, and asked if I was the man; and when I told him I was, he seemed for the moment dumb-

foundered. Adversities bring together strange bedfellows, and such was the case with Macintosh and me.

"In the late Earl of Craven I had a most kind and liberal employer. He was a man of great taste, fond of horticulture and the improvement of his estate, and he knew trees well. My first duties here were to erect new forcing-houses, of which much has already been written in the pages of this paper, and other contemporaries. We then commenced the improvements in the pleasure grounds, which we have been carrying on year by year ever since—transplanting many large trees, and introducing many young Conifers and other shrubs. At the request of the late Earl I formed some extensive green drives, and by clearing away trees and hedgerows added largely to the views and extent of the park.

"I have not been without my successes as a fruit grower, but of this the gardening public are the better judges. Suffice it to say, that during the years 1867, 1868, 1869, at the Royal Botanic Gardens, Regent's Park, I carried off successively the gold medals for collections of fruit. I have not exhibited lately.

"I have much to be grateful for in the confidence reposed in, and the kindness shown to me by the present Earl and Countess of Craven, and of which I have had many gratifying proofs. By their desire we are always adding something towards the improvement and embellishment of the gardens and grounds."

To this interesting sketch of Mr. Miller's horticultural career we may briefly add, that amongst his contributions to our pages, which excited some interest at the time of their publication, were his papers on the bottom heating of Vine borders, on Vine extension, and on the root fungus question. A paper on deep cultivation, which appeared in the first number of our present series, is eminently practical, and calculated to awaken thought.

UNDERLEY HALL:

THE SEAT OF THE EARL OF BECTIVE.

This fine place (see p. 469, fig. 99) is most beautifully situated in the far-famed valley of the Lune — a more lovely situation it would be difficult to find, even in these parts, where Nature has been so liberal in bestowing her favours — passing northward through Kirkby Lonsdale, one of those quaint old-fashioned North-country towns, where, from the rural attractions abounding in the neighbourhood, many visitors from the South during the summer season resort. A new ornamental lodge has been recently built, and many improvements made. The carriage drive winds its way through an extensive park, in which, at the time of my visit, was grazing a herd of some forty cattle, in all probability of greater value than any similar number of the bovine race ever seen together. I allude to the magnificent Shorthorns which Lord Bective possesses, and in which his lordship takes so much interest. Here, amongst an assemblage of splendid animals such as can only be fully appreciated by those who have an intimate knowledge of them, was the magnificent 10th Duchess of Geneva that, a year ago, was purchased in the United States for some seven thousand pounds. After a hurried glance at these beautiful animals, following the carriage-drive we arrive at the mansion, which is a combination of the Gothic and Elizabethan styles. At the southern, or principal entrance, is a double portico, supported by massive columns, imparting to the building a fine effect. Great additions have been and are being made, and these, when completed, will make this already noble mansion still more imposing. The roof is hidden by a perforated parapet, as will be seen from the view (fig. 99) given at p. 469, which represents the eastern front, with its massive tower, 100 feet in height. Looking round, one cannot help remarking that the place is well-named Under-ley, from the way in which it is sheltered north and west by the distant hills, partially yet sufficiently clothed with timber, and which break the winter winds that sweep down these northern valleys. The river—here a broad and goodly stream—bounds the grounds on this side, at some 100 yards distance. From the great depth of the banks, at this part almost perpendicular, the water, in its tortuous windings, is not visible until the visitor unexpectedly comes upon a point where the full beauty of the situation is displayed. There is here one of the most lovely bits of river scenery imaginable. No attempt appears to have been made to enhance the natural effect produced, neither would it be possible. Lingering for a time, and with reluctance leaving this charming spot, we follow the stream which here bends southerly, bounding the recently made portion of the grounds, which stretch a considerable distance in this direction. The high ground on the opposite side of the river retains its almost precipitous character—at this side the surface gets much lower, until it gradually becomes almost on a level with the water. This, as will be understood, adds much to the effect produced by the bluff grey rocks opposite. Not far distant from the water's edge at this part is to be erected a summer-house on a large scale; it will be approached from the higher ground by several flights of rustic steps already made. The site is happily chosen, the whole surroundings here producing a feeling of natural repose in perfect harmony with the idea embodied in a retreat of this description. This part of the garden is exceedingly fine; the ground is well laid out, the combination being such as can never be produced except in the immediate proximity of a river of importance, so as to afford the indispensable element, water, in sufficient quantity and under conditions that harmonise with the particular style of gardening attempted. Near by is a slightly raised mound of considerable size, surmounted with wirework, which is to be covered with climbing Roses; the situation being sufficiently sheltered, they will no doubt do well. This is a consideration that should not be lost sight of in selecting a position for an arrangement of this description, as, if too much exposed, the shoots and leaves are literally ground away by chafing against the wire. Returning we proceed towards the eastern front of the mansion, which from this point is approached by a broad gravel walk, right and left of which lies a fine piece of lawn, on which have been planted some large clumps of flowering shrubs, such as Rhododendrons, Ghent Azaleas, &c. Here also is an arbour, the roof composed of a very large Weeping Ash, supported on a framework, the pillars of which are covered with Clematis, which, when in bloom, will be very effective.

The walk for some distance from the mansion is margined by a series of beds similar to the broad walk at Kew, filled and looking very gay with the usual summer bedders at the time of my visit. This leads to the south, or principal entrance front. The carriage way is of proportions in keeping with the building. From this we descend by an easy flight of steps to a terrace some 10 yards in width, the wall of which is surmounted at intervals by large vases, and from whence there is an extensive view over the park to the Lancashire hills. The kitchen gardens, with the various fruit and plant houses, are northwards, and at some distance from the mansion. We come first to the old walled kitchen garden, the south outside wall of which is planted one half with Pears in good condition, the other portion with Peaches, over which is a broad glass coping. In this old garden is a range of large lean-to houses, one of which is devoted to plants of a general decorative character. Adjoining is a vinery, filled principally with Hamburghs and one or two Muscats, these producing useful fruit. Next is another vinery, the greater portion planted with Black Hamburghs, with two or three West's St. Peter, all carrying a heavy crop, the bunches a fair size, and the berries large. These Vines are strong, although old, having been planted, I understand, about 1811, and, so far as I can learn, they have regularly borne good crops. This range is heated by flues, and the borders in which the Vines are planted are all outside. The last house here is also a vinery, similar to the others, which are from 30 to 40 feet by 18. This is the latest house, and the inmates are all Hamburghs. The back wall is covered with Figs.

This garden, although old, was filled with a very fine crop of vegetables, remarkably clean, and in good condition. All the walks here are margined with espalier fruit-trees, mostly Apples, with a few Pears. The walls are all of stone, and very substantially built, principally planted with Pears and Cherries. The varieties of Pear which answer best are Beurré Bosc, Louise Bonne of Jersey, and Marie Louise. Northwards from this, and adjoining it, is the new walled garden, similar in size to the old one, and in which the new ranges of houses, seventeen in number, are built. They are a good, useful lot, erected by Weeks, of Chelsea, some five years ago. In the centre of the principal range is a span-roofed plant-stove, 30 feet by 20, containing good plants of Ixora coccinea, I. javanica, Anthuriums, Crotons, Eucharis amazonica, Bougainvilleas, Stephanotis, some large healthy plants of Dendrobium nobile, Dracænas, Dieffenbachias and Palms, conspicuous amongst which latter were fine plants of Kentia Canterburyana and Chamædorea Ernesti Augusti.

To the left of this house is a vinery 36 feet by 18, planted with Muscat of Alexandria, Black Alicante, and Lady Downe's for the permanent Vines, and Hamburghs for removal as the others get up. There are 12 feet of border inside and as much out. The Vines have been planted two years, and are remarkably strong, as an evidence of which, although carrying not less than 12 lb. each of good Grapes, the young shoots from where they were cut back to when pruned are of an extraordinary thickness, not appearing in the least affected by the crop they were carrying.

Adjoining this vinery and in continuation of the range is an early Peach house, planted with Early Beatrice, Rivers' Early, Alexandra, Noblesse, and Dr. Hogg, Peaches; and Lord Napier Nectarine.

The next house at this end of the range, and similar to the last, is filled with Peaches and Nectarines; in it are Early Beatrice, Louise, and Rivers' Early, Peaches; with Violette Hâtive and Lord Napier Nectarines. On the opposite side of the central plant stove, and corresponding with these comes a vinery 36 feet by 18, containing Muscat of Alexandria, Madresfield Court, Lady Downe's, Bowood Muscat, Black Alicante, and Gros Colman; the construction and size of border being similar in every way to the house at the other side.

This end of the range, like the opposite, consists of two Peach-houses, planted with Lord Palmerston, Prince of Wales, Early Alfred, and Grosse Mignonne Peaches; and Downton, Elruge, and Stanwick Nectarines. In front of these fruit-houses (which flank the centre plant stove already described), but at some distance, are ranges somewhat similar, filled with succession Pines, Melons, and Cucumbers. These succession Pines are good, stout, short-leaved plants, calculated to produce first-class fruit when the time comes for fruiting. The Melons and Cucumbers were remarkably strong and fruitful, carrying large crops, clean and healthy. The varieties of Cucumber grown are Dixon's All-the-year-round, and Telegraph.

One of these houses is devoted to Heaths and other hard-wooded plants, amongst which were good specimens of E. Aitoniana superba, E. tricolor impressa, E. ampullacea, E. Austiniana, Hedaromas, and similar things.

We now come to the houses filled with fruiting Pines, which Mr. Sandford, Lord Bective's able gardener, is so successful in growing, as those can testify who saw, at the great Manchester Fruit Show, in 1873, the feat he accomplished in producing a Queen of the extraordinary weight of 8 lb. 4 oz. I have heard doubts expressed as to the weight of this Pine being correct, yet for its accuracy I can vouch, having seen it weighed on the exhibition table at Manchester. It was not alone the exceptional weight of this fruit that made it so remarkable, but its beautiful proportions and perfect condition in every way, for which, in addition to the first prize, it received the Society's special medal. The houses are three in number, each 27 feet by 16 feet, hip-roofed—that is, with a short span or back light. They face the south-east, are like all the others substantially built, very light, and have an abundance of heating power—the two latter essentials indispensable where high-class Pine growing is attempted. The sorts grown are principally Queens and Black Jamaicas. The plants are of the character invariably found to produce the finest fruit—not over large, but exceedingly strong, short, and broad in the leaves. This condition of a sufficiency of light in all fruit and plant houses, not merely in their construction, but in the position in which they are placed, so as to be completely away from the influences of anything that obstructs or absorbs the light, is of the greatest importance, and very imperfectly considered by many previous to the erection of such houses, even at the present day, as is too often made apparent by the mistakes committed, and of which the results give only too much proof. If evidence were wanting of the effects of the greatest possible amount of light upon fruits and flowering plants grown under glass, it could not receive a better illustration than in the strong and vigorous condition of the different occupants of these new houses at Underley.

The new garden fronting this block of houses is, like the old one, thoroughly well cropped, and the different varieties of culinary vegetables well cared for, of which they give ample proof. Northwards from this, at some distance, Mr. Sandford has made another fruit and vegetable garden, some 3 acres in extent. The situation is high, and less likely to suffer from spring frosts. At the extreme end of this garden, on a considerable elevation above the river, the view northwards up the valley is uninterrupted, and unsurpassed by any in the district. In this direction a new carriage road is being made as an approach from the village of Barbon, the river to be spanned by a noble bridge of three arches, now in course of completion, and which will be an additional ornament to the place.

The land in all this valley of the Lune is of the finest possible description—its extreme fertility is apparent everywhere; the shrubs and trees are enabled to push their roots deep down into some 6 or 8 feet of the finest alluvial soil. So situated, they never suffer from the parching effects of dry summers, or the equally injurious influence of too much water in the soil in wet seasons. Sufficiently sheltered by the distant hills, such trees as the common varieties of Spruce, where allowed enough room in their early stages, attain a size and elegance of growth, with their plume-like branches perfect down to the green turf on which they lie, as not to be surpassed in beauty by any other variety of cone-bearing tree, not even the beautiful but unfortunately tender Araucaria excelsa.

The many improvements recently made here have been well carried out by Mr. Sandford, the evidences of whose abilities are apparent in each department of the garden, of which this short notice, taken from insufficient memoranda hurriedly made, will give some idea. *T. Baines.*

Apiary.

How I Winter my Bees.—"Wintering bees! Oh!" says one, "there is no particular art in that, the chief difficulty is in summering them—with the anxiety of attending to swarms, the dread lest we should lose the queen, thus breaking up the whole colony; but they will take care of themselves in the winter." Now we happen to hold quite a different opinion to this; we are amongst those who believe there is considerable art in wintering bees well, so as to enable them to come forth to greet the following spring with healthy vigour. If asked which was the best time of the year to purchase stocks, we should unhesitatingly recommend the autumn, because then many cottagers are willing to sell their best stocks for the value of the honey; but a hive worth say 20*s*. in the autumn would be worth 30*s*. in the spring, after the risk of winter is passed over. Again, when the stocks are placed on their new stands in the autumn we suffer but little loss from the workers straying. Well, now comes the question, "How must we take care of our newly-acquired property?" We will give our experience in as few words as possible; then the results which follow our simple method.

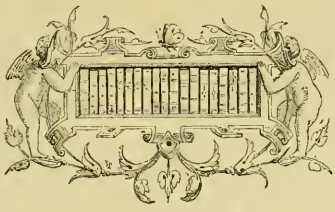
Different Opinions.—My near neighbour, who is a tailor, says, "The best plan to preserve your stocks through the winter is to keep them warm, and nothing is so good for this purpose as the clippings from the tailor's board or shreds of cloth." Again, another friend, who is interested in farming, declares "Nothing on earth can equal haybands wound round the hives, for this keeps in all the heat generated by the bees." Some bee-keepers remove their stocks to the garret, whilst others condemn the poor things to the cellar, and not a few think it an excellent thing to put them beneath the ground, somewhat like Potatos are stored. For my own part I ignore all the above; in the first place, I cannot afford to purchase sufficient cloth to cover up my large apiary, and though I might be able to secure a quantity of hay, still I fancy it is slovenly, neither do I rejoice in having either a garret or cellar in my small house, so that I am unable to adopt these methods—suffice it to say the above, in my humble opinion, are all needless, if not superfluous; you need not remove them from the summer stands, if they are well sheltered from the weather. It used to puzzle many of my school companions to tell how a stock of bees managed to thrive, for at least twenty years, behind the clock in the village church steeple, and to send out two swarms every year, yet they were never removed in the winter, but were kept free from both rain and wind in the chinks of the massive old masonry which was reared in the days of the Crusaders.

Damp.—This is the greatest enemy to bees. In summer, when the temperature of the air is so much higher than in winter, all superfluous moisture in the hive is speedily carried off, but the case is altered in winter. The true reason why bee-keepers lose so many stocks in winter is generally through excessive damp in the hive. I will try to illustrate this by a familiar example, it is the common plan recommended too frequently by our most eminent apiarians, to close up every crevice about the hive just before winter; nay, so far is this carried now, that cow-dung and mortar are plastered around the base of common skeps to fasten them to the stands and keep out cold air. A severe frost comes, followed by a thaw; when this takes place the hive is actually filled with seething vapour or moisture; another frost quickly comes and freezes the pitiable bees in a solid mass, of course destroying the whole colony. This is not an imaginary picture—it is too common, but every sensible person can quickly perceive it could not have occurred had there been sufficient ventilation. Again, if they suffer no further loss the combs begin to decay through this excessive damp, not to mention the mass of mould and mildew which will take possession of the lower part of the comb, defying any attempt on the part of the busy inmates to eradicate it.

Well, what are we to do? I fancy many cottage bee-keepers saying, "Why, give them plenty of fresh air, and keep your hives free from damp by ventilating them well." Talking with a successful bee-master some years since upon this subject—I was but a young beginner then in bee-keeping, and it was just at the time the Woodbury bar and frame hive was being introduced into our apiaries—he said, "I leave the entrance always open, as well as take the plug out on the crown-board, and thus allow a free passage for fresh air or keep up good ventilation; and," in concluding his remarks—I am not likely soon to forget his words—"I never lose a stock during winter." I have since followed his plan, most happily, but with this difference—I place four slips of wood, one at each corner of the top or crown-board (common wood matches answer for this purpose). Just to show the amount of moisture given out by a large stock in the winter, I placed over the feeding-hole in the crown-board, one of the large Lancashire tin-feeders, which I knew would condense the vapour as it issued from the hive or bees. I was astonished to find, the following February, not less than 9 oz. of water in the feeder—surely this could not be confined in the hive without proving injurious. The reason why cottagers' skeps commence the first winter they are used to decay around the base, is from this cause alone, and not, as is generally supposed, by rain or dew. The moisture is condensed on the top and sides of the hive, then runs down to the bottom-board, where it saturates the straw in the lower part. Most bee-keepers, when wooden hives were first introduced in Great Britain, the "Devonshire Bee-keeper" among the rest, great and learned though he was upon the subject, declared "They could manage bees well in them during the summer, but failed in the winter; that they found straw hives the best for wintering bees." Why? Because the wood hives retained all the moisture, whilst the straw skeps took it away, as I have described above.

In concluding let me urge my readers to keep up a thorough ventilation all the winter. I do not doubt they will prove my words to be truthful, and in future they will succeed in wintering their stocks in a healthy state, all other things considered—that is, if they have a good supply of food, which no one will neglect, and are well protected from the weather; you need not fear anything from cold weather, it is not cold that kills our bees, or why does it not kill them in the tree-trunks in the Canadian forest?

Since I commenced writing this short paper I found the following note, from Mr. Pettigrew's *Bee Book*. I cannot condemn wood hives, as he does—I make the quotation merely to show that I do not stand alone when speaking upon the need of a good ventilation; my remarks do not refer to wood hives exclusively, but I believe every hive, straw as well as wood, to be the better for fresh air:—"Hives made of wood at certain seasons condense the moisture arising from the bees, and this condensed moisture invariably rots the combs. The walls of a wooden hive are often like the walls of a very damp or newly plastered house. The outside combs, and sometimes the centre combs, too, perish before the wet walls of the wooden hives. They perish in this sense, that their nature or adhesive power goes like mortar in walls, and become as rotten as a piece of burnt paper. All such combs are useless in hives, for they have to be taken down and fresh ones put in their places." There is in this work of the bees a waste both of time and honey. *R.*



Notices of Books.

The second part of the *Revue de l'Horticulture Belge* opens with a coloured plate of two pretty varieties of Ceanothus. Among the articles are one by Count Gomer on window plants, in which he recommends as a stimulant manure the mixture prepared by Dr. Jeannel, and called the "Floral," which is, he says, well suited to the peculiar needs of plants grown in apartments. M. Baltet, in giving a list of the best twenty-five Roses, places Gloire de Dijon and Céline Forestier before Maréchal Niel as more free-flowering. It may be interesting to our Rose growers to give the list complete, viz.: Aimée Vibert, Abel Grand, Baronne Adolphe de Rothschild, Baronne Prévost, Céline Forestier, Charles Margottin, Duchesse de Cambacérès, Duchesse de Sutherland, Elisabeth Vigneron, Général Jacqueminot, Gloire de Dijon, Gloire de Ducher, Hortense Mignard, John Hopper, Jules Margottin, Louise Odier, Madame Victor Verdier, Mademoiselle Thérèse Levet, Mélanie Willermoz, Pius IX., Prince of Wales, Souvenir de la Malmaison, Souvenir de la Reine d'Angleterre, Sombreuil, and Sydonie. We may say in passing that the second number is, in our judgment, superior in interest to the first, and with such an editorial staff as it boasts this progress should be constant.

—— Two numbers of the *Botanical Magazine*—those for March and April respectively—are before us, and demand a few words of comment. The March number opens with a double plate of the very lovely and very interesting Gustavia gracillima, a stove shrub or tree, native of New Grenada, with simple elongate serrate leaves, and large rose-coloured flowers like those of a Camellia, and of very singular conformation. The plant, we learn, flowered in Mr. Bull's nursery last autumn, but we had not the good fortune to see it. Masdevallia Chimæra, which forms the subject of the next plate, has been so lately figured by us (1875, p. 41) that we need not further refer to it. Colchicum luteum was also described in our columns by Mr. Baker, 1874, p. 33. It is a very interesting yellow-flowered species, native of Western India, and flowers of which were produced at Kew. Thermopogon pallidus is an elegant Liliaceous plant, allied to Ophiopogon, with a raceme of nodding pinkish flower-bells, like those of Scilla nutans, but in form more like those of the Lily of the Valley, and with tufted foliage like that of a Carex. This also is a Himalayan plant, and was derived from the collection of Mr. Wilson Saunders. Wahlenbergia tuberosa is an extremely curious Campanula-like plant, native of Juan Fernandez, whence it was introduced through the mediation of Messrs. Veitch. It has a very singular branched tuberous root-stock aboveground, from which are sent up leafy stems 6 inches to 2 feet in height, with linear, toothed leaves, and bearing terminal clusters of erect, whitish, bell-shaped flowers, striped with pink. The April number does not contain quite such striking plants, but it is by no means devoid of interest. Phyllocactus biformis, a native of Honduras, is chiefly remarkable for the small number of its flower-segments, which are of a reddish purple colour. Pentstemon antirrhinoides is a shrubby yellow-flowered Californian species sent to Kew by Mr. Niven, of the Hull Botanic Garden. Pyrus prunifolia is figured because no good figure exists of so beautiful and well-known a tree, and it certainly amply deserves its portrait. Masdevallia Peristeria was described in our columns by Professor Reichenbach in 1873, p. 500. It is in the way of M. Chimæra, but not so *bizarre* in its appearance. Fourcroya undulata, an elegant species which flowered at Kew last autumn, is very similar to F. Selloi, but is smaller in all its parts. Cyrtopera sanguinea is a curious tuberous leafless Orchid, from the Sikkim Himalaya, and which varies very much in colour in different specimens.

—— The plates in the last number of the *Illustration Horticole* are Dieffenbachia antioquiensis, a variety or species from New Grenada, with oblong acuminate leaves of a dark green, mottled with pale yellow. Azalea Madame Jean Wolkoff is a fine semi-double variety, with large white flowers tipped and streaked with red. Thrinax barbadensis is a fine Fan Palm, with spiny petioles marbled over with silvery blotches. It is said to be very rare in collections. Zamia Lindeni is a very handsome Cycad from Ecuador. It and Z. Roezlii are said to be the finest Cycads of recent introduction. Masdevallia amabilis, var. lineata, is a fine crimson-flowered species with the yellow flower-tube marked externally with reddish stripes. Araucaria Balansæ is a splendid species, native of New Caledonia, where it attains a height of 130 to 160 feet. It has the habit of A. excelsa, with rich purple-brown coloured branches. It was shown in Florence under the name of A. neo-caledonica. The plate represents the tree, but the analytical details mentioned in the text are omitted; perhaps they will find a place in the next number.

—— The coloured figures in the January and February numbers of Regel's *Gartenflora* are Oxalis Ortgiesii, Sedum spurium, var. splendens; Rheum palmatum, var. tangutica; Campanula tridentata, var. Saxifraga, a pretty bell-flower, with linear or lanceolate leaves; Pentstemon glaber, var. stenopetalus, a handsome suffruticose plant with large blue flowers; and Encephalartos Verschaffeltii.

—— Messrs. Cassell & Co. are issuing a *Child's Bible* in large type, and with plenty of pictures. The text is divided into paragraphs, which is very convenient in one sense, but as no reference even is given as to the verses, the poor child requested to find a text or verify a reference would find himself somewhat at a loss.

—— The *Journal of Botany* for January of the present year contains an interesting list of the plants growing wild in Kew Gardens and the adjacent pleasure ground, compiled by Mr. Nicholson. The list contains nearly 400 species and varieties, very few among which, considering the circumstances, are naturalised exotics. The same thing has been noticed in the case of other botanic gardens. It is desirable on many accounts that the census should be revised every few years, and compared with that of preceding years. How curious it is to read that Geranium Robertianum is the rarest species within the prescribed limits. It is curious also to note that the American water weed, Elodea canadensis, once so troublesome in the pond before the Palm-house, has all but disappeared, though abundant elsewhere in ponds and ditches, no one knowing the why or wherefore.

APRIL.

A PRIL! sweet month of sunshine and of flowers,
P ray be thou not too tearful, lest the flowers,
R ejoicing first at promise of the Spring,
I n disappointment droop! But gladness bring:
L et Nature smile with thee, and carols sing.

M. A. Baines, in Colburn's "New Monthly Magazine."

HORTICULTURAL EXHIBITIONS, 1875.

April.

21.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.
22.—Royal Horticultural Society of Ireland. Spring Exhibition. Sec., A. Balfe, 28, Westland Row, Dublin.
27.—Manchester Botanical and Horticultural Society. Exhibition of Auriculas, &c., in the Town Hall. Manager, Bruce Findlay.
28.—Royal Botanic Society, Regent's Park. Spring Show. Sec., W. Sowerby.

May.

1 to 10, inclusive.—Royal Botanic Society, Regent's Park. Mr. William Paul's Special Show of Roses, Pelargoniums, &c.
1 to 24.—Royal Botanic Society, Regent's Park. Special Exhibition of Clematis, by Mr. G. Jackman.
7 and 8.—Exhibition of Plants and Flowers in the Kibble Conservatory and Royal Botanic Garden, Glasgow. Manager, Robert Bullen.
12.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees. Pot Rose Show.
14 to 21.—Manchester Botanical and Horticultural Society's Annual National Exhibition, at the Garden, Old Trafford. Manager, Bruce Findlay.

THE

Gardeners' Chronicle.

SATURDAY, APRIL 10, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

Monday,	April 12	Sale of Bulbs of Lilium auratum and Coniferous Tree Seeds collected by M. Roezl, at Stevens' Rooms.
Tuesday,	April 13	Sale of Lilium auratum, Azaleas, &c., at Protheroe & Morris' Auction Rooms, 98, Gracechurch Street, E.C. Sale of a Collection of British Birds' Eggs, also a Collection of British Birds, at Stevens' Rooms.
Wednesday,	April 14	Sale of Imported Orchids, at Stevens' Rooms.
Thursday,	April 15	Meeting of the Linnean Society, at 8 P.M. Sale of a Collection of Established Orchids, by Order of the Council of the Royal Horticultural Society, at Stevens' Rooms.

UNDER the title NATIONAL HEALTH AND WEALTH the Rev. HENRY MOULE issues a new edition of his pamphlet on his favourite theme of dry earth closets, and the safe, inoffensive, and profitable disposal of liquid refuse. The title is an attractive one, whatever may be thought of the subject discussed under it, or the special views of the author. The health of the nation is also the basis of its wealth. In proportion as the first suffers the second declines. It must also be admitted that, notwithstanding all the sanitary legislation of late years, the means of cleanliness are still practically beyond the reach of large masses of the population alike in town and country, and that where such have been provided their efficacy is often imperilled through carelessness or ignorance; hence the need of still agitating such matters and urging the importance of what has been called a sewage policy. Each habitable house ought not only to be furnished with sufficient area for the number of inmates, pure air, abundance of light, but also with a liberal supply of clean water, and simple means of getting rid of all pollutions whether liquid or solid. So much may be taken for granted; cleanliness is the parent of health, and it is well nigh impossible to be clean under the present arrangements in and around dwelling houses. Too many human beings are crowded into small rooms; the water supply is generally deficient, often the water is bad, and there are no facile means in use for neutralising nuisances or getting rid of them. On the contrary, nuisances are piled up within and around dwelling houses; the products of respiration and perspiration are too often shut up in unaired beds and unventilated rooms, so that the dead portions of yesterday's body poisons the living body of to-day or to-morrow. As to outside, here is what the author says (p. 35)—and a very slight acquaintance with the sanitary state of small villages is sufficient to prove the substantial truth of the sad pictures he presents:—

"In some of the small villages of from 100 to 600 inhabitants, situated in marshes, fens, moors, or water meadows of Wilts and Dorset, epidemics prevail quite as frequently as in overcrowded towns, and in some of them the average rate of mortality has been found to be as high as thirty-four per thousand. Why, in some of them the water is within 4 or 6 feet of the surface of the soil on which the cottage stands, and as if this damp bottom was not sufficient in itself to weaken or destroy the miserable inmates," Mr. MOULE adds, "into that water the cottage well is sunk, and from it the family drink; and yet within a few yards of the cottage the privy vault is sunk, perhaps into the same bed of water, or so near it that poisoning is inevitable."

On the next page the author quotes a more common state of things—populations of from 200 to 600 clustering around the squire or the parson, picturesquely scattered along the banks of a running stream from which the population drink. Ascend it a little way, and you find privies erected over it, or the refuse of farms and of mansions flowing into it. And so through several pages. In fact, throughout the rural districts the privy, the cesspool, and the drinking wells are in such close proximity to each other that the marvel is, not that so much sickness or debility prevails, but that any of the population are in health. Mr. MOULE proposes the abolition of surface wells, privy pits, and cesspools near dwellings by Act of Parliament. Impose fines upon all such nuisances and slow means of killing the population, and this would stimulate other modes of abating the nuisances, and converting such into positive benefits and means of wealth—by the dry earth system, to wit.

Doubtless much diversity of opinion continues to prevail regarding the manurial worth or commercial value of the dry earth itself. According to the experience of Mr. FENN, one of the earliest advocates of the dry earth system, the manurial value is great. That it is a good manure, specially rich in phosphates, and admirably adapted for the production of vegetables, root crops, and such fruits as Grapes, is certain, but we confess that its manurial value is of quite secondary importance to its perfect efficiency as a deodoriser of closet and other offensive matter. Its potency in this respect can readily be tested by any one, and is, in fact, established beyond dispute. The author attributes much importance to using the same earth again and again. We see little need of this, and some risk from it. Earth is easily dried, and when once passed through the closet ought to be forthwith employed in stimulating growth and conversion into food. In absorbing all the unpleasant odours of excrements, and resolving these apparently into itself, the earth becomes enriched, and in fact converted into a fertiliser, and it is much better to use it at once than run any risk of unpleasantness by adding to the strength of dry earth manure.

The author's mode of procedure for cottages is so simple, and likely to prove so useful, that we venture to transfer it to our columns:—

"In the floor of a small projection from the upper storey there should be inserted a 12-inch earthenware pipe, glazed within, rising 18 inches above the floor and terminating at 9 or 12 inches above the vault, which in wet soils should be cemented and made water-proof. It should be furnished with a seat and used as a closet with or without machinery for admitting and distributing the earth. This pipe would also prove useful for emptying commodes, &c., in case of sickness. All upward draught must be prevented by keeping earth round the bottom of the pipe. All the attention needed would be to remove the contents from under the pipe once a fortnight or three weeks. Outside the houses another pipe should be erected over the same vault in a small projection like a pouch, for the male members of the family, and in this also a store of dry earth might be placed. The trouble of applying the earth, if done from the outside, is very small, and is really of no account compared with the value of the manure.

"The provision of the earth is very simple. In dry weather let the cottager rake off about half an inch or an inch of the surface of his garden, and spread it in a thin layer over his paths. In two days he will be able to sift it, and it will be fit for use. When the earth is applied from the outside the sifting can be dispensed with. All that is needed is that the earth be dry."

The reverend author, however, has made a note of another source of serious and mischievous nuisance, perhaps even more dangerous than any other—the vegetable and animal refuse, that is generally stored within a few yards of the cottage and suspiciously close to drinking wells. These, such as Cabbage-stalks, &c., when soaked with house-slops become deadly polluters of the atmosphere. The remedy for this is unique: every cottage should have 20 perches of land. Let one of these perches be wired in for the enclosure of twenty or twenty-five Cochin or Brahma fowls. Let these have all the vegetable and animal refuse to eat up bodily, and so make an end of it. Dig this ground over once a fortnight, and the manure and the refuse will keep the fowls with but little expense for Barley, and the two tons of manure made by the fowls—for twenty hens will eat as much, and consequently, we presume, make as much manure as a pig—and the eggs, will add, says the author, from £5, £7, to over £10 a year to the cottager's income. Doubtless, too, this new mode of folding by fowls for a year would form a capital preparation for Onions or Asparagus.

But then another great source of nuisance has to be dealt with—the house slops. As Mr. MOULE condemns the water system of sewerage we were somewhat curious to discover what was to be done with liquid manures. Well, two remedies are offered—the usual one of irrigation, and the new one of cremation. The latter might answer with fires on purpose; but the idea of placing the most villainous liquid pollutions in pans under our grates to aid combustion by their vapour, and to have them thus purified and destroyed, is too horrible to think of. What would become of the liquid cremations when the wind with its mischievous caprice sends a back current of smoke and half-consumed liquid pollutions back into one's sitting rooms? No, cremation won't do. It is wasteful as dangerous, especially while hungry soils, yielding only half a crop for lack of food, would form as thorough a cure for liquid manure as dry earth does for solid. The author also states that dry earth added to house sewage at the rate of half a hundred-weight to six hogsheads, will stay putrefaction for forty-eight hours. As a rule, too, putrefaction will hardly commence till after twelve hours.

There is an epitome of the water-sewage system for the mural districts, which hardly varies in principle from that adopted on small farms. On p. 26 the author deducts 4 perches from the 20 he advocates for each house, for the cotter's outhouse fowl-pen, which leaves 16 perches, or 483 square yards of cultivable land. Taking a household at ten persons, and the liquid refuse at 3 gallons a-head, gives 30 gallons a-day, or 22 gallons per square yard. The object to be aimed at is the distribution of this liquid refuse over the ground in such a way as to soil all the manured portions until they are appropriated by plants, and that no manure shall penetrate the subsoil so as to poison wells, &c. The author supposes the land to be laid out for the first time, say in October, and treated thus: Strips a spade wide, and 3 feet from centre to centre, are dug all over the 16 perches. As the digging proceeds Cabbages are planted in these foot-wide strips from 12 to 18 inches asunder, with 30 inches or so of undisturbed ground between, the 30 gallons of sewage to be applied each day to 120 feet in length of those Cabbage grounds. This would dispose of the refuse for twelve days to 960 Cabbage plants. The interspaces between the Cabbages are then to be dug or forked up each 12 yards, to receive 30 gallons of the refuse daily. The whole space would thus be manured within a month. The application might be several times repeated, and thus the liquid be disposed of for four months. In February the intermediate spaces to be cropped with Parsnips,

Broad Beans, Onions, &c. During these operations the Cabbages to have three more waterings, as in October the earth and the growing crops quickly absorb all offensive matters, which are further neutralised by a shovel of dry earth or fine dry coal ashes to 30 gallons of sink water, which the author affirms will prevent the putrefaction of sink water for thirty-six or forty-eight hours.

As to the value of the crops, the author estimates the crop of Cabbages at £4, a crop of Cauliflower and of Lettuces at £3 more. Assuming that the intermediate spaces are used for two rows of Beans, or three of Onions, Carrots, Parsnips, to be followed by a crop of Savoys, the full value of the produce of 16 poles or perches of land he puts down at £15. It will be observed, however, that this is close cropping indeed, and allows no room for the Cabbages to come to maturity. The author, however, affirms that from 20 perches of ground—a Vine against a wall and 100 Currant bushes—he raised, by this system of sewage resolution into food, produce to the value of £20 to £25 per annum. On a larger scale, or for the disposal of the liquid refuse of villages, &c., the author recommends grass plats and root crops, indeed sewage farms in miniature. And yet, singularly enough, throughout the pamphlet there are strong condemnations of the worthlessness and incompetency of the water system to deal with the problem, or remedy for the evils of our present sanitary state. On the contrary we gladly welcome both the dry earth and the water system—any and every means, in fact, that will rid us of the evil that sits as a nightmare on the health of the nation and thus saps the foundation of our wealth.

Assuredly to us this water preventive is better than cure. We quite agree with the author that the evil should be grappled with at its source and mastered in detail. The earth is near to the pollutions in the rural districts, and is the only means by which they can be rendered innocuous and finally converted into produce. It is a grievous loss of productive force as well as a serious injury to health to waste or accumulate these, and finally to have to deal with and dispose of them by filtration, irrigation, or cremation. Doubtless, too, the dry earth closet, which is practicable for towns, would greatly simplify the problem of dealing with liquid manures by lessening their volume and impurity.

Without professing to endorse all the views of the author, who at times has thrown the reins of his judgment on the neck of his hobby, and in consequence may have ridden it too hard or too far, yet we would advise all to read his *National Health and Wealth*, and as far as practicable preserve the one and augment the other, by the adoption of his dry earth and irrigation in detail systems; and especially to endeavour to resolve all pollutions into produce by the express and simultaneous cropping of the ground, already, and in so many instances, so successfully practised by horticulturists. All vegetables luxuriate in liquid sewage; Roses and Mignonette become finer and sweeter on such savoury drinks, while there is hardly a fruit, from a Strawberry to a Pine-apple, that may not be enlarged in size and improved in quality by a judicious use of liquid refuse.

—— Some time since a suggestion was made that the Pelargonium Society should hold its show in the great conservatory at Chiswick instead of at South Kensington, and the proposal seemed so apposite that many of the members felt inclined to adopt it. On more mature consideration, however, it was found that difficulties stood in the way. The competition for Messrs. Veitch's fruit prize was fixed for the same day, and as the two items—fruit and Pelargoniums—made up last year one of the best South Kensington shows of the season, and as Messrs. Veitch objected to the competition for their prizes taking place at Chiswick, the committee felt that any change of the original arrangements would do an injury to the Royal Horticultural Society, without yielding any corresponding benefit to the Pelargonium Society. The show will therefore be held this year at South Kensington, as announced in the circulars already issued. The committee hope, moreover, to be able to make arrangements to hold the Pelargonium show next year at Chiswick, at a date which as nearly as possible may coincide with the height of the blooming season of the bedding varieties, which would scarcely have been the case this year, the date being fixed for July 21.

—— We are informed that Mr. Alderman and Sheriff Ellis, the senior Sheriff of London and Middlesex, has consented to become the Chairman of the executive committee of the Potato Exhibition; and Mr. James Abbiss, J.P., formerly an Alderman of the City, is the Vice-Chairman. The committee have put themselves into communication with Mr. W. A. Lindsay, the secretary of the Royal Horticultural Society, with a view to the exhibition being held at South Kensington, probably in connection with the Fungus Show, early in October, and some liberal proposals have been put forward by Sir Edward Lee, on behalf of the Alexandra Palace Company, with a view to the show taking place at Muswell Hill. The arrangements are being pushed on as fast as possible, so as to allow of the schedule being published without further delay. In addition to the special prizes already announced, Messrs. James Carter & Co., High Holborn, offer a silver cup, value five guineas, for six English and six American varieties of Potatos, and 2d and 3d prizes of three guineas and two guineas respectively.

—— We are requested to state that the Pelargonium Trial at Chiswick will be carried out as usual, and that the officers of the Royal Horticultural Society, with the laudable wish of keeping up to the utmost the *status* of the Chiswick garden in the present precarious state of the Society's affairs, desire this season to make a special effort in this direction. They therefore trust that the raisers of seedlings, as well as the introducers of foreign novelties, will, as usual, send for this purpose plants of such new varieties as they may be able to spare; and if they will at the same time specify whether or not they would desire any of them to be grown in pots, the superintendent, Mr. Barron, will be ready to give effect to their wishes. The superintendent is prepared to receive and take charge of the plants at once, and requests that those

Fig. 99.—Underley Hall, Kirkby Lonsdale, the seat of Earl Bective. (see p. 466.)

who intend to send will do so as early as possible, addressed to him, at the Royal Horticultural Gardens, Chiswick.

—— Through the kindness of our colleague, Dr. Regel, we recently gave a conspectus of the Cycads in cultivation. In looking over the collection at Kew the other day we observed several Ceratozamias in cone, among them two very fine specimens—a male and a female—of C. mexicana. These plants are exceedingly healthy and vigorous, the female plant having leaves nearly or quite 10 feet in length, and those of the male are about 8 feet. The longest leaflets measure nearly 18 inches. The male cone is from 18 to 24 inches long, and the female from 8 to 10. C. Karwinskiana and C. Küsteriana are also in cone in the same establishment. Not one of the species of this genus appears to have been figured in any English work. Brongniart, the founder of the genus, figures the first-named species in the *Annales des Sciences Naturelles*, but he had only imperfect materials at that time. The collection of living Cycads at Kew, if not so rich in species as some Continental ones, includes many very fine large specimens. The larger plants are in the Palm-house, where, also, will be found the species of Ceratozamia in question.

—— Saxifraga Stracheyi, a beautiful and interesting plant, is blooming on the rockwork at Kew. The flowers on opening appear pure white, the pink colour which soon obtains over the entire flower being then restricted to the ovary. It is a near relative of S. ligulata, and of which it is perhaps a variety, though sufficiently distinct to be desirable in the same collection. It was raised from seeds sent to the Royal Gardens by General Strachey, F.R.S., in 1851, and has been cultivated on the rockwork for many years. A figure is published in the *Botanical Magazine* of 1872. It is native of the Western Himalaya and Tibet.

—— The Weston-super-Mare and East Somerset Horticultural Society will hold its annual exhibition on Wednesday, August 4.

—— The Paris Academy of Sciences awarded the following Prizes last year for Botanical Work:—The Barbier Prize (in part) to M. J. Chatin, for studies of the Valerianeæ; the Desmazières (1872) to M. M. Cornu, for a monograph of the Saprolegnieæ; and 1000 francs to M. Bornet for his labours among lichens; 1000 francs to M. Lefranc, for his paper on Atractylis gummifer; the Desmazières (1873) to M. Girodot, on the Lemaneaceæ (Algæ); and 1000 francs to Messrs. Van Tieghem and Lemonnier, on the Mucorineæ; the Bordin (1873) to M. J. Vesque, for the anatomy and physiology of Dicotyledons; and the Gegner (4000 francs) to good works on fossil botany, approved by M. Brongniart. In like manner this year, several prizes are offered for botanical papers on various given subjects.

—— We learn that the question as to whether The International Horticultural Exhibition should be held next year at Brussels or at Amsterdam, has been settled in favour of the former city. Affairs, then, stand thus, Brussels, 1876; Amsterdam, 1877; London (?), 1878. Meanwhile we may deprecate the application of the word "international" to mere local display, however extensive.

—— We have received from Mr. Tyerman a bouquet of spring flowers, most beautiful, most interesting. We will try and enumerate some of them:—Several varieties of the gorgeous Anemone hortensis, of various shades of crimson; the blue Anemone apennina, the yellow A. ranunculoides, the purple Anemone pulsatilla. Mr. Tyerman also sends us numerous varieties of the common Primrose, a slaty blue-flowered Polyanthus, a fine seedling gold-laced Polyanthus, various Hose-in-hose and "Jack" varieties; the common Oxlip, P. vulgaris var. umbellata, and a glorious form of it under the name of Primula Golden Plover; a similar form, but smaller, called Golden Prince; the Bardfield Oxlip, and a number of curiously deformed varieties, which, as Mr. Tyerman says, lose little of their beauty, all deformed though they be. Before dismissing this matter we may ask whether our amateurs and gardeners have practised the plan stated to be followed in Belgium of cutting away the corolla of Primroses in an early stage with the result of causing the colour to be developed in the calyx? (See Masters' *Vegetable Teratology*, p. 284.)

—— Drimys Winteri, a plant of considerable interest, is flowering in the economic-house at Kew. The genus belongs to the Magnoliaceæ, and stands next to Illicium, which is also in the same house, and represented in flower by I. floridanum, the "Poison Bay" of Alabama. The use of Winter's Bark was brought into notice by Captain Winter, who found it very efficacious as an antiscorbutic, it having been administered to some of his crew with great success for scurvy. It is a stimulating aromatic tonic, and much resembles in appearance and properties the bark of Canella alba, with which indeed it was once confounded; and has also been superseded by that medicine, as well as by others. It has an extensive range of habitat, extending from Terra del Fuego, along the west side of South America, to New Grenada and Mexico. It was first discovered on the Straits of Magellan, whence the bark was brought by Captain Winter, when in company with Sir Francis Drake, in 1578. On the Continent it is cultivated as D. chilensis, though that may be a slightly different form, as the leaves appear less glaucous. It attains a height of 50 feet, and, judging from cultivated specimens, must form a handsome tree. The leaves are oblong, coriaceous, green above, with a glaucous under-surface; and the pale yellowish white flowers are produced in simple or compound umbels towards the ends of the branches. D. axillaris, a distinct species, is a native of New Zealand; and another, D. piperata, is found in the mountains of Borneo.

—— The following subjects are announced for discussion on the evenings of the dates named, at the Society of Arts:—

April 14.—"The Best Method of Making Field Experiments Practically Useful to Agriculturists." By Professor John Wrightson.

April 21.—"The India Museum Question." By Dr. Forbes Watson.

April 23.—"The Preparation and Uses of Rhea Fibre." By Dr. J. Forbes Watson.

April 28.—"The Protection of Buildings from Lightning." By R. J. Mann, Esq., M.D., President of the Meteorological Society.

April 30.—"The Growth of the Factory System in India, with especial reference to the Production of Textile Fabrics, and the Relative Advantages of the British and Indian Manufacturer." By Elija Helm, Esq., of Manchester.

The chair will be taken at 8 p.m.

—— We are informed that thirty-nine candidates have been elected Fellows of the Royal Horticultural Society since January 1 last.

—— The exhibition of the National Auricula Society, to take place in the Town Hall, Manchester, on April 27, promises to be an extremely good one this year; one leading cultivator of this flower writes to say that it will be the best show held for fifty years past. Efforts are being put forth to make it what one Auricula grower calls a "great Primula festival," by inviting examples of the newer types of the Primrose, Fancy Polyanthus, &c. Many species might be included, if it is not too late in the season to catch some of them in flower.

—— Amongst the many alterations Mr. Bennett, of Hatfield, has been engaged in during the past winter, is the removal of some large mounds of unsightly shrubs that marred the beauty of the pleasure grounds, and the Formation of a very Extensive Rootery for the culture of hardy Ferns, alpine plants, &c. This rootery is formed at the south side of the pond, on a portion of the ground fully described for that purpose in the *Gardeners' Chronicle* Supplement, May 9, 1874.

—— Mr. E. Willmett, late foreman at Wycombe Abbey Gardens, has taken to the management of the gardens at Berkeley Castle, Gloucestershire.

—— We are glad to welcome the April number of the *Villa Gardener*, introduced, as it is, by a modest preface from the pen of the new Editor, Mr. D. T. Fish, to whom as to his journal we heartily wish all success and prosperity. We know that in his hands journalism will not be degraded by illicit parasitism, nor will the public be defrauded by the dishing up of old matter or old illustrations as new. When we learn that he intends, bee-like, to sip sweets from other journals, we know that he will respect the rights of the public and the interests of his compeers, and "maintain honourable friendship on the basis of mutual acknowledgment."

—— We have had submitted for our inspection some dried flowers, the colours of which are very well preserved, and which, therefore, serve well as ornamental objects. In the instance before us a very pretty border, surrounding a portrait, was made of flowers of the Virginia Stock and portions of Fern fronds. The preparation by means of which these results are obtained may be had of E. Roberts, Frankfort Terrace, Harrow Road, Paddington, N.

—— Now that we are all on the look-out for signs of the coming spring, and all the more keenly so after the irritating weather we have had to endure, it may be well to mention that the Meteorological Society has issued a series of instructions for the observation of Phenological Phenomena. By this awkward expression is intended the first observation of the first appearance in spring of wild flowers, birds, insects, &c. This list has been drawn up by a conference of delegates from the Royal Agricultural, Botanic, Dublin, Horticultural, Marlborough College, Natural History and Meteorological Societies. Some years since the British Association published a similar list, and the records of Mr. M'Nab and Mr. Preston are well known to readers of the *Gardeners' Chronicle*. We may remark that the nightingale was heard by us on April 4 in the neighbourhood of London. Blank forms for recording these phenological phenomena can be had from the secretary of the Meteorological Society, 30, Great George Street, S.W.

—— In the *Moniteur Horticole Belge* the following Six Pears are recommended for those who wish to have Pears from July to May:—1. Beurré Giffard, ripe at the end of July and beginning of August; 2. Williams' Bon Chrétien, end of August or beginning of September; 3. Louise Bonne d'Avranches, end of September; 4. Beurré Durondeau, October and November (M. Gilleekins states that the flowers of this variety withstand spring frosts better than any other); 5. Beurré Diel, November and December; 6. Bergamotte Esperen, January to April.

—— We are requested to publish the following extract of a letter received by Messrs. Thomas Cook & Son, from the British Executive of the International Exhibition at Philadelphia in 1876, under which they are appointed General Passenger Agents to the British Section:—

The International Exhibition of 1876, *at Philadelphia.*
Offices of the British Executive, 5, Craig's Court,
Charing Cross, S.W., March 4, 1875.

"Gentlemen.—His Grace the Duke of Richmond, K.G., Lord President of the Council, bearing in mind the able manner in which you conducted the transit arrangements to and from Vienna, both to the satisfaction of the Royal Commission, of which His Grace was a member, and to the advantage of the British exhibitors and visitors to Vienna, has instructed me to offer you the appointment of 'General Passenger Agents to the British Section of the International Exhibition at Philadelphia in 1876.' * * *

"His Grace, aware how well the arrangements you effected at Vienna worked for the interests of all concerned, desires that similar, and if possible greater, facilities may be afforded in Philadelphia, viz.: that your special representative on this, as on the occasion alluded to, should be under the immediate orders of the British Executive. * * * — I have the honour to be, gentlemen, your obedient servant,

"P. Cunliffe Owen, Executive Commissioner.

"Thos. Cook & Son."

Under this appointment Messrs. Thos. Cook & Son have to make on behalf of the British Executive the whole of the arrangement with the Atlantic steamers and railway companies for the conveyance of the exhibitors, their assistants, and workpeople, and also for the conveyance of the goods to be exhibited; and the exhibitors may rest assured that every effort will be made to obtain as liberal arrangements for crossing the Atlantic as were made for the English exhibitors at the Vienna Exhibition of 1873.

—— The next meeting of the Institution of Surveyors will be held on Monday evening, April 12, when the adjourned discussion on the Home Secretary's "Bill for Facilitating the Improvement of the Dwellings of the Working Classes in Large Towns" will be resumed. The chair to be taken at 8 o'clock.

—— M. May, in the *Revue Horticole*, recommends for market purposes grafted plants of Ceanothus, which form plants of great beauty. Young plants, with stems as thick as a goosequill, are taken early in autumn as stocks, and these are grafted the following summer *en demi fente* (cleft-grafting).

—— The germination of Arum italicum shows that it is the dilated end of the tigellum which forms the corm of this plant. When the seed begins to germinate the radicle first protrudes, then the long tubular sheath of the cotyledon, at the base of which is the plumule and tigellum, the latter dilating into a corm, from which adventitious roots spring. The cotyledon itself remains within the seed, and is of globular form.

—— At the Council meeting of the Royal Agricultural Society of England on Wednesday, Mr. Whitehead (Chairman of the Botanical Committee) reported that Mr. H. W. Bates, F.L.S., had consented to write a paper for the *Journal* upon the "Natural History of the Colorado Potato Beetle;" and that the committee recommended to the Journal Committee that a coloured plate in illustration of Mr. Bates' paper should be given in the *Journal*.

—— Was Spiræa palmata, of Thunberg (figured in the *Botanical Magazine*, tab. 5726, as a recent introduction), known in this country as a garden plant previous to its introduction, a few years since, by Mr. Fortune? Loudon, in his *Encyclopædia*, and in his *Hortus Britannicus*, gives "Spiræa palmata, Thunb., China, 1823." It is clear, then, that something under the name of palmata was grown in this country at that time. The question is whether that was the true S. palmata or not. We incline to think not, although some of our old cultivators are of a different opinion. We think not, because the plant is Japanese, not Chinese; and because we think it most probable that the palmata of former days was not the true Japanese plant intended by Thunberg

but a red-flowered variety of S. digitata. It may here be stated that three plants have been called Spiræa palmata. 1. The Japanese plant just mentioned, and to which alone the name should be applied. 2. Spiræa palmata, of Linnæus, a North American plant with rose-coloured flowers, and which is properly the S. lobata of Murray and of Jacquin. 3. Spiræa palmata, of Pallas, figured in his *Flora Rossica*, t. 27, and which is properly the S. digitata of Willdenow, *Sp. Pl.*, p. 1061. This is a plant of Eastern Siberia, and very likely of China, and was introduced in 1823

—— In a recent number of the *Revue Horticole* figures are given of an Ailantus excelsa which produced flowers when only four months old, and when the seed-leaves were still attached to the plant. The flowers were male. It is possible that the similar case figured by ourselves was also a seedling, but we had no opportunity of ascertaining whether this was so or not. M. Carrière also figures a Weigela which flowered when little more than an inch in height. More than 200 seedlings showed the same precocity. Rhamnus oleæfolius and Pavia hybrida have been observed by M. Carrière to present the like phenomenon.

—— We learn that the Horticultural Club has been re-organised, and will in future be known as the Lindley Club. The subscription is 10s. a year, and the meetings are to be held in January, March, June, and November. The meetings in March and November will be initiated by a "conference for the consideration of any questions of importance directly related to, or incidental to, horticulture." The members are to dine together at each meeting of the Club, and the first time a newly-elected member dines with the Club he is to be entitled to a seat at the right hand of the Chairman! Such are some of the main features of the proposal. A special general meeting will be held on Wednesday, April 21, to pass the revised rules and regulations. Mr. Richard Dean, Ealing, is the Secretary.

—— M. Gilkekins, in the *Moniteur Horticole Belge*, recommends the following Six Pears for Walls with a southern and eastern aspect:—1, Doyenné d'Hiver, ripe from January—June; 2, Beurré d'Hardenpont, ripe in December—January (this, with the preceding, are specially recommended for market purposes); 3, Passe Colmar, December—January; 4, Beurré Rance, January and February; 5, Josephine de Malines, Feb.—March; 6, Passe Crassane, January.

Home Correspondence.

The Daffodil and its Double Varieties.—I do not regret having called attention to the popular belief, confirmed, as I then thought, by my own experience, that Narcissus Pseudo-Narcissus becomes double under cultivation, because the fact will now be either refuted or established. Thirty-five years ago I cleared a corner of my father's garden, and filled it exclusively with wild flowers. Amongst others I planted two or three clumps of N. Pseudo-Narcissus, brought from a meadow near the Trent, where N. major was never seen. Two or three years after the other wild flowers were as I planted them, but double Daffodils were flowering on or near the spot where I had planted the single. I mentioned this to a gardener, who told me other people had found the same; and since that time I have never doubted until now that the double garden Daffodil and the single wild Daffodil were the same species. I own myself convinced by the opinion of such good florists as Mr. Harpur-Crewe and Mr. Barr, who tell us that N. major, the double garden Daffodil, and N. Pseudo-Narcissus, the single wild Daffodil, are quite distinct. I must have been misled by the "fallacy of imperfect observation," the probable fact being that N. Pseudo-Narcissus died, and that a few roots of that ubiquitous and persistent bulb, the garden Daffodil, had been left in the soil when cleared. I venture to suggest that "R." and Mr. Maw should repeat the experiment of planting N. Pseudo-Narcissus in their garden, selecting a spot from which N. major is entirely absent. I am doing so here, giving the bulbs the benefit of every variety of soil, and I will let you know the result. *C. W. Dod, Edge Hall, Malpas, Cheshire.* [The only satisfactory way of settling the point. We may add that what has been sent to us as the double wild Daffodil have been various forms of N. major. Eds.]

——I must confess myself fairly puzzled since reading Mr. Crewe's letter, also that I was totally unaware that the common garden Daffodil is not the double form of the wild plant, but of Narcissus major. My garden, an old one, swarms with the common double Daffy, which increases largely, and I fear I must have jumped too hastily at conclusions, and accepted without due investigation the common complaint of my neighbours that the wild Daffys all turn double when planted in the garden. Possibly the real fact is that they cease to bloom, and as the common garden plant increases, one has assumed that such increase is—one's wild plant become double. Certainly I can find no flowers which differ from the common one, or I would send one to Mr. Crewe. However, Mr. Maw will probably be able to speak with more certainty if he transplanted his wild bulbs to a meadow, and knows exactly the spot where he planted them. As I mentioned in a former letter, I have two clumps which still remain single, but the rest have either ceased to bloom or have become double. *R., April 5.*

—— The Daffodil is not common as a wild flower near here. I know it only in two places—one an old moated island in this parish, where it is probably introduced; another in Cranham, near Stroud, where it is plentiful. From this latter place I have for many years been in the habit of bringing a few roots for my garden, and I have never seen the slightest tendency to double, though I have watched for it. Nor have I ever seen a wild Daffodil double, except at Malvern, in a copse, where I once found some specimens with stamens becoming petaloid. My own experience, therefore, quite coincides with that of Mr. Harpur-Crewe in your last issue. But only yesterday I came across an instance that shows how far any one person's experience is from exhausting the possibilities in even a limited set of circumstances. A friend who superintends the botanic garden now being formed at the Cheltenham College was introduced by me in 1871 to the Cranham habitat, and on March 28 with me he brought away some bulbs. These he planted in the College garden, and yearly has he watched for the flowers, which, however, came not. Leaves were there, but no flower. This year for the first time they have flowered, and he tells me that they are unmistakable double Daffodils of the garden. I send you specimens both of the double and the unsophisticated Daffodil, that you may see whether he is mistaken. He is quite botanist enough to be accurate in his species, and I have no doubt as to his fact, unless indeed some youngsters have been shifting his bulbs, as I have heard that at the botanic garden at Cambridge all the labels were once shifted. *R. C. Barnard, Bartlow, Leckhampton Hill, Cheltenham.* [The specimen sent is certainly not the double wild Daffodil but a form of N. major. Eds.]

—— In reference to the wild Daffodil (p. 408), I am still sceptical about them coming double in cultivation, having three large beds—the bulbs collected in Lincolnshire, Hertfordshire, and Kent—and I do not find amongst the thousands now in bloom any deviation from the single form; I find the roots are larger, and the flowers perhaps a little finer. When working up the Daffodils, the double form of the wild variety I had great difficulty in meeting with, and had almost come to the conclusion it did not exist. No one could give me any clue to it, and those who thought they knew it invariably sent me the large double Daffodil, Telemonius plenus; and I might name a number of authorities with whom I came in contact, who maintained that this large double Daffodil was the double form of the wild single Daffodil of our fields. This I saw could not be possible, and the first point I succeeded in clearing was obtaining the single form of the large double Daffodil, and certainly this is the noblest of the sulphur-coloured section of the Pseudo-Narcissus. Through studying Parkinson, I found the locality where the double form of the wild Daffodil was supposed to exist in his time, and after a good deal of correspondence I succeeded in procuring a few bulbs, and this season I have an advice that a few more are on the way. My correspondent remarks: "There is only one large clump, and a few odd bits, but all close to the same spot." Would "R." oblige me with a specimen of his double Pseudo-Narcissus? If it is the small one, it is so beautiful, and more refined in form than the large variety, and I am sure it would be hailed as an acquisition by all who are fond of spring flowers, and being so easily attained, if "R." is right in his conclusion. Would any of your correspondents name localities where this little beauty (the double Pseudo-Narcissus) is found wild? *P. Barr.*

—— As you have of late been writing on the Daffodil, I enclose specimens of Narcissus major, which is commonly called "the Daffodil" near Tenby. I do not think it is generally known that this species is abundant within a radius of some miles round Tenby, South Wales. Some years since I happened to be in that neighbourhood just as the plants were going out of flower, and was much struck by the metamorphosis of Narcissus Pseudo-Narcissus there. I brought some bulbs away, and was much pleased to find in the following spring that they were Narcissus major, a native of Spain, and a very great addition to my spring garden. They grow very luxuriantly on the road from Tenby to Penally, in several places, and also beyond Penally on the Pembroke road, and (as I was informed by the late Archdeacon Clark) in several other distant localities, from which he kindly sent me specimens. As I was collecting bulbs from the first place, and wondering in my mind how a Spanish plant got there, I caught sight of a very fine ruined round-tower chimney, peculiar to the neighbourhood of Tenby, and which are said to have been built by the Flemings, of whom a large colony lived formerly in and round Tenby, driven from their homes by the persecution of their Spanish masters on account of their religion. This seemed at once to account for these beds of Narcissus major. Flanders had so much intercourse with Spain, that nothing would be more natural than for this showy Narcis to be a favourite with the Flemings; and it is equally natural that they should bring some of these easily carried bulbs with their *penates* to South Wales when they migrated. Probably I am telling an old story, well known to many, but I do so because I have never met with any who did so, and because all whom I met at Tenby thought that their plant was the Narcissus Pseudo-Narcissus, which I did not see there. The Narcissus major is a great addition to the spring flower garden, its golden flowers coming out very early and with great luxuriance. Every one admires my Tenby clumps. It also lasts a long while: it has now been in beauty all this month, and will go on some weeks yet. I cannot understand the various opinions about Narcissus Pseudo-Narcissus becoming so frequently double: it has been a favourite in my garden for forty years, and I never saw the slightest tendency to its becoming so. We have acres of it in great beauty in many localities in this island, but the late Dr. Bromfield, who knew almost each individual plant in this island, says of this Narcissus, "One solitary clump in St. Urian's Copse among thousands of the single kind, unquestionably wild, and perfectly similar to the double garden Daffodil." "Also a very double but certainly wild specimen on a bank at Yaverland." One would not have supposed that this pale flower would have produced a double one of the bright golden tint of our garden Daffodil. I have always supposed that the Narcissus major was the original of the garden Daffodil, and I see Dr. Bromfield says further on—"I cannot distinguish the wild double variety from the common great yellow Daffodil of the gardens, though that is supposed to be a different species—the N. major of *Botanical Magazine*, and a native of Spain." My Narcissus major bulbs have a tendency to become double, and are of a very beautiful golden yellow, as one would suppose from the single one. I have never seen a locality for the common Daffodil that did not make one doubt its being brought there, and the same with Narcissus biflorus and poeticus. They all seem to grow round old abbeys, or where cottages have been. In this island our largest bed is St. Urian's Copse (now written in all our maps "Centurion's Copse), where a church or chapel once stood, of which St. Urian was the head. All our other stations of it are suspicious, as I have observed, in all other parts of England where any of the three species of Narcissus grow. *W. D. F., Isle of Wight.*

The Great Double Daffodil of our Gardens.—I see Mr. Harpur-Crewe states that N. major is the single form of this. I differ from him, inasmuch as N. major flowers later and is a deeper yellow. I send you herewith the true single form, Telemonius of Haworth; by comparing it with the double which I send you, you will see that they correspond. N. major is only just opening while Telemonius is nearly over, having been some weeks in flower. This fine Daffodil is one of the earliest, and vies with my magnificent Obvallaris maximus—the latter is golden-yellow, the former sulphur-yellow. The Daffodils of the Ajax section which are now in bloom with me are as follows:—minimus, nanus, minor, Obvallaris maximus, Telemonius, T. plenus, Pseudo-Narcissus and its varieties (plenus, grande-plenus, lobularis, lobularis plenus, nobilis, rugilobus), cernuus plenus, c. plenus bicinctus, N. major, N. maximus. *P. Barr, April 5.*

Sweet Nancy (Query 44, p. 443) is the common name in Cheshire for the double variety of Narcissus Poeticus or N. biflorus, or both, which is one of the most popular garden flowers in some portions of that county. The name is also used in Norfolk; and the plant is known as "White Nancy" in Cheshire and Staffordshire. The popular names of N. biflorus are not many, but of a somewhat unusual kind. Turner, in his rare and little-known *Libellus*, gives a long account of his meeting a little girl while "rusticating" in Norfolk who had a handful of white flowers ("*dextera manu albarum florum manipulum gestans*") which he considered to be Narcissi; but on inquiring of those "*qui proximos pagos et castella habitarent*," they all told him that the name was "Lanstibi," nor could he learn from them any other name for the plant. In the same author's *Names of Plants*, he speaks of a white-flowered Narcissus which "groweth plenteously in my Lorde's gardine in Syon, and it is called of divers, Whyte Lans tibi;" and a similar reference occurs in his *Herbal*. The origin of so unusual a name does not appear to be known; but it is worthy of note that other names of the white Narcissus seem to point to some ecclesiastical association of the plant. Thus, in Devonshire, N. biflorus is called "Whit Sunday," and Halliwell gives "gracy-days" as a name for the Daffodil in the same country. We have been unable to connect this name with any of the other designations of N. Pseudo-Narcissus; and as the botanical

identifications in Halliwell's *Glossary* are often vague or even inaccurate, it is at any rate possible that it is really applied to N. biflorus or N. poeticus. "Gracy-days" or (as Wright gives it) "gracy-day" is no doubt a corruption of *Gratia Dei*, a title given to various plants either from their medicinal or ornamental properties. In an old English MS. of the fourteenth century, which is preserved in the royal library at Stockholm, the name is applied to a plant which, with the Daffodil, Squill, Garlic, and Leek was reckoned among the five kinds bearing the last title. All that is said about it is, "Gracia Dei yt groweth in Mede," but its conjunction with the Daffodil, Leek, &c., shows that some monocotyledon of similar habit was intended. The name, "Primrose Peerless," by which Lyte, Gerarde, and the other herbalists knew N. biflorus, is still in use in Warwickshire, and, in the corrupted form of "Primrose Parings," in Devonshire. Dr. Prior has not been as felicitous as usual in giving the derivation of this name. In his first edition he considers it as a corruption of Primula paralyseos, originating in a confusion between the Narcissus, which was supposed to cause palsy, and the Cowslip, which cured it; while in his later issue he thinks it "apparently transferred to it from a lady," although the quotation he gives at second-hand in support of this theory does not go far to countenance it. There can be no doubt, however, that Parkinson gives the true explanation when he says that its flowers are "of a pale, whitish, creame colour, tending somewhat neare unto the colour of a pale Primrose (which hath caused our countrey gentlewomen, I thinke, to entitle it Primrose Peerlesse." Johnson, in his edition of Gerarde, writes it "Primrose Pearles," which Culpeper renders "Primrose Pearls." *B. M.*

Apricot Blossom and Apricot Prospects.—Never but once have I seen such a mass of Apricot blossom as we have had here this spring, and rarely, if ever before, has such a favourable season been experienced to aid in the fertilisation of the same. For whilst the walls have been sheets of white there has not been one solitary frost, during all the time they have been in bloom, that could injure them. At this moment an immense crop has "set," so numerous, in fact, that if one fruit in every score matures and ripens, there will be ample and to spare. I meditate resorting to the expedient of cutting back all the older worst placed "spurs" that exist on old trees here, and which anxiety for a crop forbade cutting back as severely as we could have desired at pruning time. The old adage runs somewhat thus:—

"And during March your fruit trees lop,
Thus easily you guarantee a crop."

By taking advantage of this fact, this backward April, may we not ease, and it may be resuscitate somewhat, such Apricot patriarchs as look to us for succour and support? *William Earley, April 7.*

Cutting Fir.—My experience of cutting Fir is quite different from that of the writer of "Forestry" in your paper of March 27. If cut in May when full of Turpentine, and allowed to lie on something to keep them off the ground for a season, the ends of the poles are sealed with turpentine and the bark adheres much longer than it does on winter-felled poles. Pinaster summer-felled will keep its bark on for years, whereas a winter-felled pole will some seasons have its bark rotten in one year. The summer-felled poles, if used full of sap directly it is cut, will decay in the ground rapidly. When passing through the Black Forest from Freiberg to Schaffhausen, June, 1868, I saw large Silver Fir being felled and barked. Since that I have always cut poles in May or June, and am convinced it is much better for the poles cut and for those left standing than the usual mode. It allows the trees room to grow when they can best take advantage of the breathing-room, the trees throw out corresponding roots, and are better able to withstand the exposure to gales the following winter. I also learnt on the Continent never to thin the whole of a plantation at the same time. I have seen plantations in England checked in growth for years by the cruel woodman's practice of cutting every Bramble and stripping off every dead branch that they can conveniently cut all through a plantation, at the same time that they take down almost every other young tree and chill the whole plantation to the very pith at the coldest and most stormy time of the year. I was brought up in this school, and nearly thirty years ago was trusted by my father to thin a plantation of 6 acres by myself, since which time I have planted and attended several acres of my own, from 1856, and cut almost every pole myself. *H. R.*

Large Aucubas.—The description at p. 400 of the Aucuba japonica in the Royal Botanic Garden, Regent's Park, so singularly coincides in every respect with one I have in the garden here, that I should not trouble you on the subject were it not for the idea that a confirmation of the *modus operandi* of obtaining berries may induce all ordinary gardeners to do the same, and thus secure to themselves a most lovely plant when covered with its coral berries. The Aucuba I have is about thirty years old. These plants do very well here, and I have others of large size; and having raised several male plants now coming into bloom, I hope another year to have many in full berry, which by the kind assistance of bees, flies, or the wind wafting the pollen, is so easily accomplished. *Stinsford, Dorchester, Dorset.*

Early Blooming Dahlias.—The critique at p. 399 on the assumed merits of German Dahlias should have special interest for Dahlia growers in the neighbourhood of Southampton, who propose to compete for the prizes offered in the schedule of the Horticultural Society of that town for "Dahlias in pots," the competition to take place on July 31 next. It is a fact that most of our own kinds do not come into good bloom until August, and I fear that exhibitors will find it exceedingly difficult to get their plants into decent bloom by so early a date, whilst any attempt to force them into flower under glass will only develope length at the expense of beauty. Without doubt the best varieties for pot culture are the Pompons, as these produce the greatest quantity of flowers on the least surface, but most of these are too tall for pot-work, and any attempts at dwarfing them would probably make them worse rather than better. What is wanted for such a purpose is a race of plants that shall not exceed 2 feet in height, and which shall commence blooming at midsummer. With such a useful strain it would then be possible to convert the Dahlia into a capital exhibition plant for late summer and autumn shows. *A. D.*

Diseased Palm Roots.—Seeing the figures at p. 409, of the Palm roots I sent to you some time ago, I beg to offer a few words about the plant, thinking perhaps they may throw some little light on the cause of the peculiar formation on the roots. The plant was a small one, bought in about three years ago, and was in a very unhealthy state; every leaf that came up was covered with spider, and not one unfolded properly. It was repotted several times, thinking the soil was not suitable, but all to no purpose, until last autumn it began to grow and make some nice leaves, but there was no unusual appearance on the roots up to this time. In the spring I turned it out to give it a larger pot, when I found every root of the plant looking exactly as shown in your figure; the plant was well rooted, and all being alike, it was a most peculiar sight. To-day I turned the plant out of the pot, and I find it is rooting well into the fresh soil, but every one of the roots, even the smallest fibre down to the extreme tip of the young growth of the roots, to be the same as the piece I now enclose—exactly as before. *George Walker, Marks Hall, Essex.*

Fig. 100.—Inverted Growth of Turnip.

Pampas Grass.—"A Very Old Subscriber" asks at p. 444 about clearing old growths from a large plant of Pampas-grass. I have just been trying to meet the same difficulty by having all the dead shoots and stems cleared with a sharp knife, cutting them neatly away as far down as could be reached. The plant was an unusually large one, and the centre so choked with the dead mass that water lodged, and there seemed a fear of decay; also the great mass falling together like a mere heap of dried grass was an objectionable feature in the group of which it was the centre, so that something had to be done; but either taking or leaving seemed doubtful, and it was only on the assurance of the gardener that he knew the treatment answered that I ventured on it with such a large specimen. The plant at present looks very well, as also a somewhat smaller one, which was similarly treated, and having stood the winter well without any protection, as there were no very tender growths to be exposed. *O.*

Protecting Materials.—I find nothing so cheap, nothing so light and useful, as the common Bracken. Here we protect our Fig trees by tying it to the branches, our Broccoli by simply covering them entirely up, and this season I shall protect Rose trees and dwarf Cherries; in fact, it is so easily applied that it requires no shifting, it being light and airy, so that if we have no spring frosts it does no harm, and should you have frost it certainly does good. The best plan to keep on the foliage is to cut in early autumn, tie in bundles, and keep it dry. *R. Gilbert.*

Reports of Societies.

Royal Horticultural: *April 7.*—W. Burnley Hume, Esq., in the chair. The Rev. M. J. Berkeley, addressing some eighteen or twenty persons present, remarked that only two subjects came under the notice of the Fruit Committee—a dish of Apples, the name of which was not known, and a pan of Watercresses grown in a cold house. The latter had been sent to show that it might be usefully grown

under such circumstances through the winter months. At many places, Mr. Berkeley remarked, it was a common practice to grow Watercresses under a north wall, but there was the great disadvantage in this system that the plants were liable to become infested with fly if not well watered. On the contrary, it was much better to eat plants grown in this manner than those grown in water, because it was known that the eggs of a very minute insect were deposited on aquatic plants, which produced the "rot" in sheep. The Fern shown as Pteris Williamsii proved to be an old plant—Gymnogramma japonica; and of two remarkably fine specimen Orchids—Dendrobium nobile and D. densiflorum—it was remarked that though the inflorescence of the latter was most handsome, it was comparatively fugitive, and the former was the most useful, (as its flowers lasted so much longer. It was interesting to know, in connection with the exhibition of such a fine specimen of D. densiflorum, that the species was first sent to this country through the Society by Wallich. Eurycles Cunninghamii belonged to a genus of Amaryllidacea, founded originally by Salisbury, and was closely allied to Pancratium amboinense, from which it differed in having only two ovules in each cell. Exacum zeylanicum was pretty, but seldom seen, owing to its being peculiarly difficult to propagate. The seeds were excessively small, and the practice was to sow them on the top of the earth, then gently press them down, and trust to chance for their germinating. Messrs. Veitch's small group of Droseras then came under notice; and, with regard to Drosophyllum lusitanicum, Mr. Berkeley remarked that he thought it might some day be found in the West of Ireland. The discussion on the wild Daffodil going on in our columns was alluded to, the speaker taking the side of Mr. Harpur-Crewe, Mr. Barr, and others, and showing flowers of the true double common Daffodil —Narcissus Pseudo-Narcissus flore-pleno, which was accurately figured in Parkinson's *Paradisus* under the name of N. Pseudo-Narcissus anglicus flore-pleno. A specimen was also shown of a singular double form of N. Pseudo-Narcissus, known to Herbert as Ajax Eystettensis, and to Parkinson as N. p. s. gallicus minor flore-pleno. Both of these flowers were exhibited by Mr. Burbidge. On examination at Kew, Mr. Berkeley found that the plant shown by Mr. Stevens, gr. to the Duke of Sutherland, at Trentham, at the last meeting, under the name of Bambusa gracilis, was Arundinaria falcata.

Scientific Committee.—A. Grote, Esq., in the chair. Mr. Berkeley stated that the so-called Bambusa gracilis, shown at the last meeting, was Arundinaria falcata.

Diseased Portugal Laurel.—The following letter from Miss Ormerod was read, and the specimens relating to it were laid on the table. It was considered by the committee that the dry raised bank on which the shrubs were planted was sufficient to account for the disease:—

"I enclose some specimens of the diseased Portugal Laurel roots, with another bit to show the condition when healthy.

"When I first saw the shrubs in July last year the leaves had turned to a dead whitish green, and as time went on they drew together at the edges, became patched with brown, and the shrubs have since died. Those affected were part of a dividing hedge in my garden about 90 feet long, and about three of them have died together at one end, and as many more together in another part of the line—those by them not showing any signs of unhealthiness. The trees were about 10 feet high, the bank on which the row stands artificially raised about 3 feet above the level of the garden, and if not watered must be exceedingly dry in summer; and in another place in Spring Grove, where the Portugal Laurels fail similarly, the ground is (naturally or artificially) above the surrounding level. I cannot find in my own garden that the roots have reached any injurious subsoil, nor are there the slightest indications of insect injury.

"When freshly cut the smaller diseased roots look wet, of a greyish colour, with brown spots scattered in the discoloured wood—to the unassisted eye looking very much like the mottlings of a diseased Potato. They dry very rapidly, but perhaps some of the small stumps on the largest section (if freshly cut) would still show this appearance.

"This disease gives a good deal of trouble here, and besides the interest of the subject in itself it would be of great service to know how to check it.

Diseased Poplars.—The following letter, addressed to Professor Dyer, was read from Mr. Wilson Saunders, and illustrative drawings were exhibited:—

"Some few years since a number of young Poplar trees of two different kinds were planted on the sides of the roads in East Worthing, with the object of forming rows of shade-giving trees, which would grow quickly. The roads mentioned are broad, and run either directly towards the sea or parallel to the seashore. Hence some are much exposed to the indraft of the sea breeze, while others are comparatively sheltered. The whole of the roads are within a quarter of a mile of the sea shore. Of the trees so planted one Lime has done well, and there are several vigorous young trees here and there to be seen; but the trees of other kinds have mostly died off, or are rapidly succumbing to a disease which I shall attempt to describe and illustrate; and I may observe that, as far as I have been able to observe, those trees which are most sheltered are as much diseased as those exposed to the full sea breezes. The disease seems sooner or later to be fatal to the tree, for I have not seen one tree attacked of which there seems any chance of recovering, seeing how many have died, and how very sickly they appear. The trees now in this diseased state are from 12 to 18 feet high, and with stems varying from 5 to 7 inches in diameter. The disease is most apparent in large, rough, open wounds about the commencement of the lower branches, and on the stem; but upon closer examination symptoms of the disease will be found all over the tree, even to the tops of the branches. The disease seems to show itself at first by a longitudinal fissure in the bark, which fissure is nearly straight and but of little depth, having its lips slightly elevated and reflexed. At first it will be perceived that the fissure does not penetrate the whole depth of the bark, but, gradually deepening and extending in length, the wood becomes exposed. This proces of the fissure of growing deeper and increasing in length continues until the wood is quite exposed, and in a branch of two years' growth the disease assumes the appearance of a long open wound, exposing much of the wood which the growth of the bark partially covers up. Tracing the progress of the disease further, side fissures will be seen producing the same results; and these fissures, running one into the other, break up the bark until occasionally the disease extends all round the branch. It may be perceived that the disease attacked a branch where it had two years' growth, and that the other fissures commenced the year following. When a branch gets diseased, the portion above the wound dies. The disease is often slow in progress, particularly when on the main stem, when large open wounds appear, of the same character as those on the branches, exposing much of the wood, but having the surrounding bark, although diseased and cracked, in a healthier state. My drawings represent the main stem of a young tree with a wound of this character, but still there would appear every probability of the tree lasting a few years longer in the living state. The figures have been carefully made, and are all to the natural size, except those which are coloured. Specimens of the leaves of this Poplar accompany this, that the species may be determined. The Poplar, which was planted at the same time and is found to do well, is, I have no doubt, the Populus nigra, L. The diseased Populus appears very like the Populus candicans, or false Balsam Poplar. The soil in which both kinds of Poplar were planted is a rich strong loam. The cause of the disease I dare not venture to give an opinion about; and I have gone into the foregoing details with a hope that you may be able to enlighten me on the subject. *W. Wilson Saunders.*

Dr. Masters stated that he had frequently seen a similar disease in the Lombardy Poplar, particularly when growing in water-logged soil. Mr. A. Murray referred to the similar disease met with in the Ash.

Colorado Beetle.—Mr. McLachlan referred to the letter of an Englishman in America, published in our last issue, and going to show that the tubers were eaten by the beetles, and that their importation might really be effected by means of seed Potatos. Some of the committee still expressed doubt as to whether the beetle really fed on the tuber. Mr. McLachlan referred to a note in the report of Lieutenant Carpenter, of the American Geological Survey, in which it was stated positively that the insect was distributed by means of seed Potatos, and that its absence in Utah and other parts of California was to be attributed to the fact that it has not yet been necessary to import seed Potatos.

Telfairea pedata.—Dr. Moore, Glasnevin, sent leaves of this plant partially affected with albinism, and which condition Dr. Moore thought was occasioned, in this instance, by the attacks of a fungus. Mr. Berkeley doubted the accuracy of these conclusions, but promised to report on another occasion.

Inverted Leaves of Turnip.—Mr. Hemsley sent a Turnip with a cavity in the interior of the root nearly filled by leaves growing from the crown downwards and inwards as in the figure, reproduced from an earlier volume (see fig. 100).

Circulation in Myxomycetes.—Professor Dyer showed under the microscope a portion of an Æthalium, consisting of protoplasm, only without any investing cell walls, and in which currents, sweeping granules with them in their course, were plainly visible. The plasmodium, or thallus, throws out processes in various directions, which sometimes meet and inosculate, forming a network. The meeting then adjourned.

Floral Committee.—R. B. Postans, Esq., in the chair. First-class Certificates were awarded at this meeting to Messrs. James Veitch & Sons for Drosera spathulata, an extremely interesting little species with obovate leaves; for Croton Disraeli, a most singular form, received from A. H. C. Macaffee, Esq., of Sydney, with for the most three-lobed leaves, bright green in colour, spotted with golden yellow, and having a golden band along the midrib—the greatest novelty the genus has produced; and for Hyacinth Etna, the petals of which are broad, smooth, and flat, and of a bright salmon-rose shaded with reddish crimson, the flowers inclining to become double. To Mr. William Bull for Crinum brachynema, an Indian species with

Fig. 101.—Martinezia erosa.

drooping white, sweet-scented flowers, produced on a scape about 3 feet high. The plant, originally described by Herbert in 1842, was introduced to the Royal Gardens, Kew, from Bombay, in 1870, by Mr. Woodrow, Superintendent of the Botanic Gardens, Poonah, and figured in the *Botanical Magazine* (1871), tab. 5937. For Dracæna insignis, a dwarf, compact, wiry habited plant with leaves of a rich metallic purple colour; and for Dracæna candida, a plant of identically similar habit to the above, but with the older leaves margined with creamy white, and the young ones almost entirely of the latter colour. Both of these plants must be welcomed by those in quest of suitable subjects for table decorations, on account of their excellent habit. To Mr. B. S. Williams for Geonoma gracilis, an elegant stove Palm, which has been thought to be the same as Cocos Weddelliana, but is quite distinct from that fine species (an illustration will be found in the left-hand corner of our Almanac for the present year); and for Martinezia erosa, a striking South American Palm, the characters of which are well shown in the accompanying illustration (fig. 101), reproduced from a former volume. Botanical commendations were voted to Messrs. James Veitch & Sons for a pale-fruited variety of Anthurium violaceum, an old stove plant, better known under the former name of Pothos violacea; and for Drosophyllum lusitanicum, an interesting Sundew, which is found in Spain, Portugal, and Mauritania, which produces yellow flowers on a stem about a foot high. The plant is figured in the *Botanical Magazine* (1869), tab. 5796. Cultural Commendations were awarded to Mr. J. Staples gr. to Mrs. Candy, Chipstead Place, Sevenoaks, for a specimen of Dendrobium densiflorum, with twenty-eight fine spikes of flowers, all in a perfectly fresh condition; and to Mr. F. Moore, gr. to W. C. Pickersgill, Esq., Blendon Hall, Bexley, for a specimen about 3 feet through, and remarkably well flowered, of Dendrobium nobile. Messrs. Veitch also showed a striking and beautiful Aroid under the provi ional name of Spathiphyllum Wallisii, upon which the committee deferred their award till the plant was botanically examined, to see to what genus it really belonged. We propose shortly to give an illustration of this striking plant. The same firm also sent a flowering plant of Exacum zeylanicum, with pale blue flowers, and belonging to the Gentianaceæ; Croton tortile, somewhat in the way of C. spirale, but a much stronger grower, with the deep bronze leaves spotted with crimson-red, and banded with the same colour along the midribs; Croton Lord Cairns, in the way of C. Disraeli, but not so good; and C. appendiculatum, a very curious green-leaved sort, the midrib of which is continued like a thread, bearing a leafy appendage at the end. From Mr. J. Perkins, gr. to Lord Henniker, Thornham Hall, Suffolk, came a box of nice cut blooms of the Maréchal Niel Rose, which gained the thanks of the committee; and a similar compliment was paid to Mr. Eckford, gr. to Lord Radnor, Coleshill, for cut blooms of some finely-coloured gold-laced Polyanthuses. From Mr. R. Dean, Ealing, came a large and most interesting collection of Primroses, Polyanthuses, Violas, Myosotis, &c., and which included about three dozen pots of Myosotis dissitiflora, which were literally a sheet of bloom, and strikingly beautiful. Amongst the Primroses, which Mr. Dean is doing his utmost to improve and bring into popularity, we noticed Crimson Queen, very large, and of a rich glowing crimson colour; Splendour, much resembling the above, but of a lighter shade of colour; Violacea, deep violet; Crimson Banner, Fairy Queen, white; Queen of Violets, rich deep violet; Sulphurata, sulphur-yellow; Rosy Morn, deep rose; and Charmer, a good shade of pink. In the Polyanthus section were Regalia, rich maroon-crimson, each segment marked with a wedge-shaped white spots; Black Knight, pure maroon; Viceroy, sulphur-yellow; Magnifica, deep crimson; White Bedder, and the Bride, also a white variety of excellent form. Bedding Viola White Swan, a large smooth white flower; and a new quilled white Daisy named White Globe, large and very fine, were conspicuous in the same collection, to which a vote of thanks was accorded. In addition to the plants previously mentioned, Mr. B. S. Williams showed Warscewiczella discolor, and Eurycles Cunninghamii; and from Mr. Bull came a fine white variety of Odontoglossum Roezlii. Messrs. Paul & Son, Cheshunt, sent a box of cut blooms of Roses, and flowering specimens of the new Hippolyte Jamain and other Roses; and G. F. Wilson, Esq., contributed flowering plants of the pretty little Primulas pulcherrima, viscosa, and denticulata.

The Royal Horticultural and Agricultural Society of Antwerp: *April* 4.—This important show, which was opened on April 4, and lasted till the 7th, was one of the most interesting exhibitions I have ever seen; and though the exhibitors were mostly from the neighbourhood of Antwerp, Ghent, and Brussels, nearly all classes of plants were very well represented. Azaleas and Camellias constituted perhaps the principal features of the show, the former being especially magnificent and numerous. On entering the Salle de la Grande Harmonie, where the show was held, one looked down on three splendid groups of these plants, each consisting of thirty large plants trained with broad umbrella-shaped heads, and one mass of flowers. This mode of training, which is preferred in Belgium to the pyramid or balloon shape, is certainly more effective when viewed from above, and requires much less tying and training than the shapes preferred in England. M. Ghellinck de Walle, of Ghent, gained the 1st prize of a gold medal or 400 francs in this class; and M. Jean Vervaine the 2d. The following varieties were among the most beautiful:—Baron de Pret, Charles Enke, Comtesse de Flandre, Modèle, Comtesse Eugénie, Roi Leopold, Madame Dominique Vervaene, Cedo Nulli.

Of Camellias the most remarkable were some plants about 20 feet high sent by M. Edmond Le Grelle, of Antwerp, which, though rather narrow for their height, were full of bloom and very healthy. They gained a prize of a gold medal, or 300 francs.

Of Rhododendrons there were a few fine specimens, of which nothing was superior in beauty to that fine hybrid, Countess of Haddington.

M. Louis Van Houtte, of Ghent, carried off the prize for hardy Azaleas, though his plants were not very remarkable either for their form or colour.

Orchids were not largely shown, but in the collection of M. Louis Le Grelle, of Antwerp, were some well grown plants of Cypripedium Dominianum, Crossii, and purpureum; and in that of M. Beaucarne a fine plant of Dendrobium densiflorum, with seven flower-spikes.

Among the curiosities of the show was a collection of terrestrial Orchids, shown by M. Louis Van Houtte, which, considering that they had been forced into flower two months before their natural season, were in very good condition. It included plants of the North American Cypripedium spectabile, acaule, pubescens, and parviflorum; Orchis spectabilis, a plant hardly ever seen in cultivation; Arethusa bulbosa, one of those delicate little inhabitants of the sphagnum bogs of Canada; and Ophrys lutea and apifera in a less flourishing state.

Amaryllis were well represented by several collections, M. Van Houtte winning the 1st prize with a very fine batch of thirty unnamed seedlings, and M. H. Van der Linden, of Antwerp, the 2d. Though these plants were not perhaps quite equal in form to some of those lately raised in England, the variety of colour was very striking, a pure white one and some very pretty pinks being among the best. They are mostly, I believe, hybrids of A. vittata, and have a good deal of hardiness in their constitution.

Messrs. Krelage, of Haarlem, were an easy 1st in the classes for Hyacinths and Tulips, though their plants, perhaps owing to the long journey they had come, were not quite equal to those shown by Messrs. Veitch and Douglas at South Kensington lately. The Belgians exhibited little or nothing in these classes, three of which had no entry, and the Tulips, with the exception of Messrs. Krelage's lot, were very poor. Neither Cyclamens nor Roses were so good as I have seen them. Primulas were entirely absent, and Heaths by no means up to the English standard.

When we come to the foliage plants, however, the most critical judge could not have passed by the splendid plants sent by Madame La Grelle d'Hanis and others without admiration. This lady, whose beautiful gardens at Antwerp are celebrated on the Continent, sent a collection of plants which gained her the gold medal offered by the Federation of the Belgian Horticultural Societies, as well as the prize for the exhibitor who contributed most largely to the embellishment of the exhibition. It included magnificent Palms, Aroids, Marantas, and foliage plants of all kinds, among the most remarkable of which were the following:—Ceratozamia mexicana, Pritchardia Martiana, Latania borbonica, Arenga saccharifera, all very large and perfect specimens.

To mention all that were included in the numerous classes of the exhibition would take up more space than you can spare, but I may say that Agaves, Aralias, Yuccas, Phormiums, Araucarias, Caladiums, Crotons, Bromeliaceous plants, Aroids, Aucubas, Ivies, Hollies, and variegated plants of all kinds, were much more numerously and better represented than at English exhibitions generally. The Hollies of M. C. van Geert were particularly noteworthy. Among the most beautiful plants in the show were some seedling Bertolonias, sent by M. Van Houtte, of Ghent, which received the special notice of the judges. Bertolonia Van Houttei, Mirandiæi, and Marchandi, the best of them, will no doubt soon become known in England, and must be admired by all. Many rare hard-wooded plants were shown by the Baron Caters and others, including Hakeas, Grevilleas, Proteas, and Eriostemons, in perfect health; also fine specimens in flower of Metrosideros semperflorens, Oreopanax dactylifolia, Theophrasta macrophylla vera, Kennedya nigricans, Clianthus Dampieri, and many others. The Cacti of Mr. Story, of Lacken, near Brussels, were models of good cultivation, and included many rare and pretty things. The Echeverias of M. Louis De Smet, of Ghent, were also very beautiful; among them E. agavoides rubella, E. cæsia, E. Desmetiana, and E. pulverulenta argentea, surpassed anything of the kind I have seen before.

A few Lilies were shown by M. Van Houtte in very fair order for the time of year—L. croceum, with about fifty flowers on four stems from one bulb; L. Brownii, with ten flowers; and L. canadense being the best.

The only English exhibitor was Mr. Williams, of Holloway, who sent over a very nice lot of new and rare plants, which received a medal from the judges.

It is a pity some of the other English nurserymen did not contribute to the show, as the journey from London is so short and easy that it would have been a good opportunity of showing the Belgians what we have in the way of Cyclamens or Orchids. The show of fruit, consisting of Apples and Pears, was good for the season. As regards the bouquets the less said the better; the want of taste shown in their construction being, with few exceptions, lamentable. On the whole the exhibition was well worth the journey to see it, and I hope it may prove as great a success financially, as it was in a horticultural sense. The banquet, presided over by Baron de Caters, was —as Belgian *fêtes* usually are—as cordial as splendid. (*From a Correspondent.*)

The Villa Garden.

Paths and Edgings.—An old gardener once remarked: Above all things in a garden, let there be the appearance of order. And he was right; for while a slovenly garden will spoil the otherwise excellent effect of good features, an orderly garden will cast a lustre on mediocre aspects. A well-managed garden will have a neat appearance in the opening days of April, and this neat appearance can be maintained by keeping walks, borders, grass edgings, Box edgings to paths, and lawns neat and tidy. Nature may almost be said to give us a dry March for this purpose; and if the weather be cold and harsh, yet so long as it is dry the tidying process can be pushed on to a proper conclusion. If walks have been turned (and this is sometimes of great importance, for walks will become moss-covered when overhung with trees), and rolled, they will be smooth and clean, and will remain so for some time to come, if the roller be passed over them after a softening shower. If weeds put in an appearance they should be pulled out by hand after a rainfall, or when the ground is soft they readily come away from the yielding soil—small fibrous roots and all. A good rolling soon makes all smooth and orderly again.

Grass edgings should be made even by placing a garden line along them and cutting away the margin, which always grows out in course of time, and becomes ragged and uneven. All the pieces cut away with the edging iron should be gathered up and wheeled away into the compost yard, there to lie and rot and eventually become of great value for potting purposes. Box edgings should be clipped this month, and gardeners recommend it to be done at the time of showery weather, the reason being that they sooner start into growth again, and lose that stunted and rough appearance they are apt to present when the trimming is done in periods of dry weather. If some of the clippings be pricked out on a shady border, and pressed firmly into the soil, they will root and form nice plants by the autumn, and they come in very useful to supply vacancies in the edgings to paths.

Celery.—It has been observed that if a garden be so circumscribed in respect of space that a kitchen or vegetable plot is an impossibility, yet some space will surely be given to Celery. This favourite salad well deserves such a special recognition. Many a Villa Garden grows excellent Celery, and the gardener places it on his table with conscious pride, that his home-grown, crisp, sweet-eating stalks are incomparably better than the best that can be had in the market. This is the time of year for sowing seed to produce the plants to go out into the Celery trenches by-and-bye. The seed being very small it should be thinly sown on some finely sifted soil, on a bed having a little bottom-heat if possible, or, if this is not available, under a handlight, in a cold frame, or in a shallow box that can be afterwards placed in the greenhouse or any suitable place in order that it may have all the encouragement possible.

In order to be successful with Celery it must be planted out in the trenches early—say at the end of June, or the beginning of July, so as to have the benefit of the showers that fall during what market gardeners term the "dripping season," that is, the showery days of July—when July happens to yield them.

When the plants in the seed-bed or box are large

enough to be transplanted, they should be planted out where they can have every encouragement to grow into size. Gardeners who have the necessary accommodation plant out in highly manured soil in a cold frame, and under such circumstances the plants form masses of fibrous roots, which, when placed in the trenches in showery weather, soon lay hold on the soil and become established. Celery should be kept growing quickly and vigorously, and then it is certain to do well.

Cucumbers.—Not long since we gave directions as to the making up of a Cucumber frame for an early crop of this favourite fruit. Many who are in the alphabet of gardening prefer to wait until April before they commence the culture of Cucumbers. The days are then lengthening and becoming warmer, and these favourable circumstances greatly assist a deficiency of manure for giving artificial heat. The bed should be prepared without delay, and a commencement should be made by marking out where the frame is to stand, but keeping the dung a foot wider all round than the size of the frame. In forming the foundation of the bed with manure, which should be fresh in order to generate the necessary warmth, it should be well shaken out by means of a fork, at the same time beating it down as layer after layer is laid on. The rankest dung should be laid at the bottom, and the driest on the top; and if too dry, throw some water over it to moisten it. The bed should be so built up as to allow for subsiding, and when this has taken place it should be 4 feet behind and 3 feet in front. When the bed is completed, and well beaten down, place a layer of soil 3 or 4 inches in depth over it, and place the frame on it. In the centre of each light a mound of nice turfy loam should be placed; and in this, when it is nicely warmed through, the plants should be placed, one or two to a light. Air must be given night and day for a time if a rank heat becomes generated, or the plants will be shrivelled up. The plants should be pinched back to the fruit-bearing wood, at the same time thinning out the shoots, so that they should not become matted. The roots run near the surface of the soil, and when the plants make vigorous growth they will soon show themselves through the mounds, which should receive a fresh covering of soil to afford them nutriment. As the plants grow and the weather becomes, hot, water must be given, but it should always be warm.

Such a bed as this is very useful in many ways. In it can be raised half-hardy annuals and tender plants required for summer bedding, and also for borders, such as Asters, Stocks, Petunias, Phlox Drummondii, Zinnias, Perillas, Golden Feather, Cockscombs, &c. All these can be sown thinly in 48 or 32-sized pots that are well-drained and filled up with a light, free, sandy soil. A line of these can be stood round the sides of the frame, where they will not impede the growth of the plants; and in this manner many things can be grown that could not else be at the disposal of the Villa gardener for the decoration of his garden.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
For the Week ending Wednesday, April 7, 1875.

Month and Day.	Barometer. Mean Reading at 32° Fahr.	Barometer. Departure from Average of 18 Years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 60 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Dew Point.	Hygrometrical Deductions. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
April 1	In. 30.35	In. +0.60	° 53.0	° 43.4	° 9.6	° 46.9	+ 2.7	° 41.1	81	E.; N.E.	In. 0.00
2	30.23	+0.48	54.5	43.4	11.1	47.4	+ 2.6	40.2	77	W.; WNW	0.00
3	29.80	+0.06	52.8	40.0	12.8	46.4	+ 1.6	40.8	82	WSW	0.00
4	29.50	−0.24	58.9	43.8	15.1	49.7	+ 4.7	46.6	89	WSW	0.09
5	29.10	−0.64	54.6	43.7	10.9	48.0	+ 2.8	44.0	87	S.S.W.; WSW	0.00
6	29.26	−0.47	55.7	40.4	15.3	47.6	+ 2.3	42.3	83	S.W.; S.S.W.	0.03
7	29.19	−0.55	51.8	37.9	13.9	43.6	− 1.8	39.9	87	S.W.	0.06

April 1.—Overcast, dull, and mild, though fine at intervals throughout the day.
— 2.—Overcast, dull, and foggy in early morning. Fine, and bright afterwards.
— 3.—Fine, partially cloudy, mild, and brisk wind throughout.
— 4.—Fine, partially cloudy, and mild. Heavy rain fell in early morning.
— 5.—Overcast, and rain fell at 7 A.M. Fine, and bright afterwards. A gale of wind.
— 6.—Fine, and partially cloudy throughout. Occasional showers of rain and hail from noon to 2 P.M.
— 7.—Fine, mild, and cloudy throughout. Rain fell in early morning, and again at night.

—— In the neighbourhood of London the reading of the barometer at the level of the sea increased from 30.03 inches at the beginning of the week to 30.57 inches by the evening of March 31, and then turned to decrease, and by the end of the week the reading was 29.74 inches. The mean reading for the week was 30.37 inches, being 0.14 inch above that of the preceding week. The mean daily readings were all above their averages, those for March 31 and April 1 being respectively 0.60 inch in excess.

The highest temperatures of the air at 4 feet above the ground ranged between 47½° on March 28, and 55½° on the 31st, the mean value for the week being 52½°. The lowest temperatures of the air varied from 37½° on March 28, to 44¾° on the 31st; the mean for the week was 41¾°. The mean daily range of temperature in the week was 10¾°, the greatest range being 12¾°, on April 3, and the least 9½°, on the 1st. The mean daily temperatures of the air, and the departures from their respective averages, were as follows:—March 28, 41°.8, −1°.2; 29th, 44°.3, +1°; 30th, 47°, +3°.3; 31st, 48°.4, +4°.4; April 1, 46°.9, +2°.7; 2d, 47°.4, +2°.9; 3d, 46°.4, +1°.6. The mean temperature for the week was 46°, being 2° above the average, as deduced from observations extending over a period of sixty years.

The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in sun's rays, were 98¾° and 101¼° respectively on March 28 and April 2, but on March 31 it did not rise higher than 62°. The lowest readings of a thermometer on grass, with its bulb fully exposed to the sky, were 33½° and 34½°, on March 28 and 29, but on April 1 the lowest reading of this thermometer was 41°; the mean for the week of these low readings was 37½°.

The direction of the wind was generally from the N.W., and its strength gentle.

The weather during the week was dull, mild, and the sky generally overcast, with slight fog on March 31 and April 2.

No rain fell during the week.

In England, the extreme high day temperatures ranged between 61° at Sunderland and 51° at Liverpool, the general average over the whole country being 56°. The extreme low night temperatures varied from 39¾° at Liverpool to 31½° at Bristol, the general average being 35°. The mean of the extreme range of temperatures in the week from all stations was 21°, varying from 27½° at Bristol to 11½° at Liverpool. The mean high day temperatures ranged from 57½° at Sunderland to 49° at Liverpool, with a general average of 52½°. The mean low night temperatures varied from 42½° at Bradford to 37½° at Bristol, with an average value of 40°. The mean daily range of temperature in the week was 12½°, the greatest range being at Bristol, 17½°, and the least at Liverpool, 7½°. The mean temperature of the air for the week was 45°, being ¼° lower than the value for the corresponding week in 1874. The extremes were 47¾° at Sunderland and 43½° at Eccles. Rain fell on one or two days in the week at most stations. The amounts collected were very small, varying from four-tenths of an inch at Manchester to one-hundredth of an inch at Wolverhampton and Leeds. At Blackheath, Birmingham, Newcastle-on-Tyne, and Sunderland no rain fell. The average fall over the country was seven-hundredths of an inch.

The weather during the week was fine, but somewhat dull, and the sky generally cloudy.

In Scotland, the highest temperatures ranged from 58½° at Aberdeen to 53¾° at Glasgow; the lowest temperatures varied between 39½° at Paisley and 32½° at Greenock, their respective averages being 56¼° and 35¼°. The range of temperature in the week was 21°. The mean temperature of the air for the week was 46¾°, being 3° above the value for the corresponding week in 1874. The highest occurred at Dundee and Aberdeen, both 47¾°, and the lowest at Greenock and Glasgow, 45½° respectively. Rain was measured to the amount of 1 inch five-tenths at Greenock, but at Aberdeen and Perth one-tenth of an inch only was recorded. At Dundee no rain fell. The average fall over the country was four-tenths of an inch nearly.

At Dublin, the highest temperature was 55°, the lowest 36°, the mean 47½°; no rain fell.

JAMES GLAISHER.

Garden Operations.

(For the Ensuing Fortnight.)

[The subjoined directions are intended to supply general information, and must, of course, be adapted to the peculiar circumstances of each locality. Other departments of the garden will be treated on from week to week in succession, according to the requirements of the season. Special directions for the management of "The Villa Garden" will be found in the preceding columns.]

PLANT HOUSES.

Plant Stoves. — The number of spring and summer flowering plants that require immediate care at the present time are apt to absorb the attention so much as to leave the autumn and winter insufficiently provided for. There are several winter-flowering subjects that want propagating. Old plants of *Poinsettia pulcherrima* that have been kept dry, to rest them after flowering, should now receive water, and be placed in a growing temperature, previous to which it is necessary to shorten back, if not already done, even such as are only intended to furnish cuttings. There are two methods of growing this fine autumn and winter plant. One is with single growths, in small pots, from spring-struck cuttings, which is the most useful for general purposes; but if for variety or conservatory decoration some of larger size are required, then a portion of the old plants should be cut back to within 6 inches of the pot, and placed in a moderate heat—the temperature should not be high, 60° at night will be enough; they should also be placed where they will get plenty of light, the object with these being to keep the shoots short and stocky, and not at all drawn. As soon as they have broken they should be turned out of their pots, the balls reduced considerably, and repotted with good loam, either in the pots they have before occupied or others larger in proportion to the size of the plants.

Winter-flowering *Begonias* should at once be propagated by cuttings; the old *B. fuchsioides* is very useful either as a decorative subject in the shape of moderate sized plants in 7 or 8-inch pots, or in furnishing drooping flowers for cutting, to be used in large vases—its habit and intense colour rendering it better adapted for this purpose than most of the more recent introductions, but to get it to bloom freely it must be well ripened by growing it through the season where it will receive a full share of light, with sufficient air and the atmosphere not too moist; cuttings put in now in small pots will root quickly, after which move them into 5-inch pots, in loam and a little sand. *B. insignis* may be treated similarly, giving it a little more pot-room. Where a plant of larger growth is required *B. manicata* is useful, requiring similar treatment in propagation and soil, but it needs more root-room; this variety should not have less than a 12-inch pot to flower in. The above *Begonias* are much the best grown from young plants. The bright red-flowered *Sericographis Ghiesbreghtii*, is very useful in the autumn. Cuttings struck now and grown on in loam with a fifth of leaf-soil and a good sprinkling of sand, will make nice sized plants, potting them on without allowing their roots to get pot-bound until in their flowering-pots (8 or 10 inch), stopping them two or three times during the season, so as to induce a bushy habit of growth. *Plumbago rosea.*—Take the cuttings off as soon as they get 6 or 8 inches long, with a heel, or they do not strike so freely as some things; put them singly in small pots, and root them in a moderate heat. This plant is the most useful when grown in loam and a little leaf-soil, as the flowers produced in it are stouter than when grown in peat, to still further assist which it should not be grown too hot or moist, and have plently of light with no more shade than is required to keep its leaves from burning. *Luculia gratissima*, now propagated and kept growing on freely through the season, will make nice small flowering plants by winter, and will be very serviceable for standing about in the conservatory amongst larger things. *Centradenia floribunda* and *C. rosea* are both nice small-sized winter blooming plants, flowering profusely from the base of almost every leaf; cuttings struck now in sand and grown on in heat through the summer will make plants in 6 or 8 inch pots—they will do in either peat or loam.

For suspended baskets the *Æschynanthuses—Lobbianus* and *grandiflorus*, are well adapted, and may be had in nice sized plants in a single season by inserting now a dozen cuttings round the side of a 6-inch pot, drained and half filled with sandy loam and peat in equal parts, the remainder filled up with sand. When the pots are well-filled with roots shift the whole into others 9 inches in diameter; these can then be plunged in wider wooden baskets filled up with moss: so treated they have a nice appearance even when not in flower. The points of their shoots later in the season are very effective, clothed with bunches of brilliant singular-shaped tubular flowers. *Torenia asiatica* is also worth growing as a basket plant for the stove or intermediate house; it comes best from cuttings, struck half-a-dozen in a pot, and grown on in loam—the plants kept stopped for a time until large enough, then allowed to flower, after which destroy them, retaining young newly-struck plants for the ensuing year.

Where elegant, sweet-scented flowers are esteemed for bouquets, a good stock of *Pancratium fragrans* should be grown. It is an easily managed plant, that can be grown without difficulty in the stove, on the shelves of a Pine-house, amongst Orchids, or in any situation where there is a tolerable heat. A succession of its highly fragrant flowers can be secured by the use of several plants introduced into stronger heat from a comparative state of rest. *Franciscea*s that have flowered early will now have made some growth; a few cuttings should be put in of *F. confertiflora*, the almost continuous flowering *F. Hopeana*, and *F. Lindenii*—the latter a beautiful sort, not so well known as it deserves to be. Young shoots, 6 inches in length, taken

off with a heel, will strike readily in a brisk heat in sand, after which pot them on in good peat, to which add one-seventh of sand, as they all like plenty of water whilst growing, and at no time must they be allowed to become dry, or their leaves will suffer. *T. Baines.*

Orchids.—Now that the sun has more power, the East Indian plants will require syringing overhead on fine days, even in dull weather (now the plants have fairly started into growth), and the surface of the pots should have a damping with a syringe or a fine-rose water-can. Most of these plants require a greater amount of atmospheric moisture than heavy root waterings. Plants growing on blocks must be syringed two or three times a-day, but where Sphagnum is used on the blocks they will require less attention in this matter. Shading will be required for most of these plants, using canvas sufficiently thick to exclude the fierce rays of the sun: the blinds must be rolled up immediately all fear of the sun scorching the plants is past. *Dendrobiums* will now require more water at the roots, although water must be administered with care, especially to the delicate rooted kinds; above all, they should not be over-potted, in fact they all appear to succeed best when pinched for pot-room, and with one or two exceptions they require the heat and moisture of the East India house. *D. Cambridgianum, D. Parishii, D. primulinum, D. Wardianum, D. Devonianum,* and many other varieties do best grown in baskets suspended from the roof; such strong growing kinds as *D. densiflorum* and *D. Farmeri* are best grown in pots. The most fibrous peat, sphagnum, and charcoal is the best mixture to grow them in. *D. formosum* should have pieces of charred wood placed perpendicularly in the pot for the roots to cling to, with a very small quantity of sphagnum and peat intermixed between the pieces of wood. Continue to repot and top-dress any plants making new growth. *Cattleya labiata* and *Lælia elegans* require good fibrous peat and good drainage; they should be placed at the warmest part of the Cattleya-house. Growing Cattleyas like plenty of moisture about them, hence it is a good plan to separate them from those not in a growing state. The new and beautiful *C. gigas*, like *C. Dowiana*, appears to succeed best in a day temperature of 60° to 70°. At no time should these plants be subjected to a lower temperature than 55°. They root well in fibrous peat and charcoal, so that what water is given it should be enabled to pass freely off. *Anguloas* and *Lycastes* should now be repotted; they require a greater depth of material to root into than Cattleyas: they nevertheless require a thorough drainage. For potting use a mixture of equal parts of peat and sphagnum with pieces of charcoal the size of nuts mixed with it; both species require a good supply of water at their roots. *Burlingtonias* are seldom seen now in good specimens, though the flowers of most of them are beautiful, and the plants are of easy cultivation. Rather a deep basket, with pieces of charred wood and sphagnum placed rather loosely in the basket, appears to suit them very well. They require plenty of heat and moisture to grow in, especially *B. candida.* This variety should be hung up rather close to the glass in the East India house. As soon as *Odontoglossum citrosmum* opens its flowers, the plants should be removed into a dry house, otherwise the flowers will become spotted. *G. Baker, Clapham Common.*

FLOWER GARDEN, &c.

Parterre and Mixed Garden.—Lawns, grass verges, &c., will now require constant attention. Immediately after heavy rains they will be found in a soft spongy state, and advantage should be taken of this condition to get them beaten down and well rolled previous to cutting the edges, which should be done with great care and regularity. This operation is simple enough to perform if the lines are straight, but requires some little skill if the edgings are curved, or at all intricate. For beds on grass, it may be necessary to re-strike them out from given points instead of trusting the eye and depending on guide-sticks, and in the end it is a saving of time. Choice evergreens may now be transplanted with the greatest safety. Choose dull damp weather for the operation, and in filling in give a good soaking of water, after which cover with dry soil, and mulch over to prevent evaporation. With the genial showers and soft balmy air to be expected during April they will become quickly established, far outstripping any that were transplanted in the autumn, and may have survived the winter.

Where it is desirable to increase any of the above, recourse should be had to layering, and if done now the layers will form nice plants for removal at this time next season. To accelerate the formation of roots, the branches should receive a slight twist previous to layering. Well stir the soil, and bury the branches so operated on to the depth of 5 or 6 inches. Coniferæ and other ornamental trees should now be looked over to see if any have branched off into rival leaders contending for ascendancy. If so, the strongest and best should be selected, and all others cut out, or be made subservient to this, or the beauty and symmetry of the plant will soon be destroyed. Any lateral branches in like manner that are taking the lead, or are making disproportionate growths, should be shortened back. By a little timely assistance in this way the growth will be equalised, and afterwards maintained with great regularity. Severe pruning and undue formality should be strictly avoided, as the natural forms of most trees are far more pleasing than if pruned and trained into shapes not habitual to them.

Herbaceous plants are among the first that come in to cheer us with their blooms, and have a charm and interest possessed by few other plants. It may be necessary to divide and re-arrange many of these, which should now be done. Before replanting, some mild rotten manure or fresh soil should be worked in, as the plants, if strong-growing, will most likely have exhausted that within reach. The double *Pyrethrums* are a most useful class of plants, having showy flowers but little inferior in form and colour to first-class Asters; but flowering in May, when showy flowers are scarce, they are even more valuable. *Pentstemons* have been much improved of late. These, too, make a fine display, and are most valuable for cut flowers. *Alstrœmerias* should not be lost sight of, as they are very showy and lasting. These should be sown where they are intended to bloom, as they are difficult to transplant. Continue to plant *Gladiolus* at intervals, to give a succession of blooms. Cover the bulbs with a little sharp sand, and do not allow them to come in contact with manurial matter, as it will be sure to generate decay. No time should be lost in planting-out *Hollyhocks*, or the spikes will be short and poor. Well enrich the ground previous to planting, and look sharp after the disease that proved so fatal to many last year. Any showing symptoms of being affected should at once be destroyed. Roses that were left unpruned to afford a succession of bloom should now receive that attention, or the plants will suffer a severe check if allowed to get in a more forward state. Seeds of most kinds of annuals and perennials may now be sown. The hardier kinds may be sown outdoors, but all will be found to vegetate better if they can be afforded the protection of glass. Our practice here is to scatter a little light vegetable soil on a hard bottom and sow the seeds in rows, covering with fine soil. They are then protected with any old spare lights, and kept close till they vegetate. Treated in this way they involve little labour, and may be lifted and planted where desired without a check. Sow *Sweet Peas* and *Mignonette* where they are wanted to bloom, and make choice of plants having scented flowers or foliage to plant or sow near the margins of walks or entrances to dressed grounds, to exhale their pleasing fragrance. Such plants as the following, and other hardy edging plants, should now be planted, to save time at a more busy season:—*Polemonium, Echeveria secunda glauca, Sempervivums* of sorts, *Golden Thyme, Stellaria, Cerastium,* &c. The bedding season is fast approaching, and little time remains for propagating. If the stock is still deficient their increase must now be pushed on vigorously. Such things as *Alternantheras, Iresine, Coleus,* &c., may be propagated for some time longer. *J. Sheppard, Woolverstone Park.*

FRUIT HOUSES.

Melons.—The first batch are just setting a fair crop of fruit on the first laterals. During the period of setting a much drier condition of both the roots and atmosphere is necessary; indeed, the plants should only receive as much water as will prevent flagging, and the temperature, both night and day, should be increased by 3° or 4°. Fertilise the female blossoms every day, at the same time nip out the growing points at two or three joints above the fruit. Directly the fruits begin to swell off give them a good soaking, and about the next day earth up the roots with good rich compost, ramming it down fairly tight. If it is perceived that one or two of the fruits on individual plants lead the rest, they should be removed forthwith—unless, indeed, very early Melons are desired regardless of a full crop. In regard to later plants, continue the general treatment advised in previous Calendars, using more moisture as the days lengthen and the power of the sun increases. Apply the syringe moderately, about 3 P.M., on bright warm afternoons. Apply good thick linings to pits and frames where the bottom-heat is found to be on the wane, and afterwards be careful to allow the escape of rank heat and steam, and especially when the sun shines. Be careful also not to overcrowd the foliage; every alternate lateral may, at least, be removed with the thumb and finger directly they are perceived, and the remainder should be trained at right and left angles from the primitive stem. The points of these laterals should be nipped out at the fourth or fifth joint, and if any fruits show on the first laterals they should be removed if a crop is desired. The original stem should be stopped after it has advanced two-thirds of its distance. Employ a good thick night covering, and beware of slugs. Sow for succession. *Thos. Simpson, Chelmsford.*

Pines.—Suckers or disrooted plants which were started in March will soon require shifting into larger pots. Our usual practice is to shift from the sucker pots into the fruiting ones. We have proved this mode, which does not involve so much time, to be attended with better results than that of making more shifts, excepting it be in the case of very small plants, when it is not to be recommended. If, as advised in the Calendar for the week ending February 27, pots of from 5 to 8 inches in diameter were used for the plants in question, these sizes will afford a suitable shift into the fruiting ones of 9, 11, and 12 inches in diameter, as may be necessary, having due regard to the size and variety of plants requiring them. The pots should be clean inside, and drained with clean crocks about an inch deep, of moderate size, which, when placed, should have a dash of wood ashes over them. At the time of potting, which should take place as soon as the sucker-pots are fairly well filled with roots, take advantage of the occasion when the plants are removed to replenish the bed, if it be needful, in the case of those which are composed of fermenting materials. Much experience is requisite to avoid having an unnecessary degree of heat in the bed, which oftentimes proves to be detrimental, and procrastinates the plunging of the plants at a time when it is much to be desired for the purpose of assisting the roots to take hold of the fresh soil. If 80° should be the minimum of a tan-bed, merely turning it about a foot deep will suffice; if a lower degree exists, add a foot of fresh tan, and well mix it with the old to the same depth as before named. Where leaves are employed they will require to be turned over deeper. A temperature of 95° at the base of the pots is the best standard for newly potted Pine plants in all stages of growth. The beds wherein other plants are plunged should not be allowed to exceed 90°, beyond this point there is great danger of injury to plants with roots in an active condition at the sides of the pots, as will now be the case with fruiting plants. Keep the air about such plants well charged with moisture during the time the house is closed; use no more fire-heat than is absolutely necessary to maintain the requisite degree of heat, namely, 70° at night and 75° on mild nights. Slightly ventilate the house at 80°, at 90° do it liberally; close with sun-heat at about 85°, and syringe the plants, excepting those which are in bloom at that time. Skilful watering is most essential to insure success, and can only be effected in this manner, by examining the state of the soil in which the plants are growing. This should be done about once every week at this season. *G. T. Miles, Wycombe Abbey Gardens.*

Vines.—The season and manner of planting has very much to do with the after success of all kinds of trees and shrubs; and as I consider this the very best season for the planting of Vines, I will explain the best way of doing the same. It is presumed that the Vines to be planted are in 8 or 10-inch pots, and propagated from eyes of last year; the canes having been cut back in December last, and, having been kept in a cool house, or pit, the buds will now have started, and in some cases, perhaps, be several inches long; but, notwithstanding, they should be entirely shaken out of the pots, every particle of soil removed, preserving all the small fibrous roots, and, if any, shortening back the long hard woody ones. The soil of the border having been made to the desired height, place the Vines in position, spreading out the roots perfectly flat, and cover them with soil to a depth of 4 or 6 inches, working it well about the roots with the fingers; afterwards give them a good watering with warm water, and mulch with a little soil or dung. Do not attempt to force growth immediately after planting, but let them, as it were, take their own time. A good start is everything, and a high temperature, before new roots are being made, prevents this. They should be sprinkled or syringed two or three times a-day, according to the weather, guarding, on the one hand, against a stagnant, overmoist atmosphere, and on the other an arid or parching one. Young Vines that were planted last spring will now be breaking naturally, and as soon as the buds are well pushed—say, half an inch long, will be much benefited by a little fire-heat, especially on cold nights. Rub all buds off but one at each "break" as soon as it can be seen which is the best, and crop but lightly. Of course any supernumeraries may be fruited heavily. See that the borders have plenty of water; half the failures in Vine growing arise from a too scanty supply of this. That terrible pest "shanking" is, I believe, generally caused by drought. In succession houses let the bunches and berries be thinned betimes, for be it remembered that just so long as these superfluous bunches and berries remain on the Vine they are drawing on the supplies that would otherwise go to the improvement of the permanent crop. Where Grapes are fully ripe a reduction in temperature may take place with advantage; but it will still be advisable to keep up a little air moisture for the benefit of the foliage, and to keep in check red-spider, which

always thrives in a dry atmosphere. At this season of the year, air moisture is not injurious to ripe Grapes, provided the air is changed daily by free ventilation. *W. Wildsmith, Heckfield.*

Cucumbers.—Plenty of energy, by way of stopping and training, and cutting over the old growths, together with abundant waterings, is now and henceforth the order of the day in this department. Plants that have been in bearing all through the autumn and winter, now need to be thoroughly renovated at the roots. Proceed with a hand-fork to remove as much of the sour and exhausted soil as is possible without much injuring the roots, and replace with a good rich lumpy compost, previously warmed, pressing it down moderately firm. We may shortly expect plenty of sun, and it is more than probable, after the almost sunless period we have lately experienced, that the foliage will flag under its power, and in the case of Cucumbers, flagging is an evil. Let the blinds be in hand at once, therefore, to be employed for an hour or two at mid-day when the sun is at its brightest. Thin canvas is the best and cheapest material, and should be tacked on light rollers. See that the rollers work even and well. Expel worms by means of weak doses of lime or soot water, and be ever on the alert for canker at the collar and in the old growths. Assist plants in good bearing by frequent doses of weak liquid manure, and an occasional earthing up of the roots. Damp the floors and pipes about 7 A.M. and 3 P.M. The foliage may also be gently syringed early on warm afternoons, and the evaporating troughs be regularly charged. Sow a pinch of seed from time to time, in case of accident. Also sow at once for ridging out under hand-lights early in May. Maintain previously advised temperatures. Keep a good degree of heat in pits and frames, and apply good linings. Train and peg out the growths, and still be moderate in the application of water over the foliage, for the nights, for the most part, are still very cold. Dust flowers of sulphur about the frame as a preventive against mildew and spider, and employ good thick night coverings. *Thos Simpson.*

HARDY FRUIT GARDEN.

All operations in the way of grafting should now be followed up and completed as fast as possible. Owing to the unusual coldness of the weather fruit trees and stocks are only now beginning to move freely, and if scions of *Apples, Pears,* &c., have been taken off earlier in the season, as before recommended, they will be more likely to do well than if put on before the sap is fairly in action. *Figs* may now be pruned and nailed, or tied in, as required, bearing in mind only to thin out the least fruitful shoots, those retained for bearing being allowed to grow loosely from the wall, and stopping at three or four eyes on the young wood when sufficiently grown. This will materially assist the swelling fruit, and induce the trees to break and produce short-jointed shoots from the base of those in bearing. *Apricots* generally are now out of bloom, and as there have been no severe frosts the fruit is well set and commencing to swell. When heavy covering has been resorted to this should be turned off in all favourable weather, so as to let in all the light and sun to the trees, but keeping the covering materials at hand so as to be readily put on when any indications of frost occur. *Peaches, Nectarines,* and *Plums,* now in full bloom, should also have all the light and air that can be allowed consistent with safety. The next fortnight will be a trying period for the cultivator of hardy fruits, as on the attention and requisite protection afforded during this period will depend the production or failure of the fruit crop for the season. *W. Cox.*

Enquiries.

He that questioneth much shall learn much.—Bacon.

45. Vegetable Tar. — How would the common vegetable tar, without any admixture, answer to protect young trees from rabbits? It has been recommended to us, and we are trying it this season for the first time, but cannot yet speak as to its results. *E. O. M.*

Answers to Correspondents.

Bee-Keeping: *A. Barnwell. Bee-Keeping for the Many* (171, Fleet Street) is an excellent guide for a beginner.

Convolvulus Batatas, etc.: *W. W. C.* The four plants you mention are totally distinct from each other.

Exchange: An Italian gentleman is desirous of procuring Nos. 120 and 124 of Trimen's *Journal of Botany,* for which he offers seeds in exchange. Apply to the Editors.

Insects: *T. M. G.* The insect found in the middle of a Potato is the common wireworm, or larva of Elater segetum. *I. O. W.*

Lapageria: *A. D.* Yes. You should have sent us a flower of the Cactus. We cannot name such scraps without.

Maggots in Manure: *A. N.* The cheapest and most effective method of disposing of maggots and worms, which are so abundant in your manure-heap, is to mix with the manure about a sixth part of gas-lime, to be had at all gasworks at a nominal charge. Turn the heap over the second time after applying it, and use at once.

Names of Plants: *W. S.* 1 and 2 are varieties of Rhododendron arboreum; 3 we do not recognise: it is probably a garden hybrid.—*Hibernica.* Anemone hortensis, we believe; but cannot say for certain without leaves.—*W. T. P.* Populus tremula.—*D. A.* 1, in the absence of all information respecting the specimen sent, it appears to be Chamærops humilis, but it is absurd to expect the name of a Palm without sending or describing the leaves, &c.; 2, Dendrobium nobile, a good variety.—*W. H. S.* 1, Dendrobium fimbriatum (orange); 2, Dendrobium chrysotoxum.—*J. Y. J.* 1, Solanum aculeatissimum; 2, Tecoma Stans, var. apiifolia; 4, Heeria mexicana; 5, Gelsemium nitidum. No, 3 we have failed to determine, but if you will send a better specimen, and its country, we will try again. The Melastomaceæ are such an exceedingly difficult order, that it is almost useless to attempt the naming of imperfect specimens. It is much too bad of correspondents to expect us to name plants from flowers alone, without any remarks upon country, habit, mode of flowering, or other details that might easily be given; such remarks would enable us to give names with much greater certainty, and with far less trouble.

Onion Twitch: *G. Allen.* The plant sent under this name is known to us as the "Onion Couch"—Arrhenatherum avenaceum, var. bulbosum. There is a figure and description of it in the *Agricultural Gazette* (7, Catherine Street, W.C.), Nov. 21, 1874, p. 1491.

Orange Leaves: *R. Pickering.* Yes; very large. What is the variety?

Peaches not Setting: *J. H.* It is impossible to say why one tree in a house should set its flowers well, whilst the next does not, without actual observation, and perhaps not then. It is sometimes owing to excess of vigour, and sometimes to a check of some sort. The Newington Peach is not only a bad cropper in general, but a very bad Peach altogether. It is a clingstone, and not suitable for a house. We should remove it.

Pine: *Mrs. Hall.* The fruit sent is in a very poor state, and the stem is dead, but where the cultivation is at fault it is impossible for us to state without some information, which you do not give.

Pinus: *A. H.* We cannot name this. We have shown it to one or two experts, who, like ourselves, are puzzled. If our correspondent could send us a cone, we might then recognise it. Now we do not. *A. M.*

"Sheughing."—In my article on Forestry of the 29th ult. I regret to see that I have quite failed to convey the meaning of the term "sheughing," which, though a Scots phrase, I thought was generally understood across the border. Heeling-in and earthing-in plants are, I believe, the English terms used for our term sheughing-in. The reader will, therefore, please read for "shingling-in" and "strengthening," "earthing-in." For "Birch," also, when used throughout the article, read "Beech." In the paragraph on summer pruning, line twenty-sixth from bottom, read "sap-wood," for "sap." *C. Y. Mechie, Cullen, April 6.*

Vines: *T. Jones.* We cannot trace or discover any cause for your failures. The soil seems to be perfectly good; no fungus apparent. If we were to hazard an opinion in any way, we would say it was somewhat too rich; your old Barbarossa growing at the one end leads to this belief. If you plant new Vines, we should think that the same soil, well turned over and pulverised by the weather, would again answer.

Vines Bleeding: *F. A.* Apply Thomson's Styptic, which you can get from any nurseryman or seedsman.

*** Correspondents are specially requested to address, post-paid, all communications intended for publication to the "Editors," and not to any member of the staff personally. The Editors would also be obliged by such communications being posted as early in the week as possible. *Letters relating to Advertisements, or to the supply of the Paper, should be addressed to the Publisher,* and not *to the Editors.*

☞ Foreign Subscribers.—We are requested by the Publisher to desire Foreign Subscribers sending Post Office Orders, to be good enough to write to the Publisher at the same time.

Erratum.—Instead of "Whitfieldias," in my remarks on "Gardenia Stanleyana" (p. 440), read "Whitfield's plants." *Robert Bullen.*

Communications Received:—M. U. W.—W. M.—F. A.—W. S.—E. W.—An Old Subscriber.—G. Lee.—Amateur.—T. H. S.—G. D. W.—W. Cross (thanks).—R. Anderson (there is now a whole race of such Gloxinias).—Ferndene.—F. C. Heinemann (your flowers have not yet arrived).—G. E. O.—R. H.—H. L. & Co.—A. B. M.—D. F. F.

Markets.

COVENT GARDEN, April 8.

A light supply, and a trifling advance in the price of vegetables from the open air; those from under glass remain nearly as last week, comprising Seakale, Asparagus, French Beans, and frame Potatos. In the fruit market we have not anything special to report. Strawberries and hothouse Grapes, not yet being in general request, are rather easier; some fair samples of each are to hand this week from Jersey. *Thos. Taylor, Wholesale Apple Market.*

Fruit.

	s. d.	s. d.		s. d.	s. d.
Apples, per ½-sieve	3 0–	4 0	Oranges, Malta, per dozen	2 0–	3 0
Grapes, English, per lb.	10 0–	20 0	Pears, p. doz.	4 0–	12 0
— foreign, do.	1 6–	4 0	Pine-apples, p. lb.	3 0–	6 0
Lemons, per 100	8 0–	12 0	Pomelees, each	0 6–	1 0
Nuts, Cob, p. lb.	2 0–	0	Shaddocks, each	2 0–	3 0
Oranges, p. 100	8 0–	12 0	Strawberries, per oz.	1 0–	2 0
— Tangierine, doz.	1 0–	2 0	Walnuts, p. bush.	16 0–	

Vegetables.

	s. d.	s. d.		s. d.	s. d.
Artichokes, Fr., doz.	4 0–		Lettuces, per doz.	1 6–	
Asparagus, English, per bundle	8 0–	12 0	Mint, per bundle	1 6–	
— French, p. bund.	20 0–	30 0	Mushrooms, per pott.	1 0–	2 0
Beans, French, p. 100	4 0–		Onions, young, bun.	0 4–	0 6
Beet, per doz.	1 0–	2 0	Parsley, per bunch	0 9–	1 0
Cabbages, per doz.	1 0–	2 0	Parsnips, p. doz.	0 9–	1 0
Carrots, p. bundle	0 6–	0 9	Peas, per quart	8 0–	
— French, do.	2 0–		Radishes, per bunch.	0 2–	0 4
Cauliflowers, per doz.	2 0–	6 0	— black, Turnip, do.	–	0 6
Celery, per bundle	1 6–	2 0	Seakale, per bundle	2 0–	3 0
Cucumbers, each	1 0–	2 6	Shallots, per lb.	0 3–	
Endive, per doz.	1 0–	2 0	Salsify, per bundle	1 6–	
Herbs, per bunch	0 2–	0 4	Sprue, French, bund.	1 6–	
Horse Radish, p. bun.	3 0–	5 0	Turnips, per bundle.	0 6–	
Leeks, per bunch	0 2–	0 4	— French, p. bund.	2 0–	

Potatos:—Early Shaws, 120s.; Early Regents, 120s.; and Early Dons, 120s. per ton.

Plants in Pots.

	s. d.	s. d.		s. d.	s. d.
Azaleas, per dozen	24 0–	60 0	Heaths, in var., doz.	12 0–	30 0
Begonias, do.	6 0–	12 0	Hyacinths, per doz.	6 0–	18 0
Bouvardias, do.	9 0–	18 0	Lily of the Valley, 12 sprays, about	2 0–	5 0
Cineraria, do.	6 0–	15 0	Mignonette, do.	6 0–	9 0
Cyperus, do.	6 0–	12 0	Myrtles, do.	3 0–	9 0
Deutzias, do.	8 0–	18 0	Pelargoniums, dble., per doz.	6 0–	12 0
Dracæna terminalis	30 0–	60 0	— Scarlet, do.	6 0–	9 0
— viridis, per doz.	12 0–	24 0	Primula sinensis, do.	6 0–	8 0
Epiphyllums, each	1 6–	3 6	Solanums, do.	6 0–	18 0
Ficus elastica	1 6–	7 6			
Fuchsia, per doz.	9 0–	18 0			

SEEDS.

London: *April 7.*—A very brisk demand now prevails for Clover and other seeds, the weather having lately been so favourable for agricultural purposes. Stocks of red Clover have now got quite low, and prices consequently keep exceedingly firm. In Alsike no further downward movement has taken place. White Clover meets a good inquiry at unchanged rates. In Trefoils a large trade has been doing, at slightly enhanced currencies. More money is asked for perennial Rye-grasses. For foreign Italian quotations keep very steady. Quite a revived demand has set in for spring Tares, which has about cleared the market at an advance of 1s. to 2s. per qr. The same remark can be applied to Sainfoin seed. Canary, Hemp, and Millet seeds show no change on the week. For large blue boiling Peas there is a good inquiry. Lucerne is noted 2s. per cwt. dearer. There is a scarcity of fine English Linseed. Mustard and Rape seed begin to excite increased attention. *John Shaw & Sons, Seed Merchants,* 37, *Mark Lane, E.C.*

CORN.

At Mark Lane on Monday there was little English Wheat on offer, and rates were quoted 1s. higher. Barley was dull, and prices were maintained with difficulty. Malt remained without improvement. Sound Oats were scarce, and factors were enabled to demand an enhancement of 6d. per quarter from last Friday. Maize was from 1s. to 1s. 6d. per quarter dearer on the fortnight. Beans and Peas were steady on former terms. For flour the rates of Friday last were not exceeded.—The market on Wednesday was quiet, and prices remained steady. Wheat sales had a tendency to improve. Barley, however, was dull, and easy in value, while malt was rather flat. Oats were somewhat less steadily dealt in. Maize was firm, and a little dearer than on Monday; but the quotations for Beans and Peas were with difficulty maintained. Flour was held for extreme currencies.—Average prices of corn for the week ending April 3:—Wheat, 42s. 5d.; Barley, 41s. 3d.; Oats, 30s. 3d. For the corresponding week last year:—Wheat, 60s. 3d.; Barley, 48s. 9d.; and Oats, 28s. 2d.

HAY.

The Whitechapel market report states that trade has been good, especially for the better kinds of hay, prices having an improving tendency. The supplies on offer were short. Prime Clover realised from 100s. to 127s.; inferior do., 85s. to 95s.; prime meadow hay, 90s. to 120s.; inferior do., 55s. to 75s.; and straw, 35s. to 40s. per load.—Cumberland Market quotations:—Superior meadow hay, 120s. to 130s.; inferior, 90s. to 110s.; superior Clover, 120s. to 130s.; inferior, 100s. to 115s.; and straw, 40s. to 45s. per load.

POTATOS.

The Borough and Spitalfields Markets reports state that the supply of Potatos on sale was moderate, but the trade very slow, at about former prices. Regents, 75s. to 102s.; Victorias, 100s. to 140s.; Flukes, 105s. to 155s.; Rocks, 60s. to 70s. per ton.—The imports of foreign Potatos into London last week consisted of 16,712 bags from Antwerp, 1,049 tons and 4668 bags from Dunkirk, 203 tons from Rouen, 800 sacks from Boulogne, 300 bags from Hamburg, 10 bags from Rotterdam, and 80 casks from Malta.

COALS.

There was a short supply of house coals in the market on Monday, and the price advanced 1s. per ton in best sorts, and 6d. to 1s. per ton in seconds. Hartley's were 6d. per ton lower. On Wednesday there was a short supply on offer, and as a consequence the price advanced 2s. per ton.

VIENNA PRIZE WIRE NETTING.

Awarded The Medal For Merit

At Vienna, 1873.

CAUTION TO BUYERS
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The great reputation and success of Messrs. J. B. BROWN AND CO.'s VIENNA PRIZE WIRE NETTING seem to have induced certain Dealers in Wire Netting to advertise an inferior article at reduced prices, specifying the mesh, gauge, &c., as if such were the same in quality and value as the Prize Wire Netting of which Messrs. J. B. BROWN & Co. are THE SOLE MANUFACTURERS.

Messrs. BROWN & Co. would suggest that, before ordering quantities, one roll of their Wire Netting should be ordered and one roll of that advertised at reduced prices. The size and shape of the mesh may then be examined, the thickness or strength of wire, the weight of the rolls and the exact measurements, the general finish of the manufacture, and the quality of the galvanising.

This examination will prove the respective qualities of the Netting.

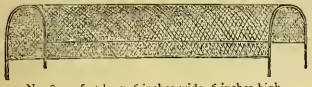
90, Cannon Street, London, E.C.—March 12.

TANNED GARDEN NETTING, 1*d.* per Square Yard, for Protecting Seed-beds, Peas, Fruit, Strawberries, &c., from Birds, Frost, Blight, &c., and as a Fence for Fowls, in 1, 2, 3, and 4-yards widths. Hexagon, Tiffany, and other Netting, Galvanised Wire Netting, Pea Hurdles, and Seed Protectors, by
C. WRIGHT, 29, Lime Street, E.C., late 376, Strand, W.C.

Thomas' Pea and Seed Guards.

Reduced Prices for the remainder of this Season.
SUPERIOR QUALITY. GALVANISED AFTER MADE.
NEW PATTERN with Diagonal Stays.
No. 76. 3 feet long, 6 inches wide, 6 inches high.

THE DIAMOND PATTERN,
With one Longitudinal and two Cross Stays.



No. 80. 3 feet long, 6 inches wide, 6 inches high.

Both of the above patterns 9s. per dozen.
Two end-pieces included with each dozen.
Having a large Stock of the above, Orders can be executed on receipt.
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NETTING for FRUIT TREES, SEED BEDS, RIPE STRAWBERRIES, &c.
TANNED NETTING for protecting the above from Frost, Blight, Birds, &c., 2 yards wide 3*d.* per yard, or 100 yards, 20*s.*; 4 yards wide, 6*d.* per yard, or 50 yards, 20*s.*
NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls, 2 yards wide, 6*d.* per yard; 4 yards wide, 12. per yard; ¾-inch mesh, 4 yards wide, 12. 6*d.* per yard.
TIFFANY, 6*s.* 6*d.* and 7*s.* 6*d.* per piece of 20 yards.
EATON AND DELLER, 6 & 7, Crooked Lane, London Bridge.

Window Glass, Sheet Lead, Paints, &c.
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Can be obtained in all sizes and qualities, of
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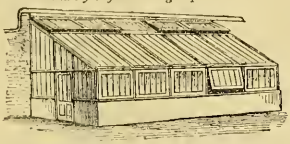

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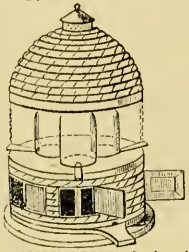

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Agents for Straw, Woodbury, and other Hives and Supers, made by James Lee, at his prices.
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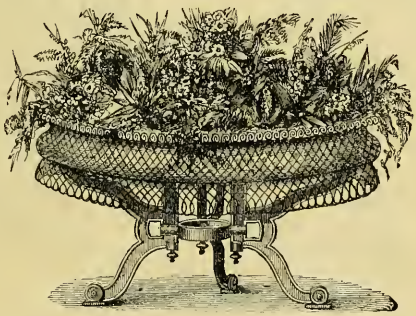

For Conservatories fitted up with this Flower Stand, see Catalogue.

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Manufactures—FLOWER STANDS, BASKETS, TRELLIS for Creepers, ESPALIERS, WALL WIRING for Fruit Trees, ARCHWAYS, COVERED-WAYS, ROSERIES, WIRE FENCING, &c.; FOUNTAINS and WATER CONDUITS for Garden Decoration. *See Illustrated CATALOGUE of Designs.*

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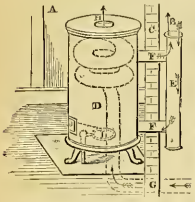
Warming and Ventilating Small Conservatories.



COAL CALORIGEN, £6 6s.
Height, 36 inches; diameter, 21 inches.
GAS CALORIGEN, £3 3s.
Height, 28 inches; diameter, 14 inches.

The only Gas Stove in which the product of combustion is entirely excluded from the Conservatory, while a constant stream of warmed, not burnt, fresh air is introduced. The "Coal Stove" consumes the smallest amount of Fuel—*ad.* per diem being the average cost. It will be found very valuable in the Nursery or Sick Room, Damp Buildings, Conservatories, Offices, &c. Exhibited at the Exhibition of 1871 (Department of Scientific Inventions).

Illustrated Prospectuses and Testimonials on application.

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This Stove introduces a strong current of warmed (not burnt) fresh air.

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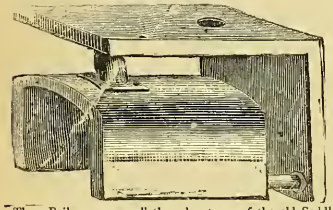

These Boilers possess all the advantages of the old Saddle Boiler, with the following improvements—viz.: the water space at back and over top of saddle increases the heating surface to such an extent that a "PATENT DOUBLE L SADDLE BOILER" will do about twice the amount of work with the same quantity of fuel; the cost of setting is also considerably reduced, and likewise the space occupied; at the same time these Boilers are simple in construction, and being made of wrought iron, are not liable to crack. They are made of the following sizes:—

Sizes.			To heat of 4-in. Pipe.	Price.
High.	Wide.	Long.	Feet.	£ s. d.
20 in.	18 in.	18 in.	300	7 0 0
20 ,,	18 ,,	24 ,,	400	8 0 0
20 ,,	18 ,,	30 ,,	500	9 0 0
24 ,,	24 ,,	24 ,,	700	12 0 0
24 ,,	24 ,,	30 ,,	850	14 0 0
24 ,,	24 ,,	36 ,,	1,000	16 0 0
24 ,,	24 ,,	48 ,,	1,400	20 0 0
28 ,,	28 ,,	60 ,,	1,800	25 0 0

Larger sizes if required.

From Mr. CHARLES YOUNG, *Nurseries, Balham Hill, S.W., May* 29, 1873.

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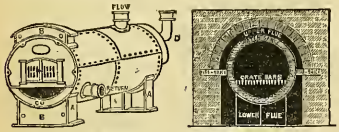

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After long experience, has proved the most Simple, Economical, Effectual, and Lasting Boiler extant; recently much improved. For Illustrations, with full particulars, apply to the Sole Makers,

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4-inch Pipe, per yard	..	..	.. 3s. 4½d.
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Connections at proportionate prices.

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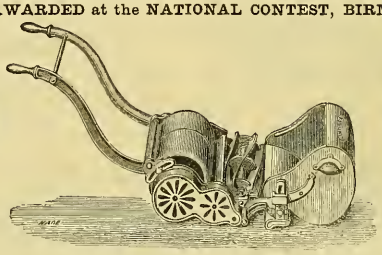

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"GOLD MEDAL" BOILER (Birmingham, 1872).
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LAWN MOWER (S. EDWARDS' PATENT).

WINNER OF THE GOLD MEDAL AT THE NATIONAL LAWN MOWER CONTEST, BIRMINGHAM, July 8, 1874.

FIRST PRIZE. GOLD MEDAL.

WINNER OF SEVEN First Prize Medals, FROM Sept. 17, 1873, TO Sept. 24, 1874.

The Wood Rollers can be used either at the Front or at the Back of the Cutters. It will do all that any other Lawn Mower can do, of whatsoever make or description.

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Prices, 25s.	50s	70s.	£4 10s.	£5 10s.	£6 5s.	£7	£8 10s., Carriage Paid.

SOLE MAKERS:
JOHN CROWLEY & CO., Meadow Hall Ironworks, near SHEFFIELD.

WANTED, a MAN to take charge of Houses in which Palms, Ferns, Azaleas, &c., are grown. With a nursery training preferred.—DRUMMOND BROTHERS, Larkfield Nursery, Edinburgh.

WANTED, an active and strictly sober MAN, of good address, to take Charge of a Small Pleasure Ground, where Shrubs, Cut Flowers, &c., are sold. Must have a good knowledge of Flower Gardening. Salary would be increased and every encouragement given where talent and energy are displayed.—Apply, stating wages required, &c., to THOMAS EVES, Gravesend Nurseries.

WANTED, TWO or THREE good NURSERY HANDS—such as can use the knife well, and make themselves useful. Permanent situation. State wages and reference to R. AND F. ALLUM, Nurserymen, &c., Tamworth.

WANTED, a steady active young MAN, to assist in the Work of Greenhouses. One accustomed to a Market Nursery preferred. State wages and all particulars.—H. BOYCE, Clapham Road Nursery, S.W.

WANTED IMMEDIATELY, a steady respectable young MAN used to Growing Soft-wooded Plants for Market.—JOHN TURTLE, The Nurseries, Welling, S.E.

WANTED, two young MEN used to Tying and Potting.—Woodside Nurseries, North Finchley, N.

To Florist and Seedsmen's Assistants.

WANTED, a young MAN, to Serve in a small shop in the City.—19, Change Alley, E.C.

Isle of Man Lunatic Asylum.

WANTED, as GARDENER ATTENDANT, a strong, active, and willing Man, well accustomed to Kitchen Gardening. Wages to commence at £25 a year, with uniform, and board and lodging in the Asylum. Also an ATTENDANT, with a knowledge of Flower Gardening. Wages to commence at £24, with uniform, board, lodging, &c.—Dr. HARRISON, as above.

WANTED, TWO young MEN used to Potting and Tying.—A. B., Mrs. Terry, Stationer, High Street, Clapham, S.

WANTED, TWO good NURSERY LABOURERS: state wages, reference, and age. Also a CARTER.—GEORGE J. WOOLLETT, Nurseries, Caterham, Surrey.

WANTED, in North Wales, a MAN who understands Making and Maintaining Live Fences, and is willing to turn his hand to any other work connected with Plantations. If married he would have a Lodge with good Garden and 16s. a week.—Mr. SCOON, Hafodunos, Abergele.

WANTED, a respectable young MAN, to Milk One Cow and Work in the Garden.—G. WHEELER, St. John's Lodge, Regent's Park, N.W.

WANTED, an INVOICE CLERK, who has been accustomed to the Seed Trade. Must write a good hand.—Apply, by letter, stating age, salary required, and testimonials, to HURST AND SON, 6, Leadenhall Street, London, E.C.

WANTED, a Youth, as JUNIOR CLERK.—Mr. WILLIAM BULL'S Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

WANT PLACES.

To Gardeners in Want of Situations,
WHOSE CHARACTERS WILL BEAR STRICT INVESTIGATION.

THE PINE-APPLE NURSERY COMPANY devote special attention to this important matter—proper Men to suitable Situations. For a GARDENER, or for a SITUATION, please send full particulars to Mr. JOHN BESTER, the Pine-Apple Nursery Company, Maida Vale, London, W.

B. S. WILLIAMS, having at the present time several very excellent GARDENERS upon his Register, is desirous of placing them in Situations where great experience and trust are required. B. S. W. would at the same time beg to intimate that when a Gardener is applied for that the filling of the situation should be left with him, as that would prevent unnecessary correspondence and delay.—Victoria and Paradise Nurseries, Upper Holloway, London, N.

Head Gardeners.

JOHN LAING can at present recommend with every confidence several energetic and practical Men, of tested ability and first-rate character. Ladies and Gentlemen in WANT of GARDENERS and BAILIFFS, or GARDENERS for First-rate Establishments or Single-hand situations, can be suited, and have full particulars by applying at Stanstead Park and Rutland Park Nurseries, Forest Hill, London, S.E.

Gardeners and Under Gardeners.

WM. CUTBUSH AND SON beg to state that they have at all times on their Books MEN of VARIOUS QUALIFICATIONS, whose characters will bear the strictest inquiry. Any Gentleman making application would save time by clearly stating the duties to be undertaken, wages offered, &c., so that suitable Men may be selected.—Highgate Nurseries, London, N.

To Noblemen and Gentlemen.

GARDENER (HEAD), age 29.—T. PENFOLD wishes to recommend his Foreman as above. He has had thirteen years' practical experience in Forcing, Orchid and Stove Plant Growing, and Gardening in General.—J. S., The Gardens, Beddington House, Croydon, Surrey.

GARDENER (HEAD), age 30, married, one child.—A GENTLEMAN can with confidence recommend his late Head Gardener to any Lady or Gentleman requiring the services of a thoroughly practical Man.—A. B., 12, Devonshire Street, Hammersmith Road, London, W.

GARDENER (HEAD).—Age 39, married; twenty-five years' experience in Forcing all kinds of Fruits, Flowers, and Vegetables, also good Kitchen and Flower Gardener. Good references.—J. D., 13, Church Road, Hammersmith, W.

GARDENER (HEAD), age 40, married, two children.—W. JOHNSON, Foreman in the Moat Nursery, East Grinstead, is open to re-engage with any Nobleman or Gentleman requiring the services of a thoroughly practical Working Gardener; thoroughly understands the profession. Over three years' good character from present employer.

GARDENER (HEAD).—Age 40, married, no family; well skilled in all branches of the profession.—A. C., Mr. Roache, Twyning, Gloucestershire.

GARDENER (HEAD).—Age 44, married, no incumbrance; thoroughly understands every branch of Gardening, also Land and Stock. Three years' good character from the Gentleman he has left.—J. J., Mr. Pitts, Holmesdale Road, Reigate, Surrey.

GARDENER (HEAD).—Married, one child; a good practical Working Man, of great experience in the Growth of Stove and Greenhouse Plants, Grapes, Melons, Cucumbers, Kitchen Gardening, Pleasure Grounds, Stock, &c. Wife good Dairywoman. Good personal character from present employer.—D. H. RUSHETT, Faversham, Kent.

GARDENER (HEAD).—Scotch; thoroughly acquainted with the general routine of Hothouses, Kitchen and Flower Gardening, Laying-out and Remodelling of Pleasure Grounds, &c. Can produce first-class testimonials from leading places in Scotland, England, and Ireland.—J. M., 2, Henderson Place, Bonnington, Leith, Edinburgh.

GARDENER (HEAD), where three or more are kept.—Age 30. Thoroughly practical in the Cultivation of Orchids, Stove and Greenhouse Plants, Early and Late Forcing, and every branch of the profession. Good references. Neighbourhood of London preferred.—J. A., 28, King Stable Street, Eton, Windsor.

GARDENER (HEAD), where three or more are kept.—Age 30, single; thoroughly practical in all branches of the profession. Five years' good character.—Bishops Hall Gardens, Lambourne, near Romford, Essex.

GARDENER (HEAD), married.—JOHN DERRICUTT, over nine years Gardener to the late Robert Hannay, Esq., is now open to an engagement in a first-class Establishment. Reference to late employer's brother, also to previous employers, if required.—The Gardens, Springfield, Ulverstone, Lancashire.

GARDENER (HEAD, or SINGLE-HANDED).—Age 45, married, one child (age twelve); well acquainted with Gardening in all its branches. Wife a thorough Laundress. Good references.—C. M. C., The Gardens, Ankerwyck, near Staines.

GARDENER (HEAD, or good SINGLE-HANDED).—Married; thoroughly understands the profession. Ten years' experience. Good reference and testimonials as to ability. Abstainer.—Apply, stating wages, &c., GARDENER, Floyds, Oakleigh Road, Whetstone, Middlesex, London, N.

GARDENER (HEAD, WORKING), where two or more are kept.—Age 25, married, one child; understands Gardening in all its branches. Five and a half years' good character.—H. TRUELOVE, Leigh Park, Havant, Hants.

GARDENER (HEAD, WORKING).—Age 35, married, two children; understands the entire Management of a Gentleman's Garden. Three and a-half years' unexceptionable character from last situation; eleven years in the family; satisfactory reason for leaving.—J. G. HAROLD, Nurseries, Sittingbourne, Kent.

GARDENER (HEAD, WORKING).—Age 30, married, two children; thoroughly understands Flower and Kitchen Gardening, Stove and Greenhouse Plants, and all kinds of Fruit. Two and a half years' good character. Leaving through death in family.—J. H., 6, Arhour Lane, Springfield, Chelmsford, Essex.

GARDENER, where two or three are kept.—Age 37; understands the profession in all its branches. Good reference.—T. C., A. Garfits, Esq., Scothorne, Lincoln.

GARDENER, under a Foreman, in the Houses in a large Establishment.—Age 21. Eighteen months in last place. Good character.—Y. Z., Post Office, Esher, Surrey.

GARDENER, under a Foreman in a Gentleman's Garden.—Age 21, single. Two years' and a half good character from present situation.—F. REEVES, New Hall Gardens, near Salisbury, Wilts.

GARDENER (SECOND), in a Nobleman's or Gentleman's Garden.—Age 21, respectable. Two years' good character from last situation. State wages.—G. B., Elm House, East Acton, London, W.

FOREMAN, in a Nobleman's or Gentleman's Establishment.—Age 24; eight and a half years' experience in good places. Good references as to character, abilities, &c.—F. JAMES, The Gardens, Burley-on-the-Hill, Oakham.

FOREMAN, in a good Establishment.—Age 23. Has had ten years' experience in all branches. Foreman in last situation, one of the largest Establishments in the North of England.—A. B., Mrs. Edmonds, 26, Land Street, Croydon, Surrey.

FOREMAN, in a good Establishment.—Age 24. Two years' in present place as above; six years' experience in previous situation. Will be well recommended.—E. W., The Gardens, St. Audries Court, near Bridgewater, Somerset.

FOREMAN.—Understands Stove and Greenhouse Plants, Vines, Peaches, &c. Three years' good character.—T. G., Budock House, Park Road, Acton, W.

FOREMAN or SALESMAN.—Well up in Market Garden Work.—C. B., Post Office, Broadway, Ealing, W.

GARDENER (UNDER).—Age 21. State wages given.—A. B., Post Office, Lee Green, Kent.

GARDENER (UNDER), in a good Establishment.—Age 20. Five years' experience. Good character.—L. B., 108, Poplar Walk Road, Cold Harbour Lane, Brixton, S.E.

GARDENER (UNDER), in a good Establishment.—Age 20; has been used to Forcing Pines, Vines, Peaches, and general Garden-work. Three years' good reference.—W. SQUIBB, Minterne Gardens, Cerne Abbas, Dorchester.

GARDENER (UNDER).—Age 22, respectable. Good character.—E. W., 3, Tudor Cottage, Hamilton Road, Lower Norwood, Surrey.

GARDENER (UNDER), in a Gentleman's Establishment, where he could further improve himself in the Houses.—Age 20. Good reference.—X. X., Plaxtol, near Sevenoaks, Kent.

IMPROVER, or UNDER GARDENER, in a Gentleman's Garden.—Age 18. Four years' experience. Suburbs of London preferred. Good character.—W. DAVIS, 8, Alpha Street, Slough.

BAILIFF.—Age 40, married, no incumbrance; thoroughly understands the Management of Heavy and Light Land, also the Breeding, Buying, Selling, and Management of Stock, the Erection and Repairing of Farm Buildings, Draining and Reclaiming Waste Land. Wife understands Dairy and Poultry.—J. B., Messrs. Cripps & Son, Nurserymen, Tunbridge Wells, Kent.

POTTER and TYER.—A young Man; well up in the Market Trade.—T. S., 3, Alma Cottages, East Wickham Lane, Welling, Kent, S.E.

To Florists.

SALESMAN.—Has attended Covent Garden Flower Market regularly for the last twelve years as such. Can make himself generally useful in the business.—J. C., Post Office, Winchmore Hill, N.

To the Wholesale Seed Trade.

CORRESPONDENT and TRAVELLER.—Thoroughly understands the Trade. Many years' experience of the North of England, Scotch, Welsh, and Irish Ground.—S., 44, Devonshire Road, Holloway, N.

TRAVELLER and CORRESPONDENT.—Mr. THOMAS THORNTON, The Heatherside Nurseries, Bagshot, Surrey, can thoroughly recommend a highly respectable and energetic young Man as TRAVELLER and CORRESPONDENT in the Nursery or Seed Trade. One who understands his business, and is well known in England and Scotland.—T. T. will be pleased to answer any communications in reference.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C. Printed by William Richards, at the Office of Messrs. Bradbury, Agnew, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the County of Middlesex, and Published by the said William Richards, at the Office, 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—Saturday, April 10, 1875.
Agent for Manchester—John Heywood. Agents for Scotland—Messrs. J. Menzies & Co., Edinburgh and Glasgow.

THE

GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

No. 68.—Vol. III. { New Series. } SATURDAY, APRIL 17, 1875. { Registered at the General Post Office as a Newspaper. } Price 5d. Post Free, 5½d.

CONTENTS.

SALES BY AUCTION.

City Auction Rooms, 38 and 39, Gracechurch St., E.C.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Rooms, as above, on TUESDAY, April 20, at half-past 12 o'Clock precisely, a first-class Collection of CARNATIONS, PICOTEES, and PINKS, of fine growth; selected HARDY AMERICAN PLANTS, CONIFERÆ, SHRUBS, Standard and Climbing ROSES, choice GREENHOUSE and BEDDING PLANTS, with some fine bulbs of LILIUM AURATUM, RANUNCULI, ANEMONES, GLADIOLI, &c.; FUCHSIAS, DAHLIAS, SEEDS, &c.

On view the morning of Sale. Catalogues had at the Rooms and of the Auctioneers, 98, Gracechurch Street, E.C.; and Leytonstone, E.

Kingston-on-Thames.

By Order of the Executors of the late Mr. Bruce.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Tokenhouse Yard, City, E.C., on MONDAY, April 26, at 1 for 2 o'Clock punctually, a compact, valuable FREEHOLD ESTATE, known as Bruce's Nursery, and situate in the Richmond Road, Kingston, Surrey, possessing a highly important frontage of 332 feet 6 inches to the high road, by 594 feet depth, comprising about 4 acres 2 roods of very eligible Building Land, together with the substantially brick-built Detached Residence standing thereon. The Property offers great scope for profitable subdivision and re-sale in small plots, or for the creation of ground rents.

Cards to view, with printed Particulars and Plans, may be had of R. B. WHEATLY, Esq., Solicitor, 7, New Inn, W.C.; and of the Auctioneers and Estate Agents, 98, Gracechurch Street, E.C., and Leytonstone, E.

Theobald's Park, Waltham Cross.

IMPORTANT CLEARANCE SALE of choice GREENHOUSE and STOVE PLANTS, valuable LIVE-STOCK, GARDEN and FARM IMPLEMENTS, &c.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from Mr. Alderman Cotton (who is leaving the neighbourhood upon the expiration of his tenancy) to SELL by AUCTION, on the Premises, Theobald's Park, Waltham Cross, Herts, on TUESDAY, April 27, at 11 for 12 o'Clock precisely, the whole of the choice COLLECTION of STOVE and GREENHOUSE PLANTS, consisting of large and handsomely grown Double Camellias and fine Azalea indica, sixty half-specimen Pelargoniums, a beautiful example of Alsophila australis (12 feet through), fine Ficus, Cattleyas, Blechnums, Adiantums, and several other Exotic Ferns; large Fuchsias, Vallotas, Dracænas, Gardenias, &c.; 150 Fruiting and Succession Pines; also the valuable LIVE-STOCK, consisting of Brougham, Saddle, and Cart Horses, handsome Norwegian and other Ponies, twenty-four Cows, Heifers, and Calves, Breeding Sows, ten cross-bred Ewes with Lambs by side, Poultry; a capital Brake, useful Brougham, Dog Cart, a well made Pony Cart, a Cumbril Cart, the superiorly-made Silver-plated and Brass Harness, a Green's 18-inch Lawn Mower, Oat Crusher, a Chaff Cutter, Haymaking Machine by Barret & Co., and other Implements; ten large ornamental Gas Tripods, and Statuary on Pedestals, comprising "The Deluge," from the Colosseum, and the "Head of Musa."

On view the day prior to the Sale. Catalogues may be had on the Premises, of Mr. STEPHENS; and of the Auctioneers and Estate Agents, 98, Gracechurch Street, E.C., and Leytonstone, E.

Preliminary Notice of

FORTHCOMING SALES, by PROTHEROE AND MORRIS.

MAY 15.—WOOD GREEN, N. The Vineries, Nightingale Road. Important Sale of 30,000 Bedding Plants, &c.

MAY 19.—SYDENHAM, KENT. Kirkdale Nursery. Clearance Sale of the whole of the Greenhouse and Bedding Plants.

MAY 20 and 21.—WEST DULWICH, S.E. An important Sale of Greenhouse and Bedding Plants; also some choice Camellias, Azaleas, &c.

MAY.—TOOTING, S.W. By Order of Mr. R. Parker. Choice Stove and Greenhouse Plants.

Offices, 98, Gracechurch Street, City, E.C.; and Leytonstone, E.

Periodical Sale of Poultry and Pigeons.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, April 20, at half-past 12 o'Clock precisely, 300 Pens of CHOICE POULTRY and PIGEONS, from the Yards and Lofts of well-known Breeders and Exhibitors.

On view the morning of Sale, and Catalogues had.

Imported and Established Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, April 21, at half-past 12 o'Clock precisely, rare and fine ORCHIDS, collected by Mr. B. Roezl in Western Mexico, just received in fine condition, among them the beautiful Oncidium Barkeri, Odontoglossum Insleayi leopardinum, &c., nearly all of them adapted for growing in cool houses; also, several Collections of ESTABLISHED ORCHIDS, comprising many choice and valuable sorts; an Importation of ODONTOGLOSSUMS from the mountainous parts of the United States of Columbia; and 2000 Bulbs of LILIUM AURATUM, just arrived, in fine condition, from Japan.

On view the morning of Sale, and Catalogues had.

Odontoglossum Alexandræ.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, April 22, at half-past 12 o'Clock precisely, 300 good plants of ODONTOGLOSSUM ALEXANDRÆ. These have been recently imported, are now breaking freely, and are in the best possible condition.

On view the morning of Sale, and Catalogues had.

Auction Rooms and Offices, 38, King Street, Covent Garden, W.C.

Handsome Ornamental Plants.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, April 22, at half-past 12 o'Clock precisely, a COLLECTION of HANDSOME ORNAMENTAL PLANTS, such as Palms, Dracænas, Agaves, Cycas, Phormiums and Encephalartos, suited for giving effect in plant-houses and conservatories, for sub-tropical gardening, the decoration of halls or public buildings, and ornamental purposes generally; English-grown Camellias of various sizes, some of them fine large plants; Tree Ferns with good heads, and a small collection of Orchids, including several fine plants of Phalænopsis Schilleriana.

On view the morning of Sale, and Catalogues had.

Auction Rooms and Offices, 38, King Street, Covent Garden, W.C.

Important Sale of Specimen Stove and Greenhouse PLANTS, removed from Albury Park, Guildford.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on FRIDAY, May 7, at half-past 12 o'Clock precisely, Specimen STOVE and GREENHOUSE PLANTS, British and Exotic FERNS, formed for exhibition purposes by William Kemp, gardener to His Grace the Duke of Northumberland at Albury Park, Guildford, who is giving up exhibiting plants; also two EXHIBITION VANS, with good Springs and Patent Axles. The whole for Sale without reserve.

On view the morning of Sale, and Catalogues had.

Stove and Greenhouse Plants, Bedding Plants, &c.

MR. J. C. STEVENS will SELL by AUCTION, on the Premises, South Bank, Surbiton, about the MIDDLE of MAY, the Collection of STOVE and GREENHOUSE PLANTS formed by J. A. Burton, Esq., consisting of Camellias and Azaleas, Stephanotis, Clerodendrons, Bougainvilleas, Anthuriums, Crotons, a few Orchids, &c.; also a good lot of Bedding Plants, Roses in pots, a MOWING MACHINE, Two WATERBARROWS, Four TWO-LIGHT BOXES, HANDLIGHTS, &c.

Catalogues will be ready one week prior to the Sale.

Auction Rooms and Offices, 38, King Street, Covent Garden, W.C.

Victoria Estate, Kansas, U.S.—To Farmers and OTHERS.

FINE STOCK FARMS of 640 Acres and upwards, to be SOLD, Freehold, from 12s. to 50s. per acre. Grass in its natural condition unsurpassed for feeding Sheep and Cattle. For PAMPHLET containing full particulars respecting this Property, apply to

ROBERT W. EDIS, Esq., F.S.A., 14, Fitzroy Square, London, W., Architect to the Estate.

TO BE SOLD, a SEED and FLORIST'S BUSINESS. Main thoroughfare. London (West End). Very convenient Shop. Long Lease, Rent only £100.

E. K., *Gardeners' Chronicle* Office, W.C.

TO BE DISPOSED OF, the LEASE, &c., of a SEED FLOWER, and HERB SHOP. Shop now doing a good trade. A fortune for a Man of Business. A death the cause of letting. Apply to

G. W. LAKE, 23, Peckham Grove (note the address), Camberwell, S.E.

TO BE SOLD, the LEASE of a valuable piece of GARDEN GROUND, consisting of about 4 acres, and being 4 miles from Covent Garden Market. Well situated, and suitable for a Florist: at present in the occupation of a Market Gardener. Lease unexpired about eighty-four years. Immediate possession. Apply to

N. JOURDAIN, 45, Ludgate Hill, E.C.

To Nurserymen and Others.

TO BE LET, the GUILFORD NURSERY, Whitfield, near Dover, comprising Residence, Stable, and Outbuilding, with 7 acres of First-class Land. Rent £60. The Houses, comprising large Plant-house, Vinery, Stove and Fern Houses, Greenhouse, &c., together with the contents, and some Nursery Stock, to be taken by Valuation or Arrangement. Incoming moderate. Apply to Messrs. WORSFOLD AND HAYWARD, Auctioneers and Estate Agents, New Bridge, Dover.

COTTAGE and GARDEN WANTED.—Can any one kindly suggest a small Cottage with large Garden, or an acre or two of Ground adjoining that might be converted into such? It must be on the outskirts or within one mile of a town. Rental not so much an object as a suitable spot. Church privileges appreciated. Good references given.

E. L. M., Post Office, Addlestone, Surrey.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS: also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.

Mr. WEBB, Calcot, Reading.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

SIR GARNET WOLSELEY.—The best new Rose of the season. See coloured plate in the *Floral Magazine* for April. Strong plants now being sent out, price 7s. 6d. each. The usual discount to the Trade.

CRANSTON AND MAYOS, Nurseries, King's Acre, near Hereford.

VERBENAS.—Strong healthy plants of Purple King, Melindres splendens (fine scarlet), Boule de Niege (best white), Sunny Thoughts (good rose), 6s. per 100, free to any address on receipt of Post Office Order.

FIELD BROTHERS Tarvin Road Nursery, Chester.

VERBENAS.—PURPLE KING is still the best variety extant, strong, healthy, without a spot of disease. Well rooted excellent stuff, 6s. per 100, 50s. per 1000. Carriage free to any address for cash.

FIELD BROTHERS, Tarvin Road Nursery, Chester.

To the Seed Trade.

BEANS—White Windsor and Scarlet Runner—to offer to the Trade. Samples and Prices forwarded on application to

ALFRED LEGERTON, Seed Merchant, 5, Aldgate, London, E.

SCARLET RUNNER BEANS, ASPARAGUS, SEAKALE, and TARRAGON ROOTS.—The undersigned has surplus supplies, of capital quality, to be sold at moderate prices.

JOHN MITCHINSON, Seed Merchant, Truro.

CARTER'S CHAMPION and SCARLET RUNNERS—all home-grown. First-class sample at 28s. per bushel, or five guineas per sack. Cash with order. Sample sent if required. Apply to

H. HARDY, Tiptree, Kelvedon, Essex.

PEACHES and NECTARINES, in pots, forced and well furnished with fruit. Strong healthy trees of the best leading varieties at 10s. 6d. each, carriage paid to London.

THOMAS RIVERS AND SON, The Nurseries, Sawbridgeworth, Herts.

THE MIDLAND COUNTIES GRAND HORTICULTURAL EXHIBITION, Lower Grounds, Aston Park, Birmingham. JULY 1, 2, 3, and 5, for the benefit of the Building Fund of the Midland Institute.

Schedules may be had from H. G. QUILTER, Lower Grounds, Aston Park, Birmingham.

NOTTINGHAM and MIDLAND COUNTIES GRAND ROSE SHOW and HORTICULTURAL EXHIBITION (open to all England) will be held at the ARBORETUM, Nottingham, on FRIDAY and SATURDAY, July 9 and 10. The Mayor of Nottingham President; the Town Clerk Honorary Secretary. Schedules in the course of preparation, and may be obtained on application to

ALFRED KIRK, Municipal Offices, Nottingham.

INTERNATIONAL POTATO SHOW, 1875.—The Schedule is now ready, and may be had on application to

PETER MCKINLAY, Esq., Hon. Sec., 23, Upper Thames Street, E.C.

ALEXANDRA PALACE.—GRAND OPENING FESTIVAL, SATURDAY, May 1. Band and Chorus, 1500 performers. The musical arrangements, in which the principal *artistes* of Her Majesty's Opera will take part, will be under the entire direction of Sir MICHAEL COSTA.

Full particulars will be duly announced. Admission tickets 5s., if purchased before the day; by payment at the doors, 7s. 6d., or by the guinea season ticket, which includes Membership of the Alexandra Palace Art Union, and is now on sale at the Company's Offices and their Agents.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION, for the relief of decayed Farmers, their Widows and Orphans.

Patron—HER MAJESTY THE QUEEN.
President—HIS GRACE THE DUKE OF RICHMOND.

Allowances to Pensioners.

Married	£40 per annum.
Male	£26 "
Widow and unmarried Orphan Daughters	£20 "

Every information to be had of the Secretary, by whom Subscriptions and Donations will be thankfully received.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.—The FIFTEENTH ANNIVERSARY FESTIVAL, in aid of the Funds of the Institution, will take place at Willis's Rooms on SATURDAY, June 5, at 6 o'Clock.

H.R.H. The PRINCE OF WALES, K.G., in the Chair.

Dinner tickets, 21s., application for which should be made to the Secretary not later than May 22.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.—The ANNUAL GENERAL MEETING will be held at Willis's Rooms, St. James's, on WEDNESDAY, June 16, at 11 o'Clock precisely, and the ELECTION of PENSIONERS will take place on the same day, at half-past 11 o'Clock.

All Subscriptions shall be deemed payable on January 1 in each year; and no Contributor shall vote in respect of an Annual Subscription while the same is in arrear.

Offices of the Institution—

No. 26, Charles Street, St. James's, London, S.W.

NEW ROSES for 1875.—Splendid plants, with magnificent foliage, in forty-three Continental varieties, now ready. LISTS, with raisers' descriptions, post free.

HENRY BENNETT, Manor Farm Nursery, Stapleford, Salisbury.

STELLARIA GRAMINEA AUREA—100 cuttings sent post free for 2s. 6d. This is quite distinct from Golden Feather, and certainly the best yellow carpet-bedding plant ever introduced; quite hardy.

H. CANNELL, New Florists' Flowers and Florist Flower Seed Merchant, Woolwich, S.E.

Verbenas, Verbenas.

JOHN SOLOMON offers White, Scarlet, Purple, Pink, Crimson, Rose and other mixed sorts, good strong spring-struck cuttings, well rooted, at 6s. per 100, 50s. per 1000, package included. Cash to accompany all orders from unknown correspondents.

Islington Nursery, Park Street, Islington, N.

Cinerarias, Cinerarias, Cinerarias,

F. AND A. SMITH'S unrivalled Collection of the above is now in bloom, and will continue so for some time. Inspection is respectfully solicited, or flowers will be sent on receipt of two stamps.

The Nurseries, West Dulwich, S.E.

SARRACENIA PURPUREA—SARRACENIA PURPUREA.—Splendid Specimens of the above beautiful Hardy Pitcher, £3, £5, and £7 per 100. CYPRIPEDIUM ACAULE (strong), at £4 per 100. Address

WALTER SILK, Raymond Street, Cambridge, Mass., U.S. America.

Pelargoniums for the Million.

JAMES HOLDER'S unrivalled COLLECTION of Show, French, and Fancy Varieties, strong Plants, distinct sorts, at 40s. per 100; 25s. for 50; or 15s. for 25. Hamper and packing included. Extra strong plants at 9s. and 12s. per dozen. Cash. CATALOGUES free on application.

Town Nursery, Reading.

BROMPTON STOCK.—SMITH'S SCARLET KING is the finest in cultivation, with magnificent spikes of blossom, 18 to 20 inches in length. This will prove a gem to admirers of this good old-fashioned flower. Packets, post free, 1s. and 6d. each.

THOS. SMITH, Seedsman, Long Wittenham, Abingdon.

Seed Potatos.

SUTTONS' RED-SKINNED FLOUR-BALL, grown on chalk, warranted true, and free from disease. Delivered at Burbage Station, Great Western Railway, at 7s. per cwt., or £6 per ton. Apply to

A. JOHNSON, Seed Grower, &c., Savernake, Marlborough, Wilts.

PYRUS, or CYDONIA MAULEI.—Plants of this hardy ornamental and useful new Japan Fruit, now sending out, price 21s. each, usual discount to the Trade.

Illustration sent on application. See *Gardeners' Chronicle*, 1874, i. 757, ii. 740; and the *Florist and Pomologist* for March.

WM. MAULE AND SONS, The Nurseries, Bristol.

VINES, extra strong leading sorts, close-jointed and well ripened; SEAKALE, ASPARAGUS, and RHUBARB, extra strong, for forcing; ROSES, FRUIT, FOREST, and ORNAMENTAL TREES, STOVE and GREENHOUSE PLANTS, &c.
Priced Descriptive CATALOGUE, post-free.
DICKSON AND ROBINSON, 23, Market Place, Manchester.

GIANT ASPARAGUS PLANTS, the best that money can procure, all certain to grow, 2s. 6d. per 100. This delicious vegetable does not require half the expense usually incurred in planting it. See RICHARD SMITH'S SEED LIST for 1875.
Extra strong SEAKALE, 2s. per dozen.
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"MRS. WILSON."—The above is a fine Double Crimson variety, striped and edged with white, very fine and distinct. It received three First-class Certificates last year. Good Plants, now ready, 3s. 6d. each, post free 3s. 9d.
T. JACKSON AND SON, The Nurseries, Kingston, Surrey.

ZONAL PELARGONIUMS.—A fine, well-grown stock of extra strong autumn-struck plants, in 4-inch pots, of the choice new varieties of last year, at 40s. per 100; also an immense quantity of the best Bedding Pelargoniums—Tricolor, Gold, Silver, and Zonal. LIST of sorts and prices on application.
W. G. CALDWELL AND SONS, The Nurseries, Knutsford.

Mr. Postan's New Zonal and Fancy Variegated
PELARGONIUMS for 1875.

CHARLES BURLEY begs to announce that he has been entrusted with the distribution of the above magnificent NEW PELARGONIUMS, to be sent out, for the first time, the beginning of May next. Priced LIST and full descriptions on application.
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Bedding Roses.

CRANSTON'S CRIMSON BEDDER: strong plants, in 5-inch pots, 30s. per dozen.
TEA-SCENTED, CHINA, NOISETTE, and HYBRID-PERPETUAL ROSES, in 4 and 5-inch pots, 9s. to 15s. per dozen.
Now is the best time for bedding-out the Tea-scented and China Roses, and Hybrid Perpetuals, on their own roots.
Address, CRANSTON AND MAYOS, King's Acre Nurseries, Hereford.

Silver-margined leaved Geranium, Laura.

FRANCIS R. KINGHORN has much pleasure in offering this superior variety, being a strong grower, with very large trusses of pale scarlet flowers, freely produced. Suitable for centres of beds and back rows in borders. Received the highest commendation (a First-class Certificate) from the Floral Committee at Chiswick in 1873, which was again confirmed in 1874. Plants 5s. each, seven for 30s. Sheen Nursery, Richmond, Surrey.

New White Lobelia,

"DUCHESS OF EDINBURGH."—This variety possesses an excellent compact habit, and is a good free grower. The flowers, which are produced in great abundance, retain their purity of colour the entire season. Received a First-class Certificate at the Royal Horticultural Society, Kensington, 1874.
Good Plants are now ready, 2s. 6d. each.
CHARLES TURNER, The Royal Nurseries, Slough.

New and Choice Ferns.

W. AND J. BIRKENHEAD, having a Collection of many thousands of the most beautiful and choice BRITISH and EXOTIC FERNS, and giving their cultivation special attention, are prepared to supply large or small quantities at most reasonable prices.
CATALOGUES on application. Special quotations for large quantities.
Fern Nursery, Sale, near Manchester.

Variegated Bedding Geraniums.

ALFRED FRYER offers the following GERANIUMS at per dozen for cash:—Golden Tricolors: Mrs. Dunnett, 3s. 6d.; Louisa Smith, 3s. 6d.; Mrs. Pollock, 3s. 6d.; Sir Robert Napier, 3s. 6d.; Sophia Dumaresque, 3s. Silver Tricolors: Miss Burdett Coutts, 3s. 6d.; Mrs. John Clutton, 3s. Golden Bronze: Aurie, 3s. 6d.; Bronze Beauty, 3s. 6d.; Kentish Hero, 2s. 6d.; Roi de Siam, 3s. 6d.; Waltham Bronze, 3s. 6d. Baskets and packing, 6d. per dozen, or 3s. 6d. per 100 extra.
PRICED LISTS post free.
ALFRED FRYER, The Nurseries, Chatteris, Cambridgeshire.

Hollies.

ANTHONY WATERER respectfully invites the attention of Holly buyers to the very fine Stock to be seen growing at Knap Hill. It comprises upwards of Thirty Thousand Plants, from 3 to 10 and 12 feet high, of the finer Gold, Silver, and Green-leaved kinds, affording a choice in size and variety such as can be met with in no other Nursery in Europe. Every Plant has been recently removed, and will be guaranteed.
The Stock of Common Green Hollies alone occupies 5 acres of land, and Purchasers will find them in large numbers of all heights up to 15 feet.
Knap Hill Nursery, Woking, Surrey.

American Plants without Peat.

WM. MAULE AND SONS beg to offer the choicest Hardy English and Continental RHODODENDRONS, with Belgic and other AZALEAS, at 30s. per dozen, £10 per 100.
The Plants are grown in a stiff Loamy Soil, on an exposed and elevated situation, and will thrive in any soil free from Lime, Iron, or Chalk. Large Bushes of the Ponticum and Catawbiense varieties, 4 to 5 feet high and as much through, 60s. per dozen. April and May is the best time for planting.
The Nurseries, Bristol.

Vines.—To the Trade.

S. BIDE can still supply good strong PLANTING VINES, in Pots, of the undermentioned varieties, at 30s. per dozen (a special price for a large quantity will be given on application):—Tyningham Muscat, Madresfield Court, Black Hamburgh, Mrs. Pince's Black Muscat, Lady Downe's Seedling, Burchard's Prince, Seacliffe Black, Frankenthal Hamburgh, Ferdinand de Lesseps, Black Morocco, Primaral's Frontignan, Black Barbarossa, Sweetwater, Troveren Muscat, Bowood Muscat, Muscat of Alexandria, White Nice, Duchess of Buccleuch, Rasin de Calabre.
S. BIDE, Alma Nursery, Farnham, Surrey.

CHARLES B. SAUNDERS, NURSERYMAN, &c., Jersey, respectfully offers choice CARNATION and PICOTEE SEEDS at 2s. 6d. per packet of 100 seeds; fine strong VINES, best sorts, 24s. to 30s. per dozen; Evergreen OAKS, in or from pots, 2 to 6 feet high, 50s. to 150s. per 100.
March 18, 1875.

Surplus.—Dwarf Roses on Manetti.

PAUL AND SON, The "Old" Nurseries, Cheshunt, N., offer strong vigorous plants they wish to clear. Sorts left to their selection, three to five of a sort, 50s. per 100, in quantities of not less than 100.
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CRANSTON'S NURSERIES, Established 1785.—The following CATALOGUES are just published, and will be forwarded on application:—
DESCRIPTIVE CATALOGUE of ROSES (1874 and 1875).
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DESCRIPTIVE CATALOGUE of CONIFERS, SHRUBS, and FOREST TREES.
DESCRIPTIVE CATALOGUE of BULBS. Address,
CRANSTON AND MAYOS, King's Acre Nurseries, near Hereford.

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SIR GARNET WOLSELEY (Cranston's).
CRIMSON BEDDER (Cranston's).
CLIMBING JULES MARGOTTIN (Cranston's).
All the new Continental Roses for 1875—upwards of forty varieties.
Descriptive LIST on application to
CRANSTON AND MAYOS, King's Acre Nurseries, near Hereford.

NEW PLANTS.—The three best new plants recently sent out are:—
CROTON MAJESTICUM,
DIPLADENIA BREARLEYANA,
CROTON SPIRALE.
Price Two and Three Guineas each.
Mr. WILLIAM BULL'S Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

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FRANCIS & ARTHUR DICKSON & SONS' Mixture of LAWN SEEDS is composed only of the FINEST and DWARFEST EVERGREEN GRASSES, and if very superior to mixtures generally offered. For New Lawns sow 60 lb. to 80 lb. per acre. To Renovate Old Lawns sow 10 lb. to 20 lb. per acre. Price 1s. per lb. Orders over 20s. carriage free.
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HUNDREDFOLD FLUKE,
COMPTON'S SURPRISE,
RED-SKIN FLOURBALL,
DALMAHOYS,
VICTORIAS,
MYATTS.
HENRY CLARKE AND SONS, 39, King Street, Covent Garden, London, W.C.

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WM. PAUL has a large Collection of SPECIMEN ROSES, just coming into bloom, which he offers from 5s. to £5 5s. each. Inspection invited. Frequent trains from Bishopsgate Station to "Waltham" Station in half an hour. My Nurseries adjoin the "Waltham" Station.
PAUL'S Nurseries, Waltham Cross.

Carnations, Picotees, and Pinks.

ISAAC BRUNNING AND CO. beg to announce that they have this Season a very fine and extensive Collection of the above to offer, strong plants of which are now ready for sending out. LIST of Varieties and Prices, together with Illustrated SEED CATALOGUE, on application.
Our ONE GUINEA COLLECTION of CARNATIONS, &c., contains six pairs of choice Show Carnations, six pairs of choice Show Picotees, twelve pairs of Show Pinks, and twelve choice mixed Carnations and Picotees for borders.
Carriage and package free on receipt of Post Office Order. Half of the above quantities, 11s.
"Belgrove, Queenstown, County Cork, Ireland.
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"Mr. W. E. Gumbleton has this day received the Carnation and Picotee Plants, with which he is much pleased, and would like another dozen of either the same or other varieties."
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VERBENAS, Purple, White, Scarlet, Crimson, and Rose, good plants, from single pots, 2s. per dozen, 12s. per 100; rooted cuttings, 1s. per dozen, 6s. per 100, 50s. per 1000.
LOBELIA, speciosa (true), from cuttings, 3s. per 100, 20s. per 1000.
CALCEOLARIA, Yellow Bedding, 1s. per dozen, 6s. per 100, 50s. per 1000.
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IRESINE, Lindeni, crimson leaf, fine, 1s. per dozen, 6s. per 100.
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PELARGONIUMS, Silver edge—May Queen and Flower of Spring, 2s. per dozen, 15s. per 100.
,, Gold leaf—Crystal Palace Gem, 2s. per doz., 15s. per 100.
,, Tricolor—Mrs. Pollock, 2s. 6d. per dozen, 18s. per 100.
Terms cash, package included.
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The most practical work on gardening yet published, beautifully illustrated with 300 engravings.

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SUTTONS' LAWN GRASS MIXTURE,

Which forms a close velvety turf in a very short time. For making New Lawns or Croquet Grounds 3 bushels or 60 pounds is required per acre, or 1 gallon to every 6 rods (or perches) of ground.

For improving those already in turf, 20 pounds should be sown per acre.

March, April, and May are the best months for sowing.

Price 1s. per lb.; 20s. per bushel.

From Mr. J. MERRICK, *Gardener to* S. Forster, Esq. *Le Court.*

"The Seed you sent me last year turned out uncommonly well. Several gentlemen who came to Le Court could scarcely credit, from the appearance of the lawn, that it was only sown in May. In August it was as fine and thick as I have seen some lawns that had been laid down for three years."

Instructions on the Formation and Improvement of Garden Lawns and Croquet Grounds Gratis and Post Free.

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DAHLIAS.

JOHN KEYNES

Has the finest Collection of Dahlias in the World, Old and New.

Amateurs will be treated most liberally.

CATALOGUES NOW READY.

The NEW VERBENAS raised by Eckford now ready.

Dahlias will be sent out the first week in May.

A VERY SELECT LIST OF THE NEW ROSES.
Plants now ready.

SALISBURY.—April 2, 1875.

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Nurseries (270 Acres in extent) near Bagshot, Surrey.

Seed Establishment and London Depôt,

QUEEN VICTORIA STREET,

CLOSE TO THE MANSION HOUSE STATION.

A LONDON BRANCH

Has just been opened, as above, where a succession of Sample Plants will be on view, and where also the

Flower, Vegetable, and Agricultural Seed Business

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The very extensive Stock is, this season, in splendid condition. It includes every species of

ORNAMENTAL TREES and SHRUBS, Evergreen and Deciduous (of all sizes),

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Buyers are invited to visit the Nurseries, at Bagshot, to inspect, and personally select what they require to be sent to them when removal is safe.

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Forest Trees, when taken in quantity, charged at a proportionately reduced price.

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RHODODENDRONS

WILL BE SUPPLIED,

In Fifty of the most Popular and finest known Hardy Kinds,

Sturdy, Bushy Plants, 1½ to 2 feet high, at **£10 per 100,**

Carriage Free to any Railway Station in England.

Many of these are Raised from Layers, and better Plants of their height cannot be desired or obtained.

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FRANCIS & ARTHUR DICKSON & SONS.

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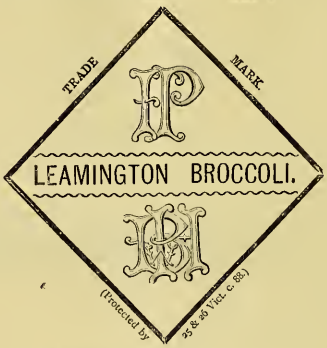

F. PERKINS,

In reply to numerous enquiries, begs to announce that the Stock of the above, for which he was awarded a First-class Certificate by the Royal Horticultural Society, is *Sold only in Sealed Packets bearing his Registered Trade Mark.*

The late winter has severely tested the Broccolis, but this variety has again proved itself THE FINEST IN CULTIVATION.

SOW FROM THE PRESENT TIME UNTIL THE FIRST WEEK IN MAY,

Price 2s. 6d.

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ODONTOGLOSSUM ALEXANDRÆ.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, April 22, at half-past 12 o'Clock precisely, 300 good Plants of ODONTOGLOSSUM ALEXANDRÆ. These have been recently imported, are now breaking freely, and are in the best possible condition.

On view the morning of Sale and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

HANDSOME ORNAMENTAL PLANTS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, April 22, at half-past 12 o'Clock precisely, a Collection of Handsome Ornamental Plants, such as PALMS, DRACÆNAS, AGAVES, CYCAS, PHORMIUMS, and ENCEPHALARTOS, suited for giving effect in Plant Houses and Conservatives, for Sub-tropical Gardening, the Decoration of Halls or Public Buildings, and ornamental purposes generally; English-grown CAMELLIAS of various sizes, some of them fine large plants; TREE FERNS, with good heads; and a small Collection of ORCHIDS, including several fine plants of PHALÆNOPSIS SCHILLERIANA.

On view the morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

SATURDAY, APRIL 17, 1875.

THE APPLE OF LITERATURE.

(*Concluded from p.* 460.)

THE primitive history of the Apple is at present quite undetermined. An immense amount of labour has been bestowed upon the subject by Prof. Koch, who between 1836 and 1844 spent much time in investigations in Armenia and the adjacent countries, purposely with a view to ascertain something precise. The very trustworthy result of his enquiries and profound study of the subject is that the Apple never grew wild anywhere in the southern Caucasus ; and to this it may be added that Boissier, in the *Flora Orientalis*, entirely omits the Holy Land as a native locality of the Apple, though he allows it to some of the adjacent countries. Of course it may have been cultivated in Palestine as an exotic, but in any case the Palestine climate is altogether unfavourable to its prosperity, and to its becoming a tree such as the one mentioned by the prophet. Like the Currant and the Gooseberry, and for similar reasons, the Apple does not thrive in southern latitudes, unless in very elevated districts. In certain parts of the Lebanon, and near Damascus, for example, it is said to be tolerably good. Thither, in all likelihood, it would be originally introduced by the monks of western Europe. Certain inexact travellers of recent date, determined to stand by the literal expressions of the A. V., whatever they may really denote, have asserted that the Apple, and the Apple only, is intended by *tappûach*, and they tell us how conspicuously beautiful it is in the Holy Land ; but it is perfectly plain that they have been misled by the spectacle of the Quinces, which are there very attractive.*

Two fruits have been suggested as perhaps specially intended by *tappûach*, the Citron and the Apricot. Considering the many and various good qualities of each, and how differently they strike different observers, while at the same time not any single kind of fruit thoroughly answers to all the requirements implied in the biblical allusions to the *tappûach*, one cannot but feel satisfied that the term is collective ; and that it fails to apply specifically simply because it was never designed to do so, carrying rather the idea of the aggregate qualities of everything upon which it was at any time bestowed. The ancient poets ascribe to their heroes the virtues and noble qualities of all the brave men by whom they were surrounded, including qualities now and then not quite compatible one with another ; and something like this appears to have been done in the summing up in *tappûach* of qualities which to all appearance no single plant possesses, or at all events not in uniform perfection.

The argument for the Citron is recognised by Dr. Royle, to whose opinion it is objected that the tree is too small, and that, like the Quince, the fruit is harsh instead of "delicious." But Risso, in the *Histoire Naturelle des Oranges*, describes the Citron as magnificent when full grown, and calls it the most beautiful of its genus. The foliage is Laurel-like, glossy, of a deep rich green, and remains upon the tree all the year round. The flowers resemble those of the Orange, but are flushed on the exterior with rosy purple ; the fruit seems an immense Lemon, sometimes attaining a length of 9 inches, and weighing 20 lb. The ancients believed that in the odour there were properties almost miraculously restorative. The faith exists to this day, for with the modern oriental ladies the Citron is the favourite though rather bulky *vinaigrette*. "Comfort me with *tappûach*" thus appears to point very definitely to the Citron ; and even if the original of this expression be more accurately translateable, as stated by Mr. Drake, "Strew me a couch of *tappûach* leaves,"* the Citron still meets the requirement, for every leaf is charged with little cysts of essential oil, the fragrance when the leaf is bruised exhaling like that of the Myrtle. The sweet sense of refreshing verdure presented by the ordinary Orange tree is well-known, as well as the exotic richness of the enveloping atmosphere when the tree is most copiously in bloom, not to mention the oriental splendour of the golden fruits that hang "like lamps in a night of green." These qualities pertain equally to the Citron, so that one may verily "sit under his shadow with great delight"; and even if the individual tree be small, no violence is done to the meaning of the words, since "under his shadow" implies, necessarily, no more than "beneath the branches." It is not to be overlooked, either, in regard to the general fitness of the Citron for poetical imagery, such as that of the Old Testament, that the processes of flowering and fruiting are like a waterfall, nearly constant ; and we know already how Scripture loves to introduce the evergreen in preference to the deciduous. This is the intrinsic reason why to-day the bridal wreath is made of Orange or Citron blossom, the two trees being alike in the phenomena of their life. Wearing a chaplet of Orange, the ideas are simultaneously presented of sweetness of deportment and complexion, of perennial or evergreen happiness, and of a home or fireside circle, all in good time, such as flower-buds, incipient fruit, and ripening fruit, cotemporaneous, and side by side, represent in the most perfect and beautiful manner. That the fruit of the Citron cannot be strictly called "delicious" is quite true, since the rind is thick and spongy and the juice acid, though less so than that of the Lemon. Here, accordingly, we are thrown back upon the probability of *tappûach* including the good qualities of several different things, not one of which answers in every particular. Before it can be eaten, the Citron requires to be dealt with after the manner of other hard and poignant fruits, and to be sweetened with honey or sugar. How agreeable the taste then becomes every one knows. Perhaps, after all, we are not called upon to demand from the Hebrew expression any more than the deliciousness which accrues upon proper preparation. Even Melons and Strawberries are scarcely delicious without sugar. The characters in question were well hit off by the Mantuan :—

> "Media fert tristis succos, tardumque saporem
> Felicis mali," †

—*tristis*, or "sad," denoting the flavour of the fresh rind, while the "delayed taste" neatly implies its long continuance upon the palate. The fecundity of the Citron, spoken of by the two Greek writers upon plants, and likewise by Pliny, is another excellent feature of this famous tree. The Romans used the fruit for perfuming their wardrobes.

These various persuasive claims on the part of the Citron to be, as Dr. Royle and others think, the *tappûach* absolutely and exclusively, or, at all events, to be one of the trees intended by that appellation, are interfered with rather seriously by the doubt on fair grounds whether the Citron was cultivated in the Holy Land so early as the time of Solomon, the almost universally admitted composer of the Canticles, and whose reign commenced B.C. 1015. It may be considered certain that it was not indigenous to Palestine. Dons says

* See, for instance, the *Land and the Book*, by Dr. Thomson, p. 545.

* Smith's *Dictionary of the Bible*, i. 86. † *Georgic*, ii. 126.

the original locality was North Africa, but here he is unquestionably wrong. Apparently, like most of the other species of Citrus, the Citron belonged in the beginning to the cooler parts of India, and especially to the woods upon the lower ranges of the hills of Nepal. It becomes needful, accordingly, to assume a very early transmission of the tree westwards. Considering what splendid commercial enterprises were carried out by Solomon, and how many articles of oriental origin found their way to the Holy Land through the medium of the ancient merchants, there is nothing actually incredible in regard to such transmission. There is no occasion to suppose that it was immediate; and while we remain so imperfectly informed as we are with regard to the early migrations of mankind, and of the Aryan races in particular, it seems best to wait awhile. Mr. Carruthers, however, does not hesitate to express his belief that the Jews became first acquainted with the Citron during the Captivity in Babylon, taking it home with them when they were released (B.C. 536). "At all events," he says, "it may be considered certain that the Citron was not introduced into Palestine during the patriarchal era."* This, if proved, would of course be fatal also to the *tappûach* of Joel, who speaks of it so familiarly as one of the "trees of the field," his prophecies having been delivered about 790 or 780 B.C.

The last-named author (Mr. Carruthers) accords with Mr. Tristram in considering the veritable *tappûach* to be the Apricot. Here, without question, the fruit is "delicious" just as it comes from the tree, exquisite of smell, and well adapted to be laid in "pictures of silver," "shining," as Mr. Ruskin says, "in sweet brightness of golden velvet." But placed by the Citron, the tree subsides to the level of the Quince, being deciduous, while in dimensions it cannot be greatly different, though no doubt Mr. Tristram makes a perfectly truthful statement when he says, "many times have we pitched our tents in its shade, and spread our carpets secure from the rays of the sun." "At the present day," he continues, "with the single exception of the Fig, the Apricot is perhaps the most abundant fruit of the country."† It is scarcely necessary to remark that the abundance of any particular fruit or plant in Palestine to-day, cannot be taken as evidence in regard to the state of affairs so long ago as 2900 years. Of the place then held by the Apricot in Palestine we have not an atom of evidence. Nor, for that matter, have we the slightest evidence as to the frequency, or the reverse, of the Citron and the Quince. The native region of the Apricot is said to extend from Armenia, eastwards, to the Himalayas, and as far as China and Japan. Pallas describes it as indigenous to the whole of the Caucasus. Regnier ascribes it to the oases of Egypt.‡ It had reached Italy by the time of Dioscorides, but is very rarely mentioned in the writings of the Romans. Possibly, in the Scriptural *tappûach* may also have been included the Peach. In any case the name must have covered fruit trees that were plentiful and conspicuous, since several towns or cities of ancient Palestine were called "Beth-taphûah." The memory of one of these is preserved in the modern Teffûh, a village upon the hills north-west of Hebron. It is scarcely necessary to add that the idea of the Orange being included in the "mala" of the ancients is quite erroneous. This fruit did not reach Europe or Palestine either, till several centuries after the commencement of the Christian era. If anything is to be made out in regard to *tappûach* from the existing abundance of any particular fruit in Palestine, the Orange itself might ask to be recognised, for in the vicinity of Joppa alone there are now 420 Orange gardens, which produce annually the estimated number of 33,300,000 Oranges. *Leo Grindon, Manchester.*

P.S.—In the first portion of this article, p. 459, col. 3, "Paris received from Venus" should be "Venus received from Paris"; and on p. 460, col. 2, *Shaltan* should be "Shuetan."

* *Bible Educator*, vol. iii., p. 218.
† *The Land of Israel*, p. 605.
‡ *Vide* his learned paper in the *Trans. Hort. Soc.*, vol. iii., Appendix, p. 23; and vol. iv., p. 368.

New Garden Plants.

Dendrobium marmoratum, *n. sp.**

This is a Dendrobe much in the way of D. transparens. The stems, however, are much stouter, and the sheaths are very nicely mottled with grey bars on a whitish ground—hence the name. The flowers appear in pairs on the sides; they are white. Both sepals and petals are purplish at their ends, and the lip has the whole anterior portions of the disk purplish, while there are also some such purplish signs at the very base. Its chief peculiarity consists in its having whole the border ciliate and a hairy disk in front of the base. I cannot speak fully about the merit of the plant, for it unfolded its flowers in the case when travelling, which must have been most uncomfortable for such a creature. I would, however, guess that it may prove just such a gem as is D. amœnum, perhaps it has even its smell. It is easily distinguished from both named species by its very short, blunt chin, and by its ciliate lip. It may even get to be a beauty, such as we do we not know now. I have to thank for it Mr. Low, who obtained it from Burmah through his collector, Mr. William Boxall. *H. G. Rchb. f.*

Odontoglossum compactum, *n. sp.*†

This must indeed be a noble species, though not of the highest *noblesse*. It is far larger in all its parts than Odontoglossum aureo-purpureum, a New Grenadan plant which is much inferior in its more distant, smaller flowers, which stand too wide apart to produce such an effect as those of O. ramosissimum. What Dr. Lindley said about the nobility of the plant only applies to the Peruvian species. Since I described O. aureo-purpureum from New Grenadan specimens, those have to keep the name given by me. An excellent distinction is afforded by the lip, which is scarcely trilobed, while the New Grenadan plant has it trifid. The rather large flowers (not much inferior to those of a middle-sized O. maculosum) must be of a very bright yellow (as those of a good Oncidium macranthum, the so-called hastiferum of Belgian nurserymen), and there are purplish spots on the broad lip. I judge the colours to be very bright since they last so well on the dried specimens. I have at hand specimens gathered by Messrs. W. Lobb, Pearce, and Davis, all obtained through the kindness of Messrs. Veitch. It will, no doubt, appear soon in the establishment of those gentlemen, where is a fresh importation of plants gathered by the last named very promising collector. *H. G. Rchb. f.*

Neodryas densiflora, *n. sp.*‡

This is an unexpected novelty. It has the habit of some Oncidium with very shining pseudobulbs. The leaves are cuneate, oblong acute, nearly a span long. The inflorescences are quite covered with dense purplish flowers, standing on short lateral branches, as in a Polystachya. They are smaller than those of Oncidium ornithorrhynchum, but larger than those of the hitherto known Neodryads. The plant would perhaps be liked by those who loved the now nearly forgotten Rodriguezia secunda, one of those plants one understood to grow well twenty years ago. (If I am not a mistaken, a lot of this, the Rodriguezia, was lately imported by M. Roezl.) It is one of Mr. Davis' previous discoveries, and will, no doubt, flower soon in the Royal Exotic Nursery of Messrs. Veitch. *H. G. Rchb. f.*

* *Dendrobium marmoratum*, Rchb. f., n. sp.—Eudendrobium aff. D. transparenti. Caulibus nigrogriseis validioribus, aequalibus (non nodatis), mento valde abbreviato retuso; labello a basi cuneata oblongo ciliato, basin versus dense ac breve velutino; columna brevissima, apice tridentata, antro in basi cum angulo superiori mediano deorsum imminente; anthera inornata.

† *Odontoglossum compactum*, Rchb. f.—Panicula valida compacta effusa; bracteis spathaceis obtuse acutis; ovaria pedicellata subdimidia aequantibus; sepalis tepalisque stellatis cuneato oblongis acuminatis; labello a basi cuneato oblongo acuminato basi latiori, sensim attenuato, apice reflexo; callis oblongis in basi geminis, antepositis papulis quaternis, dein ternis, dein geminis; columna clavata basi dilatata.—"*Odontoglossum aureo-purpureum*, Rchb. f.;" Lindl., "Folia quoad locum" Peruvia, Lobb, "et laudem"—a noble species.

‡ *Neodryas densiflora*, Rchb. f., n. sp.—Pseudobulbis ligulatis ancipitibus monophyllis; foliis cuneato oblongis ligulatis acutis; inflorescentia longe exserta paniculata; paniculæ ramis ramulisque aggregatis; bracteis triangulis acutis ovaris pedicellatis brevioribus; sepalis oblongis, sepalo inferiore cuneato bidentato; tepalis latis ovatis apiculatis; labello utrinque basi auriculato, dein rotundo apiculato; callo septemlobo in basi; columna utrinque aurita. Flores purpurei.—Peruvia, Davis (comm. dom. Veitch).

THE YUCCA, ETC.

Dr. Parry's last instalment of his "Botanical Observations in Southern Utah," now publishing in the *American Naturalist*, contains some interesting notes, such as the following upon the Yucca of the deserts of that region:—

"This is universally known among the Mormon settlers under the name of 'the Joshua.' The mail rider over these desert tracts had furnished us weekly reports of its progress in flowering, so that we were constantly on the look-out for a first view of what had never yet been examined by a scientific botanist. At first a few scattering clumps of the peculiar stiff spiny leaves that characterise this genus of plant attracted attention, then some gaunt forms raised on withered trunks revealed the identical species. On hastening forward to a more vigorous growth, where the masses of compact flowers were visible at a distance crowning the top of the upper branches or main axis, we soon had one of the lower flowering stems ruthlessly torn down for a closer inspection. The first feeling was one of disappointment. The flowers, crowded in a close pyramidal head, failed to exhibit the ordinary graceful forms pertaining to the Liliaceæ. The perianth was of a dull greenish-white colour, its divisions long-linear, thickened and confusedly massed together, while the odour given out was decidedly fœtid, seeming to present special attractions only to various beetles and insect larvæ. An examination of the inflorescence shows a regularity such as the botanist would expect; the upper leaves of the flowering branch gradually becoming bract-like subtend in their axils small-jointed flower-stems, with the lower flowers generally arranged in threes. These, in continuing their spiral arrangement on the main axis, form the condensed mass of flowers which, opening from below upwards, prolong the flowering process for several weeks. Only a few of the flowering-stems perfect fruit, and occasionally (as during the present season) all prove abortive, possibly owing to the absence of some insect-agency for effecting fertilisation. In the desert districts lower down, where this species especially flourishes, the flowering heads are said to weigh frequently over 50 lb."

Another interesting observation by Dr. Parry, in the same paper, is the following, on the dissemination of the seeds of Gilia setosissima:—

"Wishing to collect somewhat largely of the seeds of this neat little annual, I watched more closely than usual the maturing of the capsules. In most of the other species of this prevalent genus there is a succession of flowers and maturing capsules, which latter opening at the summit discharge their seeds while the plant is still producing flowers, thus rendering it difficult to secure a large quantity of seed without including capsules not sufficiently mature. But in the case of Gilia setosissima all the capsules remain tightly closed till the whole plant becomes dry and brittle. In then gathering seed by picking each plant separately, I noticed the seed projected with some force against my hand. On closer examination I found that these capsules open from below upwards, and that the tension accumulated by the shrinking of the tissues in the process of drying gives an elastic spring to the three separating valves when released from their attachment at the base of the calyx, that throws the contained seed from 2 to 6 feet. After making this discovery, it was interesting to watch the process by loosening the attachment of the valves with the point of a knife, and see how far they would shoot. The majority of the seeds were scattered within a radius of 2 feet, while in the plumper capsules the shots took effect to a distance of 5 feet or more. The three separated valves of the capsules, on account of their light, chaffy texture, were not thrown as far as the seeds. A similar character, though less marked, was also exhibited in certain species of cæspitose Phlox, though in this latter case the explosions observed occurred some time after the capsules were detached from the calyx. The conclusion arrived at is, that the character of explosive capsules in this particular family is peculiar to those that open at the base instead of the summit."

THE YAM FEAST OF NEW CALEDONIA.

Among the various days set apart by the New Caledonians for special solemnities, the feast of the gathering of Yams is one of the most important. It takes place, according to M. Vieillard's account, of which this notice is an abstract, at different but predetermined periods in different tribes, and is attended by persons from 15 to 20 miles round. For some days previous a smaller *fête* is celebrated by the women themselves, and on this occasion they are allowed to take a certain number of Yams from the field, and to indulge in dancing, of which they are passionately fond.

Some time before the day appointed the chief of the principal tribes sends invitations to those of the smaller neighbouring tribes with whom he is on friendly terms. Each village is obliged to supply a contingent of Yams and other provisions proportionate to its rank and importance; and from this obligation the chief himself is not exempt. On the day of the feast the inhabitants of the villages, headed by the chiefs, make their way to the place appointed, the women bearing the provisions. The chief, surrounded by the elders of the tribes, then makes his way to the

sacred tree, where are then brought to him Yams, Sugar-canes, and Taro (the tubers of Caladium esculentum), as well as the results of the fishing expedition which always takes place the evening before the feast. A fire being lighted, the fruits are cooked, and a portion of them is placed by the chief in an appointed place, with a solemn invocation to "the spirit" requesting his protection, and a plentiful supply of Yams and fish.

The inhabitants of the different villages being assembled, the examination of the provisions is proceeded with. To this end one of the inferior chiefs, assisted by one of the elders of the tribe, takes his seat upon an eminence from which he can survey the whole assembly, and gives the order for the untying of the packages. Those of the principal chief are first opened. A native takes a Yam and presents it to the presiding chief, who, after stating that it is from the Great Chief, holds it up so that all may see it, and says in a monotonous voice, "One?" to which the assistant elder answers in the same tone, "Yes." The Yam being placed on the ground, the same native takes another, and the same formalities are gone through, and so on until ten have been offered, when the ceremony is recommenced.

This monotonous performance continues for a considerable time, as all the provisions have to be inspected in a similar manner. At its conclusion the Yams are arranged in an octagonal column 6 or 7 yards high, the base of which is formed of Sugar-canes and Cocoa-nuts; the whole is supported by long poles bound together with the tough, pliant stems of climbing plants.

In many tribes the arrangement is different, and as many lots of Yams, Taro, Sugar-canes, Cocoa-nuts, &c., are made as there are chiefs present. If strange chiefs are in attendance their part is the first selected, and is the finest; then comes that of the principal chief, then that of the second, and so on, ending with those of the chiefs of each village. These lots arranged, the principal chief makes a speech and then distributes them. Each petty chief then proceeds to a second distribution among his subjects, reserving a good share for himself; a lot is reserved for the women, but, contrary to our notions of politeness, it is always the poorest and most meagre. The heads of families then distribute their shares among those under them, and, the business of the day being thus concluded, the assembled company devote themselves to dancing and other amusements.

Five species of Yam occur in New Caledonia, two (Dioscorea bulbifera and D. pentaphylla) being indigenous, and three (D. alata, D. uote, and D. aculeata) only being found in cultivation. It is the first of this last-named group which is of the greatest economical importance, and which forms the principal feature of the festival which has been already described. Its cultivation is carried on in the following manner.

In the month of July in the north, but somewhat later in the south of the island, each person burns the herbs which cover the field which he intends to plant. Some days afterwards he calls together his friends to assist him; men and women then repair to the field; the men clear the ground with the aid of long-pointed stakes, while the women and children break the clods and pick out the roots. As the Yam requires a loose and deep soil, and the imperfect construction of the tools does not permit the earth to be stirred to a sufficient depth, soil is brought from the neighbouring fields and placed on the top, so that a sufficient depth of earth may be obtained. After about fifteen or twenty days, a second work takes place, which has for its object the levelling and dividing of the earth, after which the planting is proceeded with. The tubercles are cut into pieces and planted in rows, or in lots of five, with the space of about a yard between each; the planter makes with his hand a little ditch in which the pieces of tubercles are placed horizontally, and are then covered with the earth, which is heaped up over them so as to form a little mound.

On the fifteenth or twentieth day the Yams begin to shoot: and in proportion as the stems appear, they are provided with supports of reeds, &c. When the plants have attained the height of about 40 or 50 centimetres, they are weeded, and the reeds are replaced by other props. From this time until the tubers are ripe the natives are continually occupied in weeding and training the plants. At the end of seven or eight months the tubers are ripe, and the feast already described is then celebrated. The Yams are allowed to remain in the ground until the leaves are entirely withered; they are then taken up and stored either upon a kind of hurdle, or in little cases constructed expressly for this purpose.

All the species of Yam are eaten either cooked in water or broiled upon coals. The natives prepare also from slices of Yam and grated Cocoa-nut a sufficiently good soup, which they call Lotoil.

The number of varieties of D. alata which are cultivated is very great, and each has its distinctive name. When the best species fail, the tubers of the indigenous D. bulbifera are collected by the women and eaten, after being soaked in water in order to remove an acrid principle which they contain. *B. M.*

WINTER CUCUMBER.

We copy from the columns of the *Revue Horticole* the subjoined illustration (fig. 102) representing a Cucumber called the Alsace or Winter Cucumber. It is so called because it is eaten in Strasburg and its neighbourhood in the winter time, just as an ordinary Cucumber would be in summer time. Its form and dimensions are much more like those of a Gourd than of a Cucumber. Moreover, its flesh is less watery than that of a Cucumber, and when it is eaten raw its flavour is more that of an Artichoke with a dash of Filbert in it. It is cooked in various manners, and served up with gravy it is excellent. It appears to be a recent introduction into Alsace, where it is still cultivated in but a few gardens.

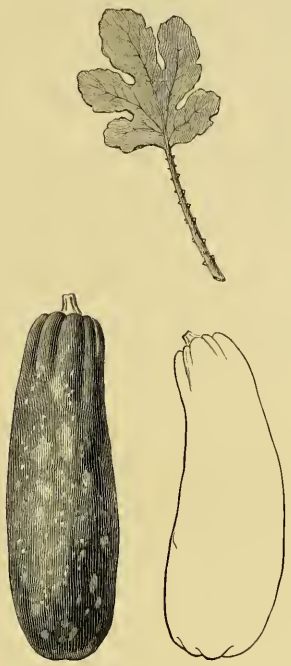

Fig. 102.—The Alsace Cucumber.

It was introduced to Paris by M. Weber, an army surgeon, and appears to have been quite unknown to Parisian gardeners. M. Carrière gives it an excellent character as a winter vegetable. It may be preserved till spring in a dry place, and slices may be cut from it as they are wanted. It may be eaten in thin slices like Cucumbers, and when cooked it has the consistence of a Turnip, but is infinitely more delicate. The fruit is about 18—20 inches long, with a smooth rind, at first green, but afterwards becoming marbled with yellow. The flesh is yellowish white, firm, not watery, and with a delicate flavour. The seeds are small, elliptic, and of a dirty white colour. The cultivation is the same as for ridge Cucumbers or Vegetable Marrows.

A REVIEW OF THE PROGRESS OF VEGETABLE PHYSIOLOGY IN 1874.

(*Continued from p. 463.*)

Respiration of Plants.

MM. Dehérain and Moisson have studied the respiration of plants kept in constant darkness. Their results were briefly these: 1. The quantities of carbonic acid emitted by leaves in darkness are comparable to those produced by some of the lower animals (frogs, cockchafers, silkworms, &c.). They vary considerably in different species, and are generally greater in the case of caducous than in that of persistent leaves. 2. As M. Garreau observed, the quantity of carbonic acid emitted by the leaves increases with the temperature to which they are subjected; but the maximum appears not to exceed 40 to 45 per cent. 3. The quantity of oxygen absorbed exceeds that of carbonic acid produced; the difference is most marked at low temperatures, which seem to favour formation of products incompletely oxydised in the plants, such as vegetable acids. 4. Leaves placed in an atmosphere without oxygen continue to give out carbonic acid several days at the expense of their own tissues; this emission only ceases, apparently, when all the cells are dead. The resistance to asphyxia from absence of oxygen varies much in different species. 5. It is probable that the slow combustion which takes place in the leaves produces the heat necessary to the formation of the immediate principles that are elaborated in them. It is observed that emission of carbonic acid is favoured by obscure heat, which thus exerts a decisive influence on the rapidity of growth of plants; so that horticulturists have long found it useful to dispense with a part of the luminous heat which the sun gives, by keeping plants in glasshouses, where, on the other hand, the obscure heat is concentrated.

Chemistry of Germination.

M. Dehérain has also (with M. Landrin) made researches on germination. He has brought to light a fact previously unnoticed, viz., that when the testa of the seed has been moistened with water it admits a certain quantity of gases (oxygen and nitrogen), which are condensed in the tissues; and this is accompanied by a rise of temperature, which favours the action of the atmospheric oxygen, and perhaps determines it. From the time this action becomes sensible, the chemical transformation commences, and life awakes. In experiments made in a limited atmosphere, and not of too long duration, there was always more oxygen absorbed than carbonic acid produced. A part of the former remained fixed in the tissues, and served, perhaps, to oxydise the azotised matter, in order to transform it into asparagin. But in the long run the carbonic acid much exceeded the oxygen absorbed, the oxidation of immediate principles continuing even in an atmosphere deprived of this gas. Hydrogen is liberated only in an atmosphere deprived of oxygen. Lastly, the nitrogen, which always appears during germination, seems to be merely that which was at first condensed in the tissues. Experiments made on germination in different media proved with certainty the condensation of gas in the tissues. There was always diminution of volume of gas. The authors also confirmed M. de Saussure's observation of a deleterious action of carbonic acid on plant life. In a mixture of hydrogen, or of nitrogen and oxygen, a few traces of the last gas sufficed to produce germination, whereas germination did not occur in a mixture of one-third carbonic acid with two-thirds oxygen.

M. Boehm has studied the development of starch in the cotyledons of etiolated plants (Cress, Radish, and Flax). According to the researches of MM. Famintzin and Krauss, the starch appeared to originate in decomposition, under the influence of light, of the carbonic acid of the air. M. Boehm thinks otherwise; he considers it is partly, at least, the product of transformation of substances that already existed in the plant. He experimented by making the etiolated plants vegetate in an atmosphere without carbonic acid, or exposing them to light which, though sufficient to colour chlorophyll, did not cause decomposition of carbonic acid. In every case he found starch in the tissues, and he inferred that it arose from transformation of nutritive principles originally accumulated in the seed. These principles, in the plants experimented with, occur in the form of a fatty oil, which, before serving for the production of cells, has to undergo change. It is the substance thus produced (hydrate of carbon) which, being in excess in the tissues, comes to assume, under influence of light, the form of fecula.

This theory of M. Boehm's is opposed to certain well-ascertained facts. Young plants completely etiolated cease to develope when they have exhausted the provision of nutritive principles contained in the seed. Why should it be so, if a part of these principles remained in the tissues in the form of hydrate of carbon? It cannot be the deleterious influence of darkness; for the absence of light is favourable to the production of new cells. Further, M. Boehm does not take account of the experiments of M. Krauss, in which the plant exposed to light increased in weight whenever the starch commenced to appear in the grains of chlorophyll. That was a case, not of the transformation of a pre-existent substance, but of the bringing in of new elements. We ask, lastly, what advantage could the plant derive from the phenomenon? The starch is not directly utilisable, before serving in the production of new cells it must take another form similar to that which, according to M. Boehm, it had in the tissues before the period of etiolation. Of what good this double transformation?

True, some of M. Boehm's experiments are not explicable on the theory of direct assimilation; but we think these are particular cases, perhaps of plants which had not been kept in the dark sufficiently long, and which consequently do not invalidate the general theory.

Absorption of Ammonia.

M. Schloesing has proved experimentally the possibility of a plant absorbing directly the gaseous ammonia expanded in the atmosphere. Two Tobacco plants were grown in identical conditions; the limited atmosphere of one contained ammonia, the other did not. The former yielded on analysis much more nitrogen than the second, and had absorbed about three-quarters of the ammonia presented to it.

The presence of a considerable proportion of nitrate of potash in certain plants is a fact already known. M. Bontin has proved it in the case of certain species of Amaranths, indigenous and exotic. A. ruber (originally from India), dried and analysed, contained 16 per cent. of its weight of nitrate of potash, or 22 grammes of nitrogen and 72 of potash per kilogramme of the dry plant. The author speaks of the advantages agriculture might derive from using these plants as manure. It would be interesting to study the origin of this salt and of its accumulation in the tissues.

Chemical Constituents of Plants.

M. Borscow has studied some substances distributed in certain plants, both as regards their microchemical reactions, and their mode of distribution in the tissues. It is a very interesting kind of investigation, and one of the best means for finding the key to the *rôle* of these substances in the vegetable economy. M. Borscow's observations have thus far related to the following substances:—Asarone, a principle like camphor, found in the parenchyma of the roots of Asarum europæum; chrysophanic acid, in the tissues of a Lichen (Physcia parietina), and which has also been met with in the root of Rhubarb and certain Rumex; franguline, resembling chrysophanic acid in several points, and found in the bark of Buckthorn (Rhamnus Frangula); syriogine, bitter crystallisable principle from the branches of Lilac, and which may be a product of transformation of cellulose; veratrine, an alkaloid in the root of Veratum album.

M. Pfeffer has found in small Oranges, which had remained a certain time in alcohol, sphæro-crystals of a substance which he has called hesperidio. It is a non-azotised substance, the chemical composition of which is not exactly known, and which is dissolved in the tissues; it is precipitated in crystalline form, like the inuline of the tubercles of Dahlia. Hesperidin is most abundant in the fruits, but is met with also in the branches up to the point of vegetation, and in the leaves. Its presence may be detected in the pistil; it increases until the small Orange is about 20 millimetres in diameter, and then appears to remain stationary. Citrons do not contain it. The physiological *rôle* of the substance is still unknown. The author thinks it is related to tannin.

In a very important work published in 1872 on proteic substances and their *rôle* in plants, M. Pfeffer showed the particular functions of asparagin. This body may be considered as the transitory form assumed by the azotised matter in the seeds of leguminous plants where it is stored, and the point of vegetation where, in the form of albumen, it serves for the production of new cells. Subsequent researches have enabled the author to give a more exact account of these successive transformations.

Asparagin contains less carbon and hydrogen, and more oxygen than legumin (the proteic matter of the seeds), and than the albumen of the tissues. It is, then, a product of oxydation (respiration), and to take a place in the young cells it must anew assimilate molecules of carbon and hydrogen. This reaction does not take place in the dark, nor in an atmosphere deprived of carbonic acid. Here, again, we are in presence of a phenomenon connected with the general action of light on plants and the decomposition of carbonic acid. According to M. Gorup Besanez, asparagin is not alone in playing the part indicated. Another azotised substance, leucin, which chemists have long referred to organic albuminoid substances, is found frequently in Beans and Vetches in fermentation, along with asparagin. The author does not say anything of the *rôle* of this new substance, nor of the circumstances accompanying its apparition.

Formation of Wood.

Precise researches on the lignification of tissues were rendered difficult by the absence of a delicate reagent fitted to reveal the presence of lignin. M. Bürgerstein has used, for this end, sulphate of aniline, the special properties of which, for colouring wood, were shown by MM. Runge and Hofmann. Armed with this new means of investigation, M. Bürgerstein has methodically examined the various categories of vegetable tissues; and he notes, as completely exempt from lignification, only the tissues of Algæ, of Champignons, of certain Lichens; and, in vascular plants, only the collenchyma, the cambium, and the punctated vessels. All the other elements are more or less lignified. In stems, it is the fibro-vascular bundles that are first lignified, then follow the cortical cells, and, much later, the medullary cells.

Vegetable Poisons.

Passing now to consider substances which act unfavourably to the life of cells, we may first notice the researches of M. Conventz on the physiological action of camphor and similar substances. Some experimenters, and most recently M. Vogel, have affirmed that camphor has a stimulating action on vegetation: M. Conventz has made, under the direction of Prof. Goppert, at Breslau, some experiments which point to an opposite conclusion. He employed filaments of Spirogyra; and, to avoid all chance of error, he began by studying the action excited on these organisms by solutions of neutral salts (nitrate of potash, carbonate of ammonia, &c.). The protoplasma of filaments immersed in these liquids contracted into masses of irregular form, and the algal evidently suffered. If the action were not continued too long, however, the Spirogyra, transferred to distilled water, even recovered its previous vigour. Evidently, the neutral salts only injured the organism by drawing to themselves a part of the water of the protoplasm. It was quite otherwise when filaments of Spirogyra were immersed in solutions of camphor, of strychnine, of prussic acid, and some other substances which act as excitants in the animal kingdom. Here not only did the protoplasm contract, but it underwent other alterations; and, in particular, it became brown. The plant was quickly transferred to distilled water, but it soon died. All the substances acted like veritable poisons on the vegetable tissues.

Studying the injurious influence on vegetation exercised by sulphurous acid, even in small quantity, in the atmosphere, M. Schröder has observed that it acts principally on transpiration, the intensity of which it tends to diminish. One may often remark, in leaves that have been acted upon by it, a somewhat transparent area about the median nerve, while further off the tissues are darker and more opaque. This is due to the fact that the water, no longer circulating in the normal manner, accumulates in a part of the leaf, and does not spread throughout it. The hurtful effect of vapours of sulphuric acid is most marked at times when the transpiration is strongest, and particularly during the day. These facts may have a certain importance for wooded countries where charcoal is manufactured, and where the smoke, always containing sulphurous acid, injures the trees.

Gumming of Fruit Trees.

M. Prillieux has made a complete study of the production of gum in fruit trees. In his opinion it is a true disease, having its seat most often in the cambium, and to which he has given the name "gommose." It commences in the centre of a cell or lacuna, by transformation of the grains of fecula; the alteration presently spreads, radiating around the central point, and the gum fills, successively, lacunæ, cells, and vessels. But the most remarkable feature of the malady consists in the production, round the point of attack, of numerous adventive cells filled with fecula, which are immediately transformed into gum. There is a derivation of the nutritive principles, which are brought to the affected part and contribute to augment the morbid state. The first cause of the phenomenon is difficult to indicate, but the result recalls, in some measure, the development of galls. The best remedy seems to be in incisions on the bark, an operation causing an energetic production of cells at the periphery, and which consequently diverts the nutritive principles from the diseased part. *A. B. M.*

(*To be continued.*)

PRINCE OF WALES PLUM;

WITH AN INQUIRY AS TO CERTAIN CAUSES THAT ARE TENDING TOWARDS ITS DESTRUCTION.

The general excellence of this very popular Plum is now so well known as to require but little notice. The object of these remarks is rather to call attention to some of its peculiarities, or, it may be, constitutional defects, with a view thereby—from amongst the multitude of observers—of ascertaining the true cause or causes of these, and possibly the means for their prevention.

The Prince of Wales Plum is a seedling raised, we believe, by the late Mr. Chapman, a large grower for market at Isleworth. It has now been a good many years in cultivation, and is very generally known as Chapman's Prince of Wales. It belongs, in the first place, to the Orleans class of Plums, but the fruits are far larger and of much better quality than those of that variety. It ripens early, and is a great and almost certain cropper: there is, in fact, no more certain cropping Plum than the Prince of Wales. This is in part attributable to the leaves, which, according to the observations of Mr. Dancer (who is a great cultivator and special observer of the peculiarities of this Plum), expand somewhat earlier than the leaves of most other Plums, and, being large as well, they serve in some measure to protect the young fruits from late frosts.

Thus its fine appearance, earliness, and general good qualities soon established its reputation in Covent Garden, and its free, abundant, and constant fruiting properties won its way with the great growers for market. Its reputation is as a London market Plum, and it is one of the very few varieties that are cultivated in quantity by the London market gardeners. Since its introduction by Mr. Chapman, until within a few years ago, no Plum has ever had a better reputation or has been much more extensively planted—our great fruit cultivators, such as Mr. Wilmot, of Isleworth, Mr. Edwards, and Mr. Dancer, growing the trees by the thousand, and supplying the markets with the fruit by the waggon-load.

This fine Plum then, as it would appear, has nearly all the virtues or good qualities that pertain to Plums, and so far so good. But there is as usual some alloy. The Prince of Wales Plum trees have always been strangely subject to die off, but of late years so much so that its cultivation may have to be abandoned altogether. The manner in which the trees of the Prince of Wales die out, or are killed, is very extraordinary, and as yet quite inexplicable. We do not mean to infer that it is by any means an uncommon occurrence for a Plum tree, or the branch of a Plum tree, to die, but this is chiefly from the effects of gumming, or from some other easily traced cause, and to this all varieties are subject. In regard to the Prince of Wales Plum, there is no trace of any outward or even inward injury that can be detected; the shoot or branch simply dies down so far, below which it is as healthy as may be. It is no single tree or branch that is affected; the destruction is wholesale, and truly appalling. How or when they are affected or injured is not accurately known; that is one of the points upon which information is required. There is nothing special in the appearance of the trees at pruning time; they all seem in their usual health and vigour; the blossom appears, the fruit is set and swelling off, the trees are clothed with leaves and the young shoots are growing, and everything is looking fair and promising, when suddenly a great portion of the leaves seem to droop and flag, and in the course of a week or so they are mostly withered up, and present the appearance of having been scorched. Some portions are killed at once, while others linger on, and even ripen an early crop of fruit, and then die.

In some plantations not a tree but is more or less touched—here it may be only a small twig or branch, there one half or one side of the tree, while the next is wholly destroyed. It is seldom, however, that the trees are entirely killed—the stock or stem is not so often injured, and this, on the tree being headed down, again pushes forth shoots and grows up as vigorously as before. This peculiar fatality, as we may term it, has long been observed by those most interested, who have cultivated it extensively, but no real facts as to the probable cause or remedy have yet been brought forward. In some seasons the trees escape quite uninjured in any way, whilst in the following (as was the case in the last two years) the most disastrous results occur. It is safe to affirm that last season (1874) quite one-third of the whole of the Prince of Wales Plum trees in Mr. Dancer's grounds were destroyed. Mr. Wilmot and Mr. Edwards also lost several hundreds of trees or portions thereof, and wherever inquiry has been made the same result occurred. Is not this then of sufficient importance to excite the interest of our scientific horticulturists, and to merit attention and investigation? Here is one of our favourite popular Plums in a fair way of being exterminated through possibly some constitutional defect, or with a constitution such as renders it peculiarly liable to certain exigencies. This case is far more tangible, and more to be feared in its consequences, than the wearing-out theory of the Ribston and Golden Pippin Apples.

Despite the closest inquiries and the most careful observations for years past, opinions are greatly at variance as to the real cause of the injury. Some attribute it to one thing, and some to another. A very popular belief for a long time was that it was owing to the unsuitable stock on which it was worked. This was Mr. Chapman's belief. He strongly recommended growing them on their own roots as being a certain success. But one of the destructive seasons came, and all suffered alike, and so the "own root" system was found wanting. It is still, however, believed by many that the stock has something to do with it, and it might be so; but a stock could only influence it in this way, either by checking its somewhat gross growth, or inducing it to start later, after the dangers of frosts are over. Seeing, however, that the stock is the least injured of any part, frequently not at all, and that the branches on all kinds of stocks that we have examined are about equally affected, it must naturally be concluded that it is pretty well innocent. Again, it is by some attributed to dryness at the roots, since it is a gross growing variety with large leaves, requiring much moisture, but this theory is open to the same objection as the former. I have seen them affected alike in dry and wet situations and seasons. A better grounded theory is that it is due to the agency of frost, but even here opinions are not reconciled. We are all conversant with the destructive work of frost in winter amongst young Apricot and Peach trees, &c., in nursery quarters, and so many believe that this injury is effected in the same manner, and it may be so, yet it seems extremely doubtful. In

the first place, trees injured by frost in winter seldom get into growth in spring, but at once die. In this particular case, however, the trees put forth blossom, and begin to grow and bear fruit in an apparently uninjured manner, boding nothing of the ruin coming. Mr. Dancer is of opinion, from repeated observations, that all the mischief is done after the trees commence to grow, and in spring in the months of April and May. The months of May, 1873 and 1874, were remarkable for extreme cold and the great number of severe frosts, which certainly destroyed the crop of Plums. Both those years were also remarkable for the great destruction of those Plum trees, so that this leads us almost inevitably to the conclusion that this peculiar destruction amongst the Prince of Wales Plum trees, which we have attempted to describe, is due to the direct agency of late spring frosts. This is Mr. Dancer's opinion, formed, as it has been, after many years of the closest observation, during which the number of trees he has lost of this Plum may be counted by thousands. In order, however, to test the matter thoroughly, might we ask growers of this fine Plum to take particular notice this spring of the frosts, and what effect (if any) is produced on these Plum trees? I call attention to the subject now, in order that observations may be taken at the proper time, otherwise no notice will be taken until long after the injury has been effected, and it is impossible to trace the causes that may have led to it.

Bearing on the importance of this may be mentioned a remarkable lawsuit tried before Mr. Justice Mellor at the Assizes a few years ago, respecting the death of a great number of these Plum trees, in the manner above stated, at Isleworth. A brickfield was established near to these Plum orchards, and that season the deaths and destruction among the trees was more than usually severe, so the proprietor of the brickfield was sued for the loss, it being alleged that it was due to the influence of the smoke, and damages were actually recovered in that case. We know now that all this was due to natural causes, over which we have none of us any control.
A. F. Barron.

ELEMENTARY LESSONS IN BOTANICAL GEOGRAPHY.

VII.—On the Way in which Heat Influences the Distribution of Plants.

(*Continued from p. 432.*)

The influence of temperature upon the distribution of any plant depends largely upon its season of vegetative activity. Annuals, which run their course from the seed stage to leafing and flowering, and back to the seed stage, in a period varying in length from two to six months, can only be affected by the temperature of that portion of the year during which they are growing. Biennials have to last through the winter, and often concentrate their energies for a large proportion of their existence in storing up materials in their rootstocks, and spring up into flower and seed in a short time when warm weather comes, at the expense of tissue previously elaborated. Trees and shrubs have usually a well-marked time of flowering and fruiting, once a year, and it is the same with a great many perennial and annual herbs, but the season with different species is very different. Helleborus niger, and the Snowdrop and spring Crocuses, push out their flowers and leaves as soon as the snow melts. Hawthorn and Blackthorn, and our common fruit trees, push out their flowers in April and May, before the leaves are developed or perfected. The flowering of Ragwort and St. John's Wort takes place long after the leaves appear, and marks that the summer equinox is past, and the days are beginning to grow shorter. Colchicum autumnale produces its flowers regularly in August, but its leaves not until the following spring; whilst Asters and Chrysanthemums flower regularly at Michaelmas; and Holly and Ivy, and Aucuba, and Cherry-Laurel, are in full leaf all winter; and Lamium album, Poa annua and Capsella bursa-pastoris, may be seen during any month of the twelve in simultaneous leaf and flower. So that the time of the year at which different plants are at all sensitive, and especially sensitive to temperature, varies extremely.

It is evident that, in the first place, plants need very different degrees of temperature to start them into life. The seeds of many of the Microthermes, and even of plants of our middle latitudes, will germinate at a temperature of little over 32°. Of cool temperate species, for which the experiment has been carefully tried, Sinapis alba, has been found to germinate at 32°; Lepidium sativum and Linum usitatissimum at 35° to 36°; Nigella sativa, Iberis amara, Trifolium repens, and Collomia coccinea at 41° to 42°; and Wheat, Barleys, and Oats, at 44° to 45°. With heat added over and above these degrees, the time from the sowing of the seed to its germination is found to be materially shortened. Sinapis alba, which took seventeen days to germinate at 32°, was found by M. Alphonse De Candolle to take sixteen days at 35° to 36°, nine days at 37° to 38°, four days at 42°, three and a-half days at 48°, one and three-quarter days at 51° to 52°. Passing to Mesotherm types, the temperature needed for germination becomes gradually higher. For Maize it is stated to be 48°, and for the Macrotherms at least 50° to 60°, but it may take place at a much higher temperature. Sesamum orientale has been found to germinate in nine days at 51° to 52°, in three days at 62° to 63°, in thirty to thirty-six hours at 68° to 69°, in twenty-one to twenty-two hours at 75° to 76°, in twenty-five hours at 82°, and some even in ten and a-half hours at a heat of 104° to 105°.

The start once made, it is evident that plants need a certain amount of heat to enable them to flower and fruit, but that, with some species at any rate, it is immaterial, within surprisingly wide limits, whether the heat come gradually or rapidly; and that if the latter, the times of flowering and seeding are accelerated. Nothing shows us better how flexible in this respect a plant may be than the familiar facts about the sowing and harvesting of the common cereal grains. In the north of India Wheat is a common winter crop, to be followed in summer by Maize or Indigo, and is sown, and the harvest gathered, within three months. In Palestine the Barley ripens at the end of March, and the Wheat by the end of April, November being the month of ploughing and sowing. In Malta and Sicily they sow at the end of November, and harvest through May. In the countries round the north side of the Mediterranean basin they sow early in November, and harvest in June. In Central Europe they sow in October, and harvest in July. On the Yorkshire wolds, and in the alpine valleys of Switzerland, they have to sow in September, and cannot harvest till the following August; so that the time that elapses between sowing and ripening may be said to vary between the different parts of the tract in which the common cereal grains are cultivated for the use of man, on a grand scale, from 90 to 320 days. If too much heat be applied the embryo refuses to germinate, or if it have germinated already, the leaves, or flowers, or fruit, according to the stage which the plant has reached when the hurtful heat is applied to it, are not developed.

Then, again, it is equally evident that a gradual or sudden access of cold below a certain point—a point which varies with different species—coming when the plant is in a state of vegetative activity, injures or kills it. It may be simply a cold north-east wind in spring, blighting the blossoms of the Apricots, and Apples, and Pears, and whilst destroying the seed for the year, doing no permanent harm to the tree; or it may be a mild frost, at the beginning of winter, cutting off entirely our garden Dahlias, Pelargoniums, and Mesembryanthemums; or a hard frost in the middle of winter, killing the Eucalypti, Araucarias, Hollies, and Aucubas.

It follows, from these familiar facts, that some plants are checked from spreading from warmer latitudes towards the poles by the want of plenty of heat in summer to carry them from the seed stage, round the circle of life, to the seed stage again; and that others, for which the heat of summer is sufficient, are cut off by sudden fits of cold, that catch them at a time of vegetative activity. It is of no use, it seems to me, attempting to treat this last matter in close detail as a question of figures and thermometric degrees, because the different habits of growth of plants, and the different degrees of the wateriness of their sap, dependent upon the hygrometric conditions of the surrounding atmosphere and soil influence it greatly, and their vegetative action passes through so many intermediate stages between the fulness of life in spring and their nearest approach to a dormant condition. But we may safely distinguish broadly between the two great classes of plants which I have indicated, and which I will call the *heat-lovers* and *cold-fearers*. Annuals are usually heat-lovers; trees and bushes, especially evergreens, are usually cold-fearers; and it follows, from what has been explained already about the characters of the two kinds of climate, that the cold-fearers can work up further from the equator in insular, and the heat-lovers in continental climates.

We can perhaps understand best this matter of polar limits, and illustrate the difference between the two great classes of plants just indicated, by a rapid glance at the general character of the vegetation of Britain as compared with that of the continent. The range of the plants of Britain, both within the island and outside it, has been studied out and recorded in full detail by my friend and master in geographical botany, Mr. Hewett C. Watson, whose book entitled *Cybele Britannica* contains a record and classification of the enormous mass of facts bearing upon this subject which he has accumulated.

Britain extends over nearly 10° of latitude, and its hills reach a height of 4200 feet. As the high hills are in the northern parts of the island, there is a difference between the climate of its extreme points equal to that caused at sea-level by 22° of latitude. Mr. Watson separates the surface into six zones of heat, the boundary between the third and fourth being the line of the practicable cultivation of grain and Potatos, which we have already regarded as being equal to the arctic circle at sea-level. Very little of the actual surface of Britain falls on the cold side of this line, because it is only mountain peaks and ridges that overtop it. Taking these zones in ascending order, the number of plants known in each is as follows, the total number found in Britain as a whole being 1425:—Infeagrarian zone, 1225 species; Midagrarian, 1070 species; Supcragrarian, 760 species; Inferarctic, 293 species; Midarctic, 244 species; Superarctic, 111 species.

Arranging the species under "types of distribution" according as they are spread through the whole or part of the island, 532 species are found to be spread at sea-level generally from north to south, 606 to run out so that they do not reach the northern latitudes or climb the hills, and 238 species to have a decidedly northern or montane partiality, the remaining 49 being too local to class fairly as either northern or southern. Out of these 1425 British plants, no less than 460 have a sufficiently wide range of climatic adaptability to be inhabitants also of Lapland, but a large proportion of the 606 species, which are more or less southern in their range within the limits of Britain, are cold-fearers, which are stopped by the cold winters from advancing beyond the middle or into the middle of the European continent. The following are a few of these, with mention of how many of the six climatic zones they reach into in Britain, and an outline of their line of polar limit upon the continent:—

Ilex Aquifolium—our common Holly—grows in the three warmest of the heat zones in Britain, its polar limit upon the continent stretching from South Norway to Mecklenburg, Pomerania, Austria, and Thrace.

Erica cinerea—the commonest of our five British Heaths—reaches into four zones in Britain, stretching across the continent from Norway and Belgium to Transylvania, and occurs only in a single station (in the neighbourhood of Bonn) in Germany.

Ulex europæus—our common Furze—three zones in Britain, runs across the continent from Denmark, Mecklenburg, and Hanover, to Switzerland and Italy.

Ulex nanus—the dwarf autumnal Furze, so common on our London heaths; three zones in Britain. Does not extend on the continent beyond Flanders, France, Spain, and Portugal.

Wahlenbergia hederacea—two zones in Britain; from Denmark and Belgium to Dalmatia.

Iris fœtidissima—one zone in Britain; France to Hungary, Tyrol and Constantinople.

Erica ciliaris—one zone in Britain; West and Central France, Asturias, Galicia, and Portugal.

Trichonema Columnæ—one zone in Britain; West France, Spain, Portugal, Italy, Dalmatia, Greece.

Adiantum Capillus-Veneris—the common Maidenhair Fern—one zone in Britain; Belgium, Switzerland, Tyrol, Dalmatia, Turkey, Greece.

Trichomanes radicans—one zone in Britain; on the continent does not extend beyond Spain.

Hymenophyllum Wilsoni—five zones in Britain; Norway, Luxemburg, West France, Tyrol.

The four following are plants of Ireland, which are not known to be wild anywhere in Britain proper:—

Arbutus Unedo—the Strawberry tree, so plentiful about the lakes of Killarney, and so well known in gardens—France, Tyrol, Dalmatia, Turkey, Greece.

Erica mediterranea — Gironde, Arragon, Galicia, Portugal.

Dabœcia polifolia—the St. Dabeoc's Heath of Connemara—West France, Spain, Portugal.

Neotinea intacta—a little inconspicuous Orchis lately found in Galway—South France, Spain, Italy, Dalmatia, Greece.

It would be easy to multiply illustrations, but these are enough. We may fairly say that upwards of 300 of the plants of Britain, or more than 20 per cent., belong upon the continent specially to the south-west and south. It will be observed that these lines of polar limit run, not due east and west, but from north-west to south-east, in accordance with the temperature of the winters; and it is quite clear that, taking the British flora as a whole, its most distinctive feature is that it contains a large infusion of cold-fearing plants, which, through our mild winters, can ascend in Britain to an exceptionally high latitude.

The same point is well illustrated by the flora of New Zealand. We find that as a rule the cold-fearing Mesotherms, types of the torrid zone, reach higher latitudes in the southern than in the northern hemisphere, because, from the distribution of sea and land, the southern climates are more insular in character. The three islands of New Zealand cover the same latitude as Spain and France, and in their indigenous flora are represented the following tropical types, viz.: Palms, one species (Areca sapida); Pandanus, one species; Adiantum, six; Cyatheaceæ, six species; Hymenophyllaceæ, twenty-two species; epiphytic Orchids, four genera and five species; two Peppers, one Cassytha, two Laurels, five Myrsinaceæ, one Cyperus, four Dracænas, and two panicoid grasses.

The way in which a characteristically cold-fearing, damp-loving, tropical group runs out from the tropical

zone into the insular climates, and avoids the continental climates, is well shown by the Tree Ferns. The only instances in which any Tree Ferns grow outside the two tropics are the following. There is one species of Cyathea in Japan, an Alsophila in the Bonin Isles, a Cibotium in South China, and in the East Himalayas one Cyathea, two Hemitelias, seven Alsophilas, and the same Cibotium. In the southern hemisphere there are two Tree Ferns at the Cape, at least ten in extratropical Australia, eight in New Zealand, two in Lord Howe's Island, one in Raoul Island, two in Chili, and two in Juan Fernandez.

A substantially similar result is given by the study of the distribution of the two other most decidedly tropical Fern groups, Marattiaceæ and Hymenophyllaceæ. Of the latter, out of about 160 known species, there are two in Britain, sixteen in the East Himalayas, two in the Southern United States, ten in South Africa, twenty-six in New Zealand and Australia taken together, and twenty-one in Chili.

On the other hand we find that in the continental climates many heat-loving tropical annuals flourish, and fruits ripen in latitudes far higher than might be expected when the average annual temperature alone is considered, and in places where the winter sinks very low indeed. Our British January only sinks down to an average of 32° at the very north of the island; but in Canada, where the January average is 15°—20°, they grow good Peaches and Grapes in the open air, and cultivate Maize and Tobacco in the fields. At Pekin, where the January average is 26°, Grapes and Oranges ripen in the open air; they cultivate on a grand scale such Mesotherm types as Gossypium herbaceum, Dolichos Lablab, Soja hispida, Capsicum annuum, Dioscorea sativa, Sesamum orientale, and Maize; and in the wild flora there are such plants as Nelumbium, Gynandropsis, Pistacia, Grewia, three species of Indigofera, two Acacias, Begonia, Commelyna, two Cyrtandraceæ, Phyllanthus, and two Andropogons.

Other things being equal, it follows from the fact that the cycle of its life is run through in a portion of the year, that an annual can adapt itself to varying climates better than a perennial, and a herbaceous perennial better than a shrub or tree. Of plants characteristic of cool temperate latitudes, Wheat, Barley, and sometimes Oats are grown through the plains of India down to the tropic, because they can be sown and reaped during the coldest quarter of the year, and with them are introduced a crowd of the common annual weeds of the same latitudes, such as Capsella, Chickweed, Euphorbia Heliosccopia, Anagallis arvensis, and Veronica agrestis, which also run through the cycle of their lives in the winter quarter. "But in Sikkim (to quote the introduction to Hooker and Thomson's *Flora Indica*, p. 194) no European fruit of any kind, save the Strawberry, comes to perfection; even the Peach, the only commonly cultivated tree, does not ripen its fruit; and the Apricot, the most abundant West Himalayan fruit, is unknown. In Central Nepaul, further west, Apples, Figs, Peaches, Quinces, and Apricots, all ripen, but hardly arrive at perfection. Towards the interior of Kumaon, of which the capital, Almora, is 5500 feet above sea-level, Apricots and all the above fruits become abundant, with the Pear and Cherry; and from Kumaon westward vineyards and large orchards form a conspicuous feature in the interior of all the valleys." *T. G. B.*

WHEAT AND RYE HYBRIDS.

By A. Stephen Wilson.*

The following experiments were begun in July, 1873, for the purpose of testing whether hybrids could be produced between any two of the grasses, Wheat (Triticum sativum, L.), Spelt (Triticum Spelta), Rye (Secale cereale, Will.), Barley (Hordeum distichum, L.), and Oats (Avena sativa, L.), all of several varieties; or between these and Darnel (Lolium temulentum, L.), Wheat-grass (Triticum repens, L.), Wild Oat (Avena sativa, L.), and Fly Oat (Avena sterilis, L.).

The number of florets treated was between 400 and 500. And when an experimenter goes through a good deal of labour perhaps he may be pardoned for expecting positive results. Undoubtedly the proper scientific spirit to cultivate is, not to anticipate results at all. The results of the present experiments were mostly negative; but whether they were negative from unknown facts hostile to hybridisation in the florets treated, or from failure, through ignorance, to impress the proper conditions into the experiments, cannot be here determined.

Only a general description of the methods employed need be given. When a floret of Wheat, Rye, or any of the others, was observed to be opening, the pollen was shaken into a test tube. In other cases, when it was known that the opening was about to take place, the ear was drawn through the hand and several sets of anthers brought out at the same time, thus securing a good supply of pollen. The ears of other plants were then watched for opening florets. In most cases the anthers of these florets were removed with a pincers before discharge had taken place, and pollen from the test-tube dusted upon the stigmas with a camel-hair pencil. In many cases opening was induced at various stages before the natural date of opening. In some cases the anthers were not removed, but only the cross pollen applied. The endeavour was made to have a certain number of experiments under all the conditions which it was thought likely would favour fertilisation. It may be mentioned that all the plants were growing in ordinary circumstances in the open air. The earlier stages, when the anthers and pollen are greenish white, were avoided, florets being mostly selected in ears which had begun to flower, and in which the anthers were bright yellow or purple.

All the spikes and florets treated were marked by numbered tickets attached to them, and the conditions registered under which the experiment was made—such as what pollen was applied, whether the floret opened naturally, or was opened otherwise.

When the ears were ripe they were cut and collected for examination. Many had produced seeds, and many were barren, and many had fallen into the hands of the sparrows and were eaten up.

All that remained were put aside. Only two or three presented any abnormal appearances; they were swelled out into an unusual shape. The others were no way distinguishable from ordinary kernels of the respective grasses.

Of course it was impossible to tell whether these seeds were hybrids or not. An experiment which should detail that a cross had been effected between two Wheats, because something had been produced not quite correspondiog to either parent, might still be fallacious. We do not know that the removal of the anthers immediately after self-fertilisation would be without effect.

All the seeds of the various kinds were placed on damp cloth between inverted plates, in the spring of 1874, to discover which were alive and which were dead. A great many never vegetated; so that, when I came to plant my treasured hybrids, not many flower pots were sufficient for that purpose.

But the Oat seeds grew up Oats, and the Wheat seeds grew up Wheat, and the Barley seeds grew up Barley, and the Rye grew up Rye, all with the exception of the two plants, six stems of which are submitted to the Society. These are from Wheat ovules and Rye pollen, and the whole aspect of the culm and ear is intermediate between Rye and Wheat. The elongation of the outer pales into awns midway in length between the blunt termination in Wheat and the longer needle of Rye, is the most noticeable feature. The thinness of the culm is characteristic of Rye, and so is the slight villosity below the ear, not so observable now as when green. The glumes, also, are intermediate in size between those of Wheat and Rye.

All the florets on these spikes fully opened, as if intending fertilisation, and on some of the ears they did not close again. But what seem to be the most important facts regarding these hybrids are, that the anthers did not open nor discharge any pollen; that the pollen was imperfectly developed and contained very little fovilla; and that the imperfect grains remain in the dried anthers. These facts are a sufficient reason why these hybrids are absolutely barren; not a single kernel having been produced. The anthers did not get blanched as empty anthers do, and instead of falling away as is usual they still remain attached, so that the imperfect pollen may be examined by breaking up an anther in a drop of water. The anthers are of the Wheat size. In the ordinary fertilisation of a grass, the pollen grains continue to grow until they rupture the anther; in these hybrids this full growth of the pollen grains has been arrested.

It would be going further than caution warrants to affirm positively that the plants under notice are hybrids beyond all doubt. Whole spikes of the cereal grasses are sometimes barren, or at least remain unfertilised; and other circumstances than the transfer of the reproductive elements may have brought about the peculiar structure and the sterility of the supposed hybrids before us. But as the experimenter has considerable reason for believing these plants to be actually hybrids; and as the immediate cause of their sterility is a true and sufficient cause, and not some fancied purpose of Nature; he presumes to submit his observations for what they are worth to those who may purpose going further into the subject.

* Read at the April meeting of the Edinburgh Botanical ociety.

METROXYLON FILARE.

In his paper on Palms, published a few years since in our columns, the late Dr. Seemann refers to this plant and an allied species, M. elatum, as being the only representatives of the genus. These two plants form the section Pigafelta of Martius, who included in the same genus another section, Sagus, represented by some half dozen species, which form the genus Sagus of other authors. Sagus differs from Metroxylon in producing a terminal spadix and dying after flowering, while Metroxylon is polycarpous, with lateral spadices which are produced annually. The trunks do not contain any sago, in which also they differ from Sagus, which is sago-yielding.

Our sketch of Metroxylon filare (fig. 103, opposite) is taken from a plant in the collection of Mr. Bull, of Chelsea. It is described as having a tall stem, pinnate erecto-patulous leaves, the petioles of which bear numerous slender spines, and of which the pinnæ are aristate and three-veined. The spadix is decompoundly paniculate, and bears small oval berries. Both species are natives of the islands of Ceram and Celebes. The present, it will be seen, is a very elegant plant, the pinnate leaves having a gracefully spreading character.

ON FLOWERS OF TREES.

The importance of studying "deciduous trees in winter," so as to learn the distinctive "disposition of the branches and arrangement of the sprays," was well explained by Mr. M'Nab in his paper on this subject, read before the Botanical Society of Edinburgh.

I should like to press the subject one step further, and suggest that the early flowering trees should have the first consideration in planting, particularly in town squares, villa gardens, and other small places, where each individual tree must be thoroughly known and valued for its distinctive character and qualities.

It is delightful to watch the thickening of the branches in early spring, and that is more marked in the case of the flower than of the leaf buds. For example, a group of either Scotch Elm with its round buds and bunches of inflorescence, or Alder with its long purple catkins, in a park, gives a decided colour and thickening to the landscape very early in spring. But the various Willows are the first flowering trees. Salix violacea, purpurascens, cœrulea (under all these names is it sold), is the earliest of all, and has a beautiful large, soft green catkin, which, however, seldom grows to the end of the twig in Scotland, unlike the well-known S. caprea and cinerea, which flower thickly to the very tips of the branches. The male flowers of caprea are particularly striking when not fully out and the one side of the catkin only is ticked with the bright red anthers, soon bursting out into full yellow flower. S. caprea is somewhat later, but is very attractive, while the white catkin is still half enclosed in its round, shining brown husk; and plants of about 5 or 6 feet high are in February very useful, thickly studded with flowers, and of a compact, tidy, erect growth, for the shrubbery. S. viminalis and its varieties, with long and remarkably soft white catkins, is another early Willow. S. rubra, with prettily marked purple catkins, very like S. Helix (true), comes about the same date. S. nervosa, sent to me in February by Mr. Scaling, is another, with rods a perfect mass of grey catkins. S. tomentosa is interesting from the brown leathery clothing of the ends of the branches and husks of the rather coarse grey catkins. S. Kerkii, Lambertiana, or purpurea, is another purple-catkined Willow, the flowers of which are long and narrow. S. aurita is quite distinct, and were it not for the round white catkins budding out, one would fancy it a Beech, from the hard, wiry, brown twigs. I find all these Willows with early catkins do well in water. The male caprea flowers are very interesting, and by removing the husks at different stages a great variety of shades of soft green and rose are brought out, which we do not find when the twigs are left alone on the tree. I should much like to know what mode of pruning (if any) would secure yearly a fine crop of catkins. Hot summers we cannot command, and I do not know if Willows are as dependent as other flowering trees on well-ripened wood. They have been very late this severe winter, both here and in England, but the catkins do not seem to suffer materially from sudden checks.

Writing to Mr. Scaling on this question of pruning, he answers—"The lower branches of Willows do not flower so profusely as the upper; when the lower branches are cut close back, leaving the upper ones untouched, the flowers are finer and fuller": he "is not prepared to say how far a tree would be permanently injured for flowering by a judicious pruning back at any given time; certainly it would not flower to any extent the season it was pruned."

That the trees are most vigorous the third and fourth year after being cut in for nursery purposes (in which no heed is taken of the flowers), is a fact; and that where an undergrowth of colour (red, yellow, or purple) is wanted, a yearly cutting down ensures the greatest quantity of brightest young wood (as with Dogwood and Buckthorn) is another fact; but for catkins would it be wise to have three specimens of each early-flowering Willow to make sure of having one in perfection every year, pruning in yearly rotation one of the three? One example of one species is, of course, no rule; but we find that a stock of caprea (8 feet high), the grafts of S. argentea, lanata, chrysanthes on which had died, flowers yearly, thicker than a neighbouring tree glowing naturally.

Fig. 103.—METROXYLON FILARE.

It would be well if all gardens were provided with a few stocks (caprea, male and female, nurserymen consider the best) for grafting, budding, or inarching such Willows as succeed best that way; one year is safe for budding, two years for the other methods. We lost our argentea by having it taken too soon from the parent tree. It is an interesting Willow, from its very silvery catkins, which grow at the tips of the branches. The Kilmarnock Weeping Willow is at present a very interesting object, well covered with white catkins.

To plant trees that flower before they come into leaf is, I am certain, an object well worthy of consideration for landscape effects, and trees for garden boundaries; the cut twigs of such for indoor decoration are very interesting.

I find the Willow catkins that come out with or just after the leaf do not last in water; possibly no tree flower does at that time, as the young leaves are sure to flag; but the Lime, from being later to flower, does stand.

In several of the squares in Edinburgh the flowers of the Aspen are very thick when seen against the sky; when faded and strewn on the pavement they are wondrously like the cast-off skins of caterpillars. But I was struck by the effectual blind a group of three trees formed (Aspen, a Scotch Elm in flower, and a Laburnum still loaded with its bunches of seed-pods), quite concealing an ugly row of houses opposite the street.

The prominent female flowers of the Populus balsamifera (Balsam) are now also very striking, yellow ticked with red, contrasting well with the soft, fluffy, grey and red catkins of the Aspens (two varieties). A group of either tree in March is valuable. Another curious Poplar catkin is P. polonica (a Continental Aspen), with green and black ticked flowers, all curved in and hanging on one side of the twig; but this Poplar does not grow to the size of a forest tree.

There is a very common idea that the P. tremula (Aspen) is the only Poplar that quivers; the P. alba (Abele, Dutch Beech, Downy Poplar), that has a white leaf and peculiarly marked trunk, and the P. balsamifera (Balsam), the only sweet-scented ones. All have more or less slender footstalks, compressed vertically, which causes the quivering motion, and there are at least nine or ten white-leaved Poplars. To judge alone by the white bark with its triangular-toothed scorings of the upper part of the trunk, it would be difficult to decide if the tree were an Aspen or an Abele. Both the P. monilifera (Black Italian Poplar) and the P. candicans (Ontario Poplar) are sweet-scented; this last is also white-leaved.

I do not know if it is the climate, or that greater attention is paid abroad to propagating from the very whitest variety, but certainly the Abeles one sees in ornamental avenues on the Continent are far more striking than ours when the breeze turns over the leaves. An avenue of Planes (occidentalis) and Abeles, even although pollarded, as they so frequently are abroad for shade walks, looked very well; and in another town Mountain Ash in full fruit was added to these two trees. The Alder in March is no longer purple as is the Birch, but is yellow in the landscape like the Hazel, with its long unfertile catkins ticked with purple, and the little puce-coloured fertile ones, like miniature cones, are hardly noticed, and require to be sought for, as do the crimson female flowers of the Nut; they are set at the end of the twig in groups of three or four—in vain have I searched for a set of five. With the exception of the

Larch and Ash, the flowers of the other forest trees are too late to be of use for winter effect. Few ever think of looking for the queer flower-spike of the Walnut or those of the Spanish Chestnut, although the fruits of both are very welcome and sought for; indeed I have been told, as a fact, that Horse Chestnuts and Limes are the only forest trees that have flowers! my informant having seen the former in Bushey Park, and having often been overpowered with the fragrant perfume of the Lindens.

Mr. McNab's opening remark, that there are "people who are utterly incapable of discriminating between the various kinds of forest trees when bare of leaves," may be extended to a complete inattention to and ignorance of their flowers.

As the power of observation (far less the habit) cannot be acquired in one season, and therefore deciduous trees will not be distinguished after one winter's walks, I would recommend that the page containing Mr. McNab's distinct description of the various trees be carried for reference in the pocket until thoroughly mastered. There is such complete confusion among the names of Willows, each nursery having its own, that possibly the best plan for those who would wish a collection of these Willows with early and interesting catkins is merely to give such an order to their nurseryman, or, better still, to go round and mark at the various tree-nurseries those they fancy. I find myself frequently answered with "We have never paid attention to the flowers of Willows and Poplars—they are not grown on that account." Now I think that they should be, for their catkins alone, as well as for their very many other valuable properties, all planters being alive to Willows and Poplars bringing the quickest return of any timber tree, and for many years that will increase, unless our railway carriages, like our ships, are turned into iron ones; also for their great diversity of growth (the large Salix Russelliana at Sion is 89 feet high, and S. herbacea, crawling on the ground, is our smallest forest tree, and is 4 inches in height); and for their power of growing in all situations, swamps and mountains, the Willow being the last woody plant we met when climbing a mountain. Of all varieties of habit, erect, weeping, always graceful, and of distinctest colours in bark and leaf at all seasons, yet nevertheless the flowers of Willows have been comparatively overlooked in ornamental planting.

Were the popular belief proved that "the more prominent kinds [of Willows] have hybridised and yielded intermediate varieties without number," causing this genus of plants to be more confused than any other (*vide Arboriculture*, Grigor, 1868), a skilful hybridiser might possibly utilise this confusion, and we might have additions to and improvements in our stock of early flowering trees, on whose flowering we could with certainty count, and at a season when they would be most seen and valued. Then, indeed, would the Willow be in all senses a pliable tree. Mr. Scaling writes, in his *Series of Papers on the Salix, or Willow*, part ii., p. 8, "referring to a register kept in the Basford Nursery, in 1871, of nearly 300 varieties of Willows, 92 were in flower and 115 in leaf on March 25." That our native species are not exhausted is proved by the discovery of S. Sadlerii, last summer, by Mr. Sadler.

I observed last November, for the first time, in Mr. Robertson's nursery here, the flower-buds of S. violacea, which were then of a bright rose colour; but Mr. R. told me that this depends on the season, and it is not invariably to be counted on. *F. J. Hope, Wardie Lodge, Edinburgh, March.*

Foreign Correspondence.

Brazil.—Some observations made by Mr. Drummond, Her Majesty's representative at Rio, upon the properties of certain trees growing in Brazil, contain mention of the Carnahuba. This beautiful wax Palm assumes its full beauty in the fifth year, and its vitality is so great that Captain Burton gives an instance where the trunk lay on the ground while the upturned head was still alive. It grows to a great age, and is justly considered, both for man and beast, the most valuable Palm of the *sertao* (virgin forest). Its gum is edible, and the roots are used as sarsaparilla; the fibre is worked into strong thread and cordage; the leaves are good for cattle—they make an excellent thatching; the fibre is also used for making straw hats, ropes, and cords for nets and sieves. The fruit is in large drooping clusters of berries. When green the nut resembles a small olive. The pulp, boiled to remove its astringency, becomes soft, like cooked Maize: it is considered good and wholesome, especially when taken with milk; animals readily fatten upon it. The leaves of the young tree, when 2 feet long by about the same breadth, are cut down and dried in the shade; they then discharge from the surface pale grey-yellow dusty scales, which, melted over the fire, become a brown wax. The wax occurs mixed with heterogeneous substances, bark and fibre, and it loses considerably by sifting. The material is tasteless, and soft to the touch; the smell has been compared with that of newly made hay. Its chief fault is its brittleness. This, however, is remedied by mixing with three parts of vegetable one part of animal wax, or one-eighth to one-tenth of tallow. The value of the annual production of the wax is stated to amount to above £150,000.

The *Arneira*.—This is called the monarch of the forest. The timber is of excessive hardness, resists weather admirably, and takes a fine polish. The leaves are used as epispastics, the decoction serves to alleviate rheumatic pains, and the gum, rubbed on ropes, preserves them from decay. The natives avoid this tree, as tumours are produced by sleeping under it; and the highly sensitive who pass underneath it suffer from swellings in the face. The Indians use the green juice of the young branches for eye diseases. A curious tree of the Bombacineæ was met with in 1863 by Mr. Wallis, whilst exploring the upper Rio Branco, and its gigantic proportions quite astonished him. It measured at the top 173 feet diameter, which gives it a circumference of 520 feet; under this immense ceiling of foliage 100,000 people might find cover. The Baobab is a tree also belonging to the species "Sumaumeira." Its diameter at the top is 108 feet, and 324 feet in circumference. It is popularly asserted that this tree is found of the age of several thousand years.

Natural History.

Chlorops.—The Chlorops lineata, a small two-winged fly, about three-eighths of an inch across in the spread of the wings, and distinguishable at a general glance by the quadrate, somewhat barrel-shaped thorax, longitudinally striped with yellow, the round head, with large eyes, and the triangular mark at the summit behind, is one of a genus represented in England by several species, whose presence is yearly more or less made known amongst the corn crops by the ears still remaining in their sheathing leaves, whilst those around are developed and ripened, and which occasionally, when more than usually numerous, appears in sufficient quantities to be the cause of serious damage.

These insects attack Wheat, Barley, and Rye, but in the course of a few years' observations made in the west of Gloucestershire, the Barley alone appeared selected, and here they were constant visitors. If specimens of injured growths were required, a glance round a field of growing Barley, or, later in the season, a handful or two pulled from a stack, usually furnished them at once; and in 1870 the C. lineata swarmed to such an extent in a Barley stack shortly after it had been put together, as to fall from it in hundreds, or rather in showers, on gently opening and shaking the mass.

The summer attack of the Chlorops appears to begin by laying an egg on the still young plant near the base of the developing ear, sometimes a little way up it. "About fifteen days after there issues from the egg an oblong larva, yellow, and without legs," which attaches itself to the stem and gnaws an irregular furrow down one side as far as the first joint; and, ascending again for its change, may be found in the pupa state towards the upper part of the stem, beneath the leaves, in which it still remains wrapped about the middle of August. The pupæ which I have seen have been of a kind of hard paint-like appearance exteriorly, and corresponding in colour with the deepening orange tints of the ripening straw.

The affected ear may be distinguished at a glance by being still enclosed in the leaves or only partially freed, whilst those round are perfected; and on opening the diseased growths the stem will be found deeply scored with a blackened channel, usually running in an irregular line from beneath the base of the ear to the first joint beneath, but with some degree of variety in the appearance of the injury. In a few heads taken for examination one showed the growth so stunted that the length between the ear and first joint was only about 1¼ inch, and the stem was flattened and twisted; in another the insect gnawings stopped abruptly a short distance beneath the ear, and then made a completely fresh start downwards again from one side of the end of the first track; and in a third the course of the Chlorops larva to start with appeared to have been taken through the four lowest grains of the ear, which were stunted, injured, and blackened.

A somewhat similar appearance is noted by Curtis on two Wheat ears affected by C. tæniopus, and these various injuries seemingly point out that the larval attack is commenced at the top, whilst the grain is still so young and tender as to be susceptible of check from the slight gnawings, and that the stem and ear, continuing to grow whilst the injuries continue, give, when complete, rather the diseased growth of the lengthening stem from the gnawings, than the gnawings themselves.

The descriptions given by M. Herpin of injuries to Wheat near Chalons-sur-Marne by Chlorops, supposed to be lineata, correspond almost exactly with those to the English Barley in the locality where the lineata was found close by in great quantities, excepting that in the case of the English Barley there was usually no great difference in the height of the infested or healthy stems, whilst in the French Wheat at Chalons the stalks are mentioned as being scarcely half the height of the healthy growths. The loss from these insects was estimated in 1840 as one-seventieth part of the Wheat crop, and in another place Dr. Dagonet mentions their numbers as being so considerable, that it was impossible "to set a step" without meeting with injured ears, and that the insect was a formidable scourge to agriculture. Amongst other species of Chlorops noted are the C. Herpinii (mentioned as only attacking Barley similarly to the C. tæniopus and C. lineata by scooping a longitudinal furrow down the stem); the C. (?) hypostigma, found in immense quantities on some ceilings and windows in the autumn of 1834 and 1844; and especially the C. tæniopus, or ribbon-footed corn-fly. This fly is about 3½ lines in expanse of wings, light yellow in colour, the thorax squarish in shape, the same width as the head, with three black stripes down the back, and a narrow black line on each side; head with a black triangular marking at the summit behind, abdomen greenish black, and is especially distinguishable by the ochreous band across the black feet, from which it takes its name.

The recorded injuries from this species appear to be exactly similar, as regards the growing Wheat stem, to those already described, consisting of a channel scored between the ear and first joint, and the larva similarly undergoing its change beneath the still sheathing leaves; so that, as far as I am aware, from the comparison of the injuries I have met with, and those so clearly described (with accompanying figures) by Curtis in his *Farm Insects*, and in one of the early volumes of the *Gardeners' Chronicle* (unless there is a difference in the pupa case of the tæniopus being darker than that of the lineata), the presence of the perfect insect appears necessary for identification of the specific cause of the injury.

These injuries are at times both severe and also spread over a large extent of country, but the cause of attack and the remedies seem uncertain or wholly unknown. Some years appear more favourable to the development of the insect than others; as in 1841 Wheat in Surrey and Barley in Lancashire are mentioned as being injured, and in 1846 the barley at places in Norfolk, Essex, Middlesex, and Lincolnshire is noted as being injured to the extent of half the crop or more.

In Gloucestershire the Barley attacked was on stiff clay; but the exposures of the fields were most various, from almost complete shelter from every direction, to lying open to east wind sweeping uninterruptedly down many miles of the Severn; and the presence of the insects in great numbers in one spot in 1870 did not appear to influence their recurrence in greater numbers in the following season. Still, as the diminution of the numbers of the Chlorops must necessarily be beneficial, the only remedy which seems available, that of drawing the affected plants, is very desirable.

The plants are perfectly distinguishable, and with a little care could be hand-pulled without injury to the standing corn; and the affected ears being entirely or in great part sterile, would occasion no loss by their removal—only the clearing away of the already spoiled crop; and if the time was judiciously chosen, before the development of the pupæ into the perfect flies, the germs of much future mischief might be got rid of. *O.*

Florists' Flowers.

A few of the newer Roses exhibited by Messrs. Paul & Son at the meeting of the Royal Botanic Society on the 31st ult., deserve something more than the passing notice they are apt to receive in a necessarily abbreviated report. The Roses (including some fine varieties from Mr. W. Paul) were fresh and beautiful, plants and cut blooms alike.

The much-talked-of H.P. Captain Christy is a lovely light-coloured Mdlle. Eugénie Verdier, exquisite in the bud, and of a charming shade of colour; it may be set down as a ladies' Rose, so delicate is its light rosy flesh tint. The white H.P. Madame Christy was a true white Rose as seen on this occasion, the flowers large and globular, and in every respect first-rate; vigorous in growth and free of bloom, it promises to make an excellent exhibition and forcing variety, as it has no less proved itself a fine Rose for outdoors in the late summer. H.P. Marie Finger has the peculiar shape and build of Mdlle. Eugénie Verdier also, but is of a darker hue, being of a shaded salmon-rose colour. It, too, promises to become a great favourite. If brilliancy of hue can be a recommendation to a Rose, then H.P. Thomas Mills, one of Messrs. Paul & Son's own seedlings, has it in a remarkable degree; as seen on this occasion it was of

a brilliant red hue. As a forced Rose it appeared to be thin in point of substance, but this may not be so apparent when grown in the open air. H.P. Star of Waltham, one of Mr. William Paul's seedlings, was very fine, quite maintaining the character it possessed when it received a First-class Certificate at the Royal Botanic Society two years ago. The splendid bud I and substance which then characterised it, is undoubtedly a permanent quality. It is of a very bright deep crimson colour, and it promises to make a splendid exhibition Rose. Princess Beatrice, another of Mr. W. Paul's seedlings, was very fine also. The following newer H.P. Roses are well worth looking after by cultivators:—Duchess of Edinburgh, Etienne Dupuy, and Madame Louis Leveque. Noisette Caroline Kuster was finely shown by Messrs. Paul & Son. It is of a bright orange-yellow colour, and will be an excellent companion to Céline Forestier. Tea Marie Van Houtte is a charming Rose, very free of bloom, but it is said the beautiful flowers soon fall away and decay. A very promising seedling was shown by Messrs. Paul & Son, which may be set down as a shaded Charles Lefebvre. It promises to make a good outdoor Rose. *R. D.*

THE VINE.

[The paper from which the following has been abstracted, was read by Mr. Hunter, of Lambton Castle Gardens, before the Gardeners' Institute at Darlington, on March 25, and affords evidence that Mr. Hunter can preach as well as practise. It will be read with great interest by those who are curious to learn the secret of the monster bunches exhibited by Mr. Hunter. That secret, in a word, seems to be judicious feeding.]

"I have come before you to fulfil the promise I made to you when you asked me to read a paper on the treatment the Vines received at my hands. The large Hamburgh bunch, being the one then in question, is included in the treatment of this house, to which only I will refer. I had the house put up in the early spring of 1869; it occupied the old foundations so far as regards width, but was in length made nearly double, by putting two into one. It may be interesting to some of you to know that this house stands on piles; and while I was making alterations I found after boring that we stood 31 feet 9 inches from anything solid to work on; however, after getting a cement and brick bottom to my satisfaction, some 4 feet in depth, I resolved to have the borders made without further delay. Drainage on such a bottom as this must be efficient and thoroughly well carried out. In this case our front drain is built with brick, and pipes put inside, so that the top of the drain is a little below the cement bottom of border; at every 6 feet a line of 6-inch pipes crosses from front to back, and at every 4 feet from end to end of the house, the pipes thus forming a number of oblong squares, 6 feet by 4 feet. These were filled up with brickbats to a foot in depth, and then with small stones and coarse gravel, after which it was turfed over, with the grassy side of the sod downward. Soil suitable to make the border was the next important item. The park, or a portion of it, having been drained previous to my coming to the gardens, I used turf which had been put aside for gardening purposes, and cut fresh turf to make out with. To every six cartloads of soil I added one of lime *débris*, one of charcoal, one of burnt clay, 3 cwt. of broken bones, and a good dressing of clean cow manure; when the whole was turned over twice in the border, and in a few days the Vines were planted. Some of them were from one-year-old canes, and the others from eyes struck the same spring, the latter having a decided advantage at the end of the first year's growth, which advantage is maintained still. I found wireworm a most destructive enemy the first year. To check these, the surface of the border was smoothed over with the back of a spade, coated over with rape dust, laid over with thin boards, and covered up with two inches of old mushroom manure; this was turned over every alternate morning, then the wireworms were picked off the boards by hundreds. After this treatment the Vines carried their foliage well into December, when they were cut back to 6 feet from the bottom. I very soon after felt disposed to see what wireworms were left in the border, and also with a view of further assisting the Vines, I had an opening taken out at the back of the border and worked forward on them carefully with steel forks; every portion of the border was hand-picked and turned back until within 3 feet of the Vines; by this time we had a fine lot of roots laid bare. The soil was worked forward again, with the addition of a few more ingredients to the old, the roots being carefully laid in again. This has been done this and every year, with one exception, since planting—I doubt not with advantage to the Vines. At one place where I was, under a noted Vine grower, I assisted in making over 100 yards in length of new Vine borders, at various widths, and to my surprise on removing the old Vines, which were considered A 1 in their day, I found each had but a root or two to support them; they had taken up their abode in some quarter never made for them, as they passed out of the border without leaving a fibrous root in it. Imagine a gardener trying to assist the Vines by repeatedly watering and top-dressing such borders!

"I shall close my remarks by giving the outlines of treatment the Vines had in this house. In the latter end of February the house was kept close, previous to starting on March 1, when syringing, morning and evening, was well done, according to the weather. Fire-heat was applied at 6 A.M., and taken off at noon. No fire-heat was given at night unless compelled by frost. During the month the outside and inside borders were watered with 1680 gallons of tepid water, running on at the rate of 7 gallons per minute through a fine rose. By the 15th no syringing was allowed overhead. April—for this month fire-heat was turned off sooner in the day, weather permitting, but was applied immediately after shutting up. On the 6th, so rapid was their progress, that the shoots were pinched two leaves beyond the fruit and tied down. On the 13th the evaporating troughs were allowed to become dry, and fire-heat was used freely, front air was put on at 8 P.M., and increased at 10 P.M. On the 20th the Vines were in full flower, the treatment was unaltered, only the troughs becoming dry. On the 27th all the flowers had set, the evaporating troughs were refilled, and front air admitted more freely. We commenced thinning on May 1; airing as last month. On the 13th we watered the inside border with 3360 gallons of guano-water, at a temperature of 85°. After the 18th the temperature of this house was not allowed below 65°, when front air at nights was admitted much more freely. On June the 15th the outside border was served with guano-water as inside, running at the rate of 6 gallons per minute, which lasted 7 hours; the quantity given being 2520 gallons. Again, on the 29th, this house received 5040 gallons, and on July the 20th, 1680 gallons. All this was put on at a uniform tepid temperature. The regular requirements, such as stopping, tying, and thinning, were of course duly attended to. &c. The record of the temperature was taken four times daily. I also experimented with the border of this house in the growing season of the Vines, the results of which I hope at another time to be able to bring before you, should they prove as suitable and satisfactory as they did last year.

"Some say wet localities have their advantages: here we have a dry one; in the Grape growing season at Lambton Castle our rainfall did not exceed 10 inches. Some say soil: if so, why did not our predecessors, who used the same, do the same as us? In the way of experimenting last year, I had a small house of Vines planted, void of natural soil, except a small quantity which was used to surround the newly-planted Vines. The Vines have made roots from 8 to 10 feet in length, and turned out pretty good yearlings. This I only mention to show that Vines can be grown, whatever their staying powers may be, without turf or garden soil."

Notices of Books.

Les Bois Indigènes et Etrangers. Par Adolphe Dupont et Bouquet de la Grye. Paris: Rothschild.

This is a book devoted to the explanation of the proper cultivation of forests, but written more from the point of view of the statist and mechanist than of the physiologist and the woodman. In all that relates to woodcraft, and the formation and management of plantations, the present work seems deficient; on the other hand, there are many other subjects, relating to what we may term the mechanical part of forestry lore, which are treated with fulness and ability.

One subject which has excited some attention in our columns lately—the eccentricity of growth—is referred simply to the fact that the tree in which it is manifest has grown on the steep slope of a hill; but it is clear that this is not the only cause for this phenomenon. With reference to the effect of forests on climate and public health, the authors judiciously state that observations are neither sufficiently numerous nor sufficiently precise to enable us to arrive at a correct conclusion. Speaking also of the desirability of afforesting or disafforesting according to circumstances, the authors state that where the soil is of excellent quality it is better to grub up the woods and cultivate cereals, except in exceptional cases, where some timber of special value is required; on the other hand, sterile unfruitful lands, which require an expenditure for labour out of proportion to the return from them, should be planted. Mountain slopes, whether their soil be rich or poor, should always be planted. The return for capital expended, however, is too slow for the French proprietor to look on planting with favourable eyes. In mountainous countries, where the arable land (the capital in the soil) is washed away yearly by the rains, the cultivator prefers to lose this capital rather than save it by making a present sacrifice in the way of planting; on the other hand, he is always ready to clear and grub up. He does not consider whether the soil itself is fertile or not, he only sees riches occasioned by the accumulation of humus occasioned by the growth of the wood—riches which he can speedily and easily realise. When he has cleared the land and exhausted the supply of humus, the soil, reduced to its mineral ingredients, is pretty sure to be very poor, and the land is then left uncultivated, sterile, and unproductive. The individual may have enriched himself, but at the expense of posterity and of his country. Public interest, then, demands the conservation of forests in all mountainous districts, and in many cases the replanting or reconstitution of those which have been destroyed; it requires also the plantation of plain too sterile for arable cultivation to be profitable, and in any case it is essential that the nation should preserve those rare plantations whence military and civil engineers may derive timber of large size and of superior quality to that which can be produced by private estates.

Forty Years of American Life. By T. L. Nichols, M.D. Longmans. 1874.

The fact that this is a second edition relieves us of the necessity of saying much as to the merits and demerits of a book so extensively known already. It may be, however, that some of our readers may not have fallen in with it before, and they certainly cannot have met with it previously in so convenient a shape. To all such we say, get the book and peruse it from chapter 1 to the *additamenta*. It is a veritable cyclopædia of information concerning America and Americans, concerning which and whom we English ought to know so much, and as a rule know so very little. Save to specialists anything beyond the main facts of American history is unknown to the great majority of Englishmen. How prejudicial and unwise this ignorance is may be gleaned from the book before us. The author is a warm partisan, but he is straightforward and honest, so that his partialities need by no means blind the intelligent reader, or prevent him from forming his own unbiassed conclusions. A more instructive and interesting volume it has not been our luck to meet with for a long time.

La Terre Végétale, &c. Par Stanislas Meunier, Paris: Rothschild. (Williams & Norgate.)

An interesting little book on agricultural geology, the most valuable part of which, perhaps, is the map of France, by M. Delesse, which accompanies it. This map is founded on a much more complete one, whose construction is explained as follows:—First of all a collection of soils from all the different districts of France was made. Two samples were taken in every canton at a depth of 15 centimetres, and forwarded to Paris, with a descriptive label indicating the precise position from whence it was obtained. In this way more than 6000 samples were obtained. In sorting them the first step taken was to separate those that contained lime from those in which that element was not present. In this way, even in the limestone districts, it was found that many samples were destitute of lime. Peaty and sandy soils were then sorted out, and their localities marked on the map, to which were added also lines indicating the levels of the soil, the distribution of rain and temperature, as well as the direction and force of the wind. It would be impossible, in a small book like that before us, to reproduce such a map as that just alluded to, even on a very reduced scale. What is given is a small map indicating the districts allotted to the cultivation of cereals, Vines, forests, as well as pasture lands and sandy wastes. By differences in shading the average annual revenue per hectare is given. We are much struck on looking at the map at the large extent of country over which the Vine is grown, and the relatively small patches in any particular district, even in the Burgundy and Bordeaux countries occupied by Vines. Again, we are surprised to find the Vine cultivated in sufficient quantities to be worth mapping so far north as Beauvais and Laon.

The text of the volume before us is devoted to the description of the several varieties of soil and their mode of formation, and to the improvements which may be effected, where necessary, by drainage and the application of various artificial and natural manures.

—— A new monthly journal, devoted to the interests of millers, and appropriately called *The Miller*, has just been established.

—— The numbers of the *Belgique Horticole* for January, February, and March contain, *primo*, a biographical sketch, with portrait, of Ogier de Busbecq, the first to introduce the Tulip, the Lilac, the Horse Chestnut, and other plants into Europe. The coloured plates are devoted to Billbergia amœna, Adiantum lunulatum, and Rose Saint George—the latter a reproduction of the plate given recently in the *Florist*.

—— A new and thoroughly revised edition of *Paxton's Calendar of Garden Operations* has just been published, and may be had from our publisher. We need add nothing in the way of commendation of this little book as a guide for cottagers and amateurs generally, as the fact that the present issue commences the two hundred and twenty-first thousandth is a sufficient evidence of the utility of the book. We may add that the portions relating to the vegetable garden have been specially revised by Mr. Cox, of Madresfield. All the other portions have been modernised and revised.

HORTICULTURAL EXHIBITIONS, 1875.

April.

21.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.
22.—Royal Horticultural Society of Ireland. Spring Exhibition. Sec., A. Balfe, 28, Westland Row, Dublin.
27.—Manchester Botanical and Horticultural Society. Exhibition of Auriculas, &c., in the Town Hall. Manager, Bruce Findlay.
28.—Royal Botanic Society, Regent's Park. Spring Show. Sec., W. Sowerby.

May.

1 to 10, inclusive.—Royal Botanic Society, Regent's Park. Mr. William Paul's Special Show of Roses, Pelargoniums, &c.
1 to 24.—Royal Botanic Society, Regent's Park. Special Exhibition of Clematis, by Mr. G. Jackman.
7 and 8.—Exhibition of Plants and Flowers in the Kibble Conservatory and Royal Botanic Garden, Glasgow. Manager, Robert Bullen.
12.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees. Pot Rose Show.
14 to 21.—Manchester Botanical and Horticultural Society's Annual National Exhibition, at the Garden, Old Trafford. Manager, Bruce Findlay.
17 and 18.—Halifax Floral and Horticultural Society's Annual Exhibition. Sec., Leonard Kershaw, 20, Gladstone Road, West Hill Park.
20.—Royal Horticultural Society of Ireland. Early Summer Exhibition. Sec., A. Balfe, 28, Westland Row, Dublin.
22.—Crystal Palace Great Flower Show. Sec., F. W. Wilson.
26.—Royal Botanic Society, Regent's Park. Summer Exhibition. Sec., W. Sowerby.
26.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.

THE

Gardeners' Chronicle.

SATURDAY, APRIL 17, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

Tuesday,	April 20	Sale of Poultry and Pigeons, at Stevens' Rooms.
		Royal Horticultural Society's Early Rhododendron Show.
Wednesday,	April 21	Royal Horticultural Society: Meeting of Fruit and Floral Committees, at 11 A.M.; Scientific Committee, at 1 P.M.; General Meeting, at 3 P.M.
		Sale of Imported and Established Orchids, at Stevens' Rooms.
Thursday,	April 22	Royal Horticultural Society of Ireland's Spring Exhibition.
		Sale of Palms, Camellias, Orchids, Agaves, &c., at Stevens' Rooms.
Friday,	April 23	Sale of Exotic and British Lepidoptera, at Stevens' Rooms.

THE interest which has been excited about the DAFFODIL and its double varieties must have been a source of gratification to those who love our old border flowers, and who regret that modern taste, if taste it can be called—fashion we would rather say—has well-nigh banished from our gardens some of the fairest and sweetest flowers that formerly adorned them. When we remember what associations gather round the Narcissus, what pretty legends, classical as well as national, are attached to them, it is indeed a matter for congratulation that our columns should bear witness to the revived taste for these beautiful and interesting flowers. The interest attaching to them is indeed manifold—they are beautiful in themselves, they are harbingers of spring and deck the glorious summer-tide with beauty; they are associated with much that is charming and delicious in our literature and poesy, they suggest endless questions to the botanist and to those who love to study and dwell upon the marvels of Creation.

Amid the many points that have been raised in our columns lately as to the Daffodil, no one of the controversialists seems to have remembered that the Daffodil so called now-a-days, is not the Daffodil of our forefathers.

Again, the double Daffodil of many modern writers is not *the* double Daffodil which Mr. HARPUR-CREWE and Mr. BARR mean; and this confusion applies not only to one particular variety but to many others, "one calling that by one name which another calleth by another, that very few can tell what they meane." This was so in PARKINSON'S time—that it is so now, even after the labours of Mr. BAKER and the history which he gave of all the species in the *Gardeners' Chronicle* in 1869, is evident from recent correspondence. What we now call the Daffodil was the bastard Daffodil—pseudo—Narcissus for PARKINSON. The name itself bears witness of the fact. It is a sorry discovery to make that all the legend, the poetry attaching to the wild English plant applies to a pseudo—a bastard Daffodil! It is matter of thankfulness from this point of view, however, that the words pseudo, or bastard, have in this case no such signification as they have generally: the Daffodil of our woods is no impostor, it is no cross between different species. Call it Pseudo-Narcissus if you will, it is for all that a true Narcissus! But some may say this is mere quibbling: let us to the point. Our correspondent "C. W. D." first set the ball rolling by stating that the wild Daffodil of the woods, if transplanted to the garden, would become double after two or three years' cultivation; and conversely, that the double Daffodil of the gardens, if transplanted to a meadow, would speedily become single unless the soil were very rich and strong. This statement was not allowed to pass unquestioned for long. Counter-assertions were made. Our correspondents took sides; many forwarded us specimens in confirmation of their assertion. These specimens we are bound to say were for the most part not the double wild Daffodil, but belonged to the form—we dare not call it species—which

FIG. 104.—THE TRUE DOUBLE DAFFODIL.

we know in gardens as N. major, and which is more or less naturalised in certain parts of the country. In order to put this matter at least at rest, we begged Mr. BARR to allow us to figure one of his specimens of the true double Daffodil as now understood. This he kindly permitted us to do, and at fig. 104 it is faithfully represented (as to the flower) by the skilful pencil of Mr. W. G. SMITH. Mr. BARR has told as already (see p. 471) of the difficulty he had in getting the true double Daffodil, and we ourselves began to look upon it as as great a myth as the redoubtable Mrs. HARRIS herself. However, amid many so-called wild double Daffodils which we received, and which were all forms of N. major—the South European representative of our British Daffodil—we have received by the courtesy of our correspondents some few indubitable double Daffodils. Captain KING, for instance, sends us the true double Daffodil from his garden, which said garden was a Turnip field a dozen years ago. Into that garden, as we understand it, single-flowered wild Daffodils were transplanted from a meadow two or three years simce. So far this appears to corroborate "C. W. D.'s" assertion. A second letter from Captain KING, however, states "that he has just visited the copse from which they [the double Daffodils] were brought by my gardener two or three years ago, and find them to be nearly all double within the tube."

As the writer well says, these specimens "prove nothing as to the transformation from single to double" but they do prove—that is, if the habitat be quite unexceptionable—that wild double Daffodils are still to be found, and this from some points of view is an interesting fact to have elicited. Meanwhile, we hope we are not too heretical in stating our opinion that the single Daffodil, the Daffodil of WORDSWORTH and JEAN INGELOW—we were going to write of HERRICK, but the dictum of PARKINSON above quoted restrained us—is far prettier. Our botanical and cultural instincts, however, forbid us to rest satisfied with a flower merely because it is pretty; we want to know in what its beauty—and, shall we say, its ugliness?—consists; how we may perpetuate and increase the beauty and the interest, and so give to others a share of the pleasure we ourselves enjoy.

As to the question of the specific identity of Narcissus Pseudo-Narcissus and Narcissus major, we own that, speaking from a botanist's point of view, we can find nothing but very arbitrary lines to be drawn between them. What is the botanist's point of view in this matter? we may be asked. In other words, What is a species? No one knows. What we mean at the time of this our writing is simply this, that N. Pseudo-Narcissus and N. major are so very much alike, except in point of size, that the great probability is they had a common origin. Who is to prove that? Direct proof we have none. We never saw a bulb or a seed of N. Pseudo-Narcissus produce N. major, or *vice versâ;* but, on the other hand, we have seen many specimens (and some are on our table before us as we write) which we can with difficulty refer to either—which are, in fact, intermediate between the two, and therefore, according to our notions, afford evidence of the *specific* identity of the two. Some of the flowers reputed to have been introduced as bulbs from the woods a few years ago into gardens, are decidedly nearer like Narcissus major of gardens than they are like the common Daffodil. So with some of the double forms before us. The double form of the true Pseudo-Narcissus cultivated in gardens is larger and fuller than that of the woods, and passes by gradual transitions of size, form, and colour, into N. major flore-pleno.

The true double N. Pseudo-Narcissus above figured (fig. 104) is, as we take it, the same as that shown in HALES' *Compleat Body of Gardening* as the "Silver and Gold Daffodil," while the "double Lemon Daffodil" of the same author appears to be a form of N. major, though in the work above cited it is distinctly stated to have been produced from the common English Daffodil.

We postpone till another time some remarks on the structural changes, which are very varied, in different "double" Narcissi, and for a collection of blooms of which we owe our thanks to Mr. BARR; but as a contribution to the enquiry how far this "doubling," various as it is, is affected by cultivation, we append the following extracts from the work we have just quoted, and referring to the "double Lemon Daffodil":—

"Originally it is only a little waved about the edge; the first effects of culture make the undulations so many indentings; from this state it becomes fringed and ragged in a wild variety of forms; and, as the extreme force of culture in the present instance, it is cut deeply into a multitude of segments, resembling so many petals. These mix themselves with the proper petals, from which they are distinguished only by being a little narrower, and form together with them a vast and very elegant flower.

"But though it is not easy to raise it from the common Narcissus seed, yet the gardener who follows our general instructions of sowing the seeds of a good plant in that species, and resowing the seeds of the best flowers raised from those, will not fail, amidst the varieties he shall produce from those several proceedings, to see some of the true double Lemon Narcissus. These will be of various degrees in colour, and even the meanest full of beauty."

Fig. 105.—Agave densiflora, etc., in the garden of M. Thuret.

We may to this add what Philip Miller says of the way in which Narcissus incomparabilis becomes double under cultivation :—

"This sort sports and varies more than any of the other: the following variations I have traced in the same roots. The roots of these the first year produced very double flowers of the sort which is commonly called the Incomparable Daffodil. The six outer segments of the petals were longer than either of the others, and white; the middle was very full of shorter petals, some of which were white, others yellow, and collected into a globular figure. Some of these roots the following year produced flowers less double than before, with no white petals in them, but the larger petals were of a sulphur colour, and the others yellow; from this they afterwards degenerated to half double flowers, and at last to single flowers, with a cup half the length of the petal, in which manner they have continued to flower many years; so that we may conclude that those varieties were first obtained from the seeds of this single flower. (Miller's *Gardeners' Dictionary*, 8th edition.)

We give a prominent position to the accompanying remarks on International Flower Shows, inasmuch as they contain suggestions which are deserving of full consideration by those who have to do with the management of these great exhibitions :—

"I notice your remark that you hope the word 'International' will be omitted in future announcements of shows, however large, which are really only local shows. I trust your wishes may be realised; and, having taken part in most of the really International shows on the Continent, perhaps I may be allowed to remark that they appear to have wanted, in order to make them more complete, the distribution of two or three more medals. I take it—

"1. That these International Shows require to be made imposing, as well as to show good cultivation.

"2. That one main object is to exhibit not only what the nurserymen of the country in which the show is held can produce, but also what the nurserymen of foreign countries can do.

"3. That, as there are many amateurs who could produce plants of every class of sufficient size and good cultivation to add much to the beauty and interest of the show, the managers should do all they can to induce amateurs, both native and foreign, to send their productions.

"When we consider the great labour, and also the great expense of getting up and conducting these shows, a few extra pounds can be of no consequence, if the success is thereby made more certain and complete. Usually there is one—sometimes there are two—grand medals of honour given to the exhibitor who has conduced most to the beauty and *éclat* of the show. Instead of two, I would suggest that four should be distributed, namely, one to native nurserymen, one to foreign nurserymen, one to native amateurs, and one to foreign amateurs. Moreover, the rules for determining the award of these medals should be clearly laid down in the programme. It seems to me that a vast many more persons would pay to see foreign productions, than to see plants which they may have seen many times before at their ordinary shows.

"In the forthcoming Brussels show, imagine the excitement there would be in that city if it were known that Lord Londesborough, Mr. Bockett, Mr. Day, Mr. Wrigley, and some of the Manchester Orchid growers would exhibit Orchids; or if Mr. Wilkins, Mr. Shuttleworth, Mr. Peacock, and others of our good plant growers were to show their specimen plants. It might be that the additional Médaille d'Honneur given by the King or Queen or Municipality, for having contributed most to the success of the show, would tempt them to exhibit, when merely the ordinary prize, however good, would not. *Robert Warner, 8, Crescent, Cripplegate.*"

—— This week we give another illustration (fig. 105) from the rich garden of M. Thuret, of Antibes. Like the others it is engraved from an exquisite photograph taken by M. Bornet. The Agave in the centre of the picture is A. densiflora, of Hooker; the Aloe to the left is A. cæsia; the Dasylirion to the right of the reader is D. longifolium. An undergrowth of Opuntias, Euphorbias, Mammillarias, &c., is shown, while a fine Olive forms the background. What noble objects the Agaves make when they can be grown in this way our illustration sufficiently shows.

—— A rumour having obtained credence that the Council of the Royal Horticultural Society do not intend paying the prizes of 1874, we are requested by the Secretary to say that such a rumour is unfounded in fact, and that the prizes of 1874 will be paid as soon as the funds of the Society will admit of it.

—— The tributes to the memory of the late Daniel Hanbury are sure to be neither few nor formal. Among others we have received the following from N. Naudin, of Collioure in the department of the Eastern Pyrenees :—

"I cannot express how shocked I was at the sad announcement in the *Gardeners' Chronicle* of the unexpected and premature death of my excellent friend, Daniel Hanbury. What a cruel loss for science, for his family, and his friends. Allow me to express in the *Gardeners' Chronicle* the sorrow I feel at the loss of one with whom I have been so intimately associated for more than fifteen years. I have had abundant evidence of the value of his friendship, of his generosity and kindheartedness. It was partly by his aid and encouragement that I was enabled to establish here an experimental garden, to which I have devoted my time and my energy for the last six years. It is to him, also, that I owe very many of the most interesting plants which I cultivate. This modest establishment was, in his eyes, the auxiliary and complement of his brother's establishment at La Mortola near Mentone.

"Scarcely a month ago he sent me seeds of Ferula alliacea for trial. I was about to write to him to tell him of their progress when I saw the announcement of his death. How many associations those plants recal. I have them continually under observation, and constantly they awaken bitter regrets. Those who have been intimate with Daniel Hanbury will understand and share this feeling. Would that this slight expression of sympathy could soften the grief of his family. *C. Naudin.*"

—— Friday and Saturday, July 23 and 24, are the dates fixed for holding the first exhibition of the Helensburgh and West of Scotland Rosarians' Society.

—— From Oxford we learn that "A general course of Biological Instruction, devised so as to give a survey of the leading features of plants and animals, will be given during the summer term conjointly by Professor Lawson and Mr. Ray Lankester, in the herbarium at the Botanic Gardens. The course will be carried on daily, commencing on April 19, and will consist of thirty-six lectures, each followed by practical study of the subject treated of in the lecture. The lecture hour will be from 10 to 11 A.M.; the laboratory work from 11 A.M. to 12.30 P.M., and from 1.30 to 4 P.M. The following is an outline of the subject-matter of the lectures, and an enumeration of the types, whose structure and (where possible) life-history the student will be enabled to examine in actual specimens provided for the purpose :—

Examples:

Plants. Class I. Algæ. 1, *Palmella*; 2, *Protococcus*; 3, *Volvox*; 4, *Nostoc*; 5, *Oscillatoria*; 6, *Bacterium*; 7, *Closterium*; 8, *Bacillaria*; 9, *Zygnema*; 10, *Vaucheria*; 11, *Fucus*; 12, *Ceramium*.—Class II. Fungi. 13, *Torula*; 14, *Penicillium*; 15, *Æthalium* (plasmodium); 16, *Ascophora*; 17, *Peziza*; 18, *Agaricus*.—Class III. Muscales. 19, *Marchantia*; 20, *Funaria*.—Class IV. Filicales. 21, *Pteris*; 22, *Selaginella*; 23, *Equisetum*.—Class V. Gymnospermæ. 24, *Pinus*.—Class VI. Angiospermæ. 25, *Poa*; 26, *Scilla*; 27, *Arum*; 28, *Chamærops*; 29, *Orchis*; 30, *Euphorbia*; 31, *Primula*; 32, *Taraxacum*; 33, *Heracleum*; 34, *Rosa*; 35, *Dianthus*, 36, *Ranunculus*.

Animals.—Sub-kingdom I. Protozoa. 1, *Gregarina*; 2, *Actinophrys*; 3, *Spirostoma*; 4, *Vorticella*.—Sub-kingdom II. Cœlenterata. 5, *Hydra*; 6, *Cordylophora*; 7, *Spongilla*; 8, *Actinia*.—Sub-kingdom III. Vermes. 9, *Planaria*; 10, *Tænia*; 11, *Rotifer*; 12, *Lumbricus*; 13, *Ascaris*.—Sub-kingdom IV. Echinodermata. 14, *Uraster*; 15, *Echinus* (shell).—Sub-kingdom V. Mollusca. 16, *Plumatella*; 17, *Limnæus*; 18, *Anodon*; 19, *Sepia*.—Sub-kingdom VI. Anthropoda. 20, *Astacus*; 21, *Apus*; 22, *Blatta*; 23, *Scorpio*; 24, *Limulus*. Sub-kingdom VII. 25, *Stages of the Common Frog*; 26, *Amphioxus*; 27, *Ascidian Tadpoles*; 28, *Lamprey*; 29, *Dog-fish*.

This course is intended not only to provide for the student, who means to take honours in biology in the natural science school, the general survey of the structure of both plants and animals which is the necessary preliminary to a more detailed study of anatomy and physiology, but is also open to other students who are not preparing for examination in the subject. It may be indicated that such a course as the present, with a sufficient supply of specimens, can only be carried out once a year—namely, in the summer; and it is therefore suggested to those who may desire to attend, that other work (such as that connected with the various preliminary examinations) may be advantageously postponed until the Michaelmas term, *i.e.*, if it be such as to interfere with attendance at the proposed course."

—— Some few years since a hybrid between Libonia floribunda and Sericographis Ghiesbreghtii was exhibited at South Kensington and elsewhere as × Libonia Penrhosiana. The plant was interesting, not only for its beauty, but from the fact that it was a hybrid between two genera, Libonia and Sericographis, and served to show how arbitrary are our so-called genera. Lately M. Linden obtained the same hybrid, and, unaware of its previous production, sent it out as a new plant—as Sericobonia ignea, the generic name indicating its dual origin. Having discovered the fact, M. Linden is now rectifying the error into which he unconsciously fell.

—— The schedule of prizes has just been issued for the summer exhibition of plants and flowers at the Crystal Palace on Saturday, May 29; and for the Great Rose Show to be held at the same place on Saturday, June 19. A new feature in the schedule for the former show is a class for "new and rare plants, whether in bloom or not (open)," with prizes to the amount of £7, £5, and £3, respectively; and in connection therewith we are requested to supply an accidental omission in the schedule, by stating that the prizes are offered for the best collections.

—— A large Rose Show is announced to be held at the Alexandra Palace on June 24 and 25, and the managers contemplate holding Fruit Shows in September and December.

—— The collection of specimen stove and greenhouse plants formed by the late J. Philpot, Esq., of Stamford Hill, came under the hammer at Stevens' Rooms on Friday the 9th inst. Amongst the prices realised we may mention Anthurium Scherzerianum, 12*o*.*s*. to 14*o*.*s*.; Azalea Duchesse Adelaide de Nassau, 10*o*.*s*.; A. Magnificent, 13*o*.*s*.; A. Leeana, 10*o*.*s*.; A. Brilliant, 11*o*.*s*.; A. Perryana, 11*o*.*s*.; Erica Cavendishiana, 14*o*.*s*.; a larger plant, 20*o*.*s*.; E. coccinea minor, 18*o*.*s*.; E. ferruginea major, 13*o*.*s*.; E. Parmentieriana rosea, 10*o*.*s*.; and Hedaroma tuliperum, 42*o*.*s*. A covered van, 14 feet by 6 feet 6 inches, 63*o*.*s*. Total amount realised, £508 5*s*. 6*d*.

—— It is impossible to travel through the large fruit gardens that abound in West Middlesex without being struck with the magnificent Promise of Bloom Displayed on all Kinds of Fruit Trees. Remembering, however, how in former years Jack Frost has rudely dashed the full cup from our lips just as we felt assured of a rich and an abundant produce, so now it would be premature to rejoice although the prospect is so tempting. Last spring we had a magnificent bloom, and had a good crop followed, a comparatively thin bloom must have resulted this year. The early destruction of bloom, however, left the trees at liberty to mature another crop of fruit-buds, and these stud the trees all over, so that we may well look shortly for orchards not less beautiful than they were last spring. Fortunately we have better reason to be hopeful than we had then, as the present is a notoriously backward season—that is, relatively—and backwardness in relation to fruits is a pretty certain forerunner of fruitfulness. We have had no occasion to record any prematurely warm forcing days, indeed a general absence of sunshine has made the present spring so far remarkable, and yet vegetation is everywhere looking vigorous, healthy, and promising. In these days of immense populations so much that is of importance to them hinges upon the securing of good crops of fruit that it is no longer one of persons or of localities but of national interest.

—— The following prices were realised at a Sale of unusually choice East Indian Orchids at Stevens' Rooms on April 8:—Dendrobium Falconeri, single specimens, 95*s*. to 100*s*.; four plants, 90*s*. to 95*s*.; six plants, 120*s*. to 130*s*. Dendrobium crassinode, single plants, 65*s*. to 105*s*.; two plants, 84*s*. to 90*s*. Dendrobium Wardianum, a grand mass, containing upwards of seventy bulbs and numerous young growths, went to Lord Londesborough for 100 guineas; ten other specimens sold at from 18*o*.*s*. to 88*o*.*s*.; pairs realised from 10*o*.*s*. to 13*o*.*s*.; and in fours from 12*o*.*s*. to 17*o*.*s*.; Dendrobium suavissimum, single specimen, 84*s*.; Saccolabium retusum, 10*5*.*s*.; and Phalænopsis amabilis, var., 8*o*.*s*. Total number of lots offered, 447; total amount realised, between £1400 and £1500.

—— There is now in fine flower, in the conservatory at Hatfield House, a magnificent plant of the rather scarce Brugmansia lutea. The plant is in the finest possible health, and the bright yellow flowers contrast well with the dark green foliage. The plant is worthy of more extensive cultivation where room is plentiful.

—— The Kingston and Surbiton Royal Horticultural Society will hold its eleventh great show on Tuesday and Wednesday, June 22 and 23, at Norbiton.

—— We extract the following from the *St. Louis Daily Globe*. It will be seen that Mr. Riley's remarks are of a nature to allay the fears of those who dread the importation of the Colorado Beetle, and of those who would impose restrictions on the introduction of American tubers to this country :—

"At the meeting of the Academy of Science, last Monday evening, Professor Riley delivered the following remarks in view of the alarm manifested by certain European Governments about the importation of our patent Colorado Potato bug—Belgium, France, Switzerland, and Germany having issued edicts of prohibition, and Italy, the Netherlands, and Great Britain having the matter under consideration.

"'I must repeat the opinion expressed a year ago—and which has been very generally coincided in by all who have any familiarity with the insect's economy—that if it ever gets to Europe it will most likely be carried there in the perfect beetle state on some vessel plying between the two continents. While the beetle, especially in the non-growing season, will live for months without food, the larvæ would perish in a few days without fresh Potato-tops, and would, I believe, starve to death in the midst of a barrel of Potatos, even if it could get there without being crushed; for, while it so voraciously devours the leaves, it will not touch the

tubers. The eggs, which are quite soft, and easily crushed, could, of course, only be carried over on the haulm or on the living plant; and, while there is a bare possibility of the insect's transmission in this way, there is little probability of it, since the plants are not objects of commercial exchange, and the haulm, on account of its liability to rot, is not, as far as I can learn, used in packing. Besides, Potatos are mostly exported during that part of the year when there are neither eggs, larvæ, nor Potato vines in existence in the United States. There is only one other possible way of transmission, and that is in sufficiently large lumps of earth, either as larva, pupa, or beetle. Now, if the American dealers be required to carefully avoid the use of the haulm or shaw, and to ship none but clean Potatos, as free as possible from earth, the insect's transmission among the tubers will be impossible; and when such precautions are so easily taken there can be no advantage in the absolute prohibition of the traffic in American Potatos. The course recently adopted by the German Government, in accordance with the suggestion made in my last report, is much more rational, and will prove a much better safeguard; it is to furnish vessels plying between the two countries with cards giving illustrated descriptions of the insect in all stages, with the request that passengers and crew destroy any stray specimens that may be found. Let England and Ireland, together with the other European Governments, co-operate with Germany in this plan, and have such a card posted in the warehouses of seaport towns and the meeting rooms of agricultural societies, and a possible evil will be much more likely avoided."

—— Polygonatum multiflorum (Solomon's Seal), is now fine in pots in the flowering house at Chiswick. Mr. Barron finds it best to plant the roots out in a highly manured rather light soil, after they have done flowering, and allow them to remain there for a couple of years. Treated in this way the roots flower freely when forced in pots, showing very fine graceful spikes of pendent flowers.

—— A paper on the best mode of making Field Experiments useful to agriculturists was read by Professor Wrightson before the Society of Arts on Wednesday evening. He recommended that county agricultural societies should organise field experiments in every district. The plan recommended has been, for a number of years, tried on the Coltswold Hills by members of the Cirencester Chamber of Agriculture, under the direction of Professor Wrightson. The paper, together with a full report of the results of last year's experiments in the Cirencester district, is given to-day in the *Agricultural Gazette*.

—— Cardamine trifolia, a plant that cannot be too well known, is flowering on the rockwork at Kew. It is a charming species, of most robust constitution, thriving on dry sandy soil, where few moisture-affecting plants will live. The flowers are of the purest white, and the leaves dark green, forming a neat dwarf tuft, pleasant to look on at all seasons. It was apparently a favourite of the quaint botanist, John Parkinson, who, after describing the plant, says that "It was sent me by my especiall good friend John Tradescante, who brought it among other dainty plants from beyond the seas, and imported thereof a root to me." It is a native of Switzerland.

—— We owe to the courtesy of Mr. McLachlan the following extract from the *Reports of the Zoological Collections of Lieut. W. L. Carpenter, made in Colorado during the Summer of* 1873, concerning Doryphora decemlineata, the Colorado Beetle.

"This insect is still marching eastward, not a single specimen having been seen west of the dividing ridge. It is probable that should the Potato be cultivated on the western watershed, it would be free from the ravages of this destructive insect for a number of years, but that it would ultimately make its appearance in that region through the agency of the seed. This I believe to be the manner of their introduction to distant localities, as they are sluggish travellers, and quite incapable of spreading so rapidly by their own instinct. This belief is further sustained by their continued absence from the Salt Lake basin, occasioned by the cheapness of vegetables in the Mormon settlements excluding the importation of Potatos from Colorado. Not found at a greater altitude than 8000 feet."

—— Doronicum caucasicum, one of the most brilliant of the early spring flowering hardy perennials, can now be seen in fine condition in the herbaceous border at Chiswick. An established clump of it is literally covered with showy yellow Daisy-like flowers. What an effective ribbon it would make in the spring garden!

—— The Nottingham and Midland Counties Grand Rose Show and Horticultural Exhibition will be held at the Nottingham Arboretum on Friday and Saturday, July 9 and 10.

—— Impurity in the Tulip! Such is the expression frequently made use of by Tulip fanciers; and a tyro in matters relating to this gorgeous flower might be led to think that it is capable of experiencing impure emotions, and giving play to desires of an immodest character. No such moral taint belongs to this flower; it simply applies to the ground colour of the bloom becoming shaded and stained, and the markings splashed and broadened out of the exquisite proportions which go to the summing up of the possession of high-class quality. A flower that a novice in Tulip lore might regard as paramountly beautiful, is likely to be contemptuously ignored by a Tulip fancier as absolutely impure. There are some flowers that appear to be hopelessly impure. Fifteen and twenty years ago such varieties as Black Prince, Licantique, Sable Rex, Unique, Vesta, &c., were interdicted by some cultivators because of their tendency to come impure. Purity, form, and marking, are three main points in the Tulip that are strongly insisted on; and purity has the first place, because such an indispensable condition of quality. Because purity ranks so high, impurity is regarded as a most glaring defect; it practically disqualifies a Tulip from competing.

—— We have lately received through Dr. M. C. Cooke a specimen of Agaricus ascophorus (Peck), sent by that gentleman from New York. The species clearly belongs to the subgenus Flammula, and we therefore felt greatly interested in examining the gills for the supposed asci. We readily discovered the bodies in question, but we could by no means satisfy ourselves that they were really asci containing sporidia. We therefore forwarded the only specimen to Mr. Broome, who has sent a sketch of what he himself saw, confirming our own observations, and which is here reproduced (fig. 106). The singular matter is, that besides these bodies there are forked ascidia, which are, however, far less numerous than the bodies in question. These, according to Mr. Broome's and our own observations, are shortly pedicellate, somewhat top-shaped bodies, with a reticulate surface, the reticulations increasing in number with the process of growth. We do not at all consider them as asci, but as analogous to the hispid bodies which occur on the gills of some species of Marasmius, and possibly of the same nature with the echinulate bodies which are so obvious on the pileus of Marasmius Hudsoni. It is true that asci have been observed on the gills of Agaricus melleus, but this was probably due to the presence of some species of Hyphomyces, and the

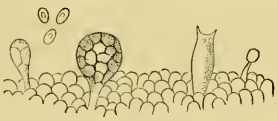

Fig. 106.—Hymenium of Agaricus ascophorus (Peck).

observation has not been confirmed. Indeed, late examinations of the spores of some Coprinus under germination seem to show that impregnation takes place at a very early period, and that the result is a sporiferous fungus, as in Ascobolus or Peziza we have from the same process a sporidiiferous fungus. The spores of Agaricus ascophorus were like those of allied Flammulæ, and were .0004 inch in length. Our figure represents a portion of a gill, showing the tips of the sporophores, a cystidium, and three of the supposed asci in different stages of growth. The dried gills did not show the spicules when moistened. *M. J. B.*

—— Costus Afer is blooming in the Economic-house at Kew. It is very little known as a subject of cultivation, and the only original information as to its economic use appears to be that given in the *Botanical Magazine* of 1857, in which volume the plant is well figured. Living specimens were communicated to the Royal Gardens through the Hon. Fox Strangways, accompanied by the information that "this plant comes from the Isles de Los about 60 miles north of Sierra Leone, west coast of Africa. It is valued by the natives as a specific against nausea, from whatever cause arising, and the part used is the stem after stripping off the leaves and peeling." The leaves also are said probably to contain the active principle, though they are further said to be harmless, and are eaten in a green state, the taste being near that of Oxalis Acetosella. It grows very freely in Africa, and may be obtained in any quantity if found of medicinal value. "As far as I have had the opportunity of trying it, it has been uniformly successful in relieving nausea." The roots of Costi partake somewhat of the qualities of Ginger, and have had considerable reputation as tonics, but are now out of use. Dr. Lindley says that the Brazilian species are subacid and mucilaginous, are used in some disorders, and by the natives are held in great repute. "We are not aware that the property attributed to the present species is at all known to the faculty." Since this was written no investigation seems to have taken place, or further information arisen; and it yet remains to be decided whether the species possesses any virtue of value or not. The stems are simple, about 4 feet high, with elliptical acuminate leaves, glabrous (as is also the entire plant), and bearing at the summit a dense ovate spike, the bracts broad and imbricating; flowers white, with a slight tinge of yellow. From beneath the spike often proceeds a young shoot; which, when the stem falls or bends to the ground, takes root, and becomes an individual. The roots of C. speciosa are used by the natives of the East Indies as an ingredient in a kind of preserve.

Home Correspondence.

Mr. Lee's Violets.—I send you flowers of some of my seedlings. You will see that they vary very much, and upon the plants the heads of blossom present very distinct appearances. Some are much smaller than those sent; some have a very upright growth, others will not bear their own weight; some have very glossy leaves, others are downy; and some have very large leaves, 5 inches across, while others are very small, only between 2 and 3 inches. Many have the habit of Devoniensis, others more the habit of The Czar. What I hope to get is one having a compact, upright growth, and a dark-green leaf, a profuse bloomer, with a round even flower, and with the same scent as Victoria Regina. Although the Floral Committee did not think this last sufficiently distinct to merit a certificate, yet the demand for its flowers for bouquets is something astonishing. *George Lee, Market Gardener, Clevedon, April* 7. [Some of the flowers sent are remarkable for size, and there is also to be found amongst them not only advance as to form, but considerable variation as to colouring. We hope Mr. Lee may soon realise his anticipations. Eds.]

Tea Rose, Duchess of Edinburgh.—This beautiful Rose quite deserves all the praise that has been lavished on it—its brilliant colour and perfect shape will soon make it a popular favourite. I got a small plant from Messrs. Veitch, Chelsea, last February, and although it was very weak I at once put it in heat, for my employer, who is an ardent lover of the Queen of Flowers, wished to see it in bloom. It soon began to make a fresh growth, every shoot of which showed a bud. I have sent you a bloom which I think speaks very highly for it, considering the treatment it has undergone. *E. Woods, Tranby Hall, Hull.*

Violet (Neapolitan) Culture in Pots.—In the first or second week in May we shake out some o those grown in pots and select all the young plants, which we plant in rows, singly, 18 inches apart, and at the same distance in the rows, after which they receive a good watering, which must be repeated when necessary. After they have started well into growth, and begin to throw out their runners, five of the strongest, and those having the most solid crowns, are selected and stopped at the points, and kept stopped persistently—all the other runners are cut away, the object in view being to concentrate the sap into those left, and which eventually are to form th principal blooming crowns. In the first or secon week in September we lift the plants, and pot into three sized pots, viz., 24's, 32's, and 48's. We grow 200 plants in pots, namely, 100 in 24's, fifty in 32's, and fifty in 48's; those grown in the 32 and 48-sized pots come in very useful for decorative purposes. We pot them in an admixture of good friable loam, decomposed cow-dung and leaf-soil, with sufficient sand to keep the whole porous. The pots are well crocked—a thing always to be observed in potting; we have several sieves with meshes of different sizes, through which we pass the crocks, viz., 1½ inch, 1 inch, ½ inch, and ¼ inch mesh. The last-sized "rudder" is placed on the floor close to the crock heap, and the others (according to size) are placed on top of it; the top and largest sieve is filled with the crocks, and then receives a shake or two, and the contents thrown into a large pot—and so on, each sieve receives a shake or two until all are empty, and the contents of each one is kept separately, and placed in the pots in the order named. In potting, the young crowns are placed regularly round the edge of the pots, and the soil pressed firmly together and watered. This done, they are transferred to the frames allotted to them, and plunged in either sawdust or leaf-soil; the former answers very well for the winter months, being a lighter and dryer substance, which consequently retains less moisture at a time when it is our object to keep the temperature of the frame moderately dry; but the latter (leaf-mould) answers better during the spring months, when the roots become more active, and consequently require more food and moisture, which they derive by pushing out of the pots into the leaf-soil. We shade them for a few days when the sun is bright, until they have taken hold of the soil, after which we subject them to the full rays of the sun, when soon after they throw up their ever-welcome and charming flowers, which seldom fail to call forth expressions of admiration from all who see them. We apply liquid manure occasionally, but not before the pots have become pretty well filled with roots. The lights are pulled off every fine day in the winter, to

get the foliage dry, and shut up again before the sun goes off the frame. Chislehurst and neighbourhood is the place, and perhaps the only place, where Violets are cultivated to any extent under glass, and with such satisfactory results. It was whilst foreman in the gardens of Earl Sydney, Frognal, Chislehurst, that I first saw the Violet cultivated under glass, both planted out in frames and in pots, and with such satisfactory results that I resolved, when opportunity offered—that is, when I got a head gardener's place—to devote some of my attention to the cultivation of the Violet under glass, as well as out-of-doors, and with the result both my employers and myself are satisfied. There is a difference of opinion with regard to the cultivation of the Violet under glass. Some say they do better planted out in a frame about 6 inches from the glass; others maintain that they do better in pots, treated as above stated; while Mr. Thomas March, Lord Sydney's efficient gardener, who grows the Violet superbly, like most other things he takes in hand, is of the latter opinion. For the last two months we have been picking from two to three dozen bunches per week, and for the last three weeks we could have picked as many bunches per day. We place Ivy leaves around the flowers, instead of the Violet leaves—the former acting as a kind of tonic to the flowers, many of which are nearly as large as a two-shilling piece. By this post I send you a small boxful for inspection. *H. W. Ward, Longford Castle, Salisbury.* [A very good sample. Eds.]

Fruit Prospects and Protection.—The cold, sunless weather that has prevailed during the last three months will in all probability save the fruit crop, as it has fortunately retarded the time of flowering at least three weeks. April, so far, has been most unfavourable, and had the trees bloomed at their usual time the present inclement weather must have proved fatal to them, at least in the case of Peaches and Nectarines. Apricots appear to endure a great amount of cold, provided the blooms can be kept dry. It will be remembered that during March of last year, when most of us despaired of saving even a single fruit on account of the severity of the weather, the flowers set in the freest manner, and the crop in places was unusually abundant. This was no doubt owing to the cold being continuous, as it is the sudden transition from one extreme to the other that proves so fatal to tender blossoms. The sap is put in rapid motion by a sudden rise in the temperature, to be succeeded by stagnation caused by an equally sudden fall, chilling and paralysing the energies of the plant. Any expedient that will stop such extreme variations of temperature, by preventing the sun from shining too freely on the walls after cold chilly nights, is of the greatest assistance in keeping the trees in health, and securing a crop of fruit. On cold clear nights radiation goes on very rapidly unless interrupted in some way, and the thinnest material possible will make several degrees difference in the temperature of the front of a fruit wall. Old fishing-nets are perhaps equal to anything that can be obtained for the purpose, and can be had at a cheap rate. If possible, the trees should have a temporary coping, such as a board 8 or 10 inches wide, and from this the nets can be suspended and strained along the front of the trees. By having three thicknesses the meshes cross each other and effectually prevent rain or snow from reaching the wall; thin temporary coverings, such as old nets, branches of Fir or evergreen Oak, are often far more effectual than others of a more costly nature, such as rollers and blinds, that are let up and down and subject the trees to more sudden variations of temperature. The former sift the air and intercept the direct rays of the sun, thus keeping a more equable degree of heat. I have sometimes thought that the dark colour of the net has something to do with the protection it affords, as it is a well-known fact that heat is absorbed by black or dark colours, while those of an opposite shade reflect it. If this is the case, it may be worth while to use black nets instead of those of a brown hue; and the colour of hexagon net, muslin, and other materials used for protecting the blossoms of tender fruit may with advantage be changed too. Be this as it may, it is evident that protecting materials of some kind will yet come into requisition this season, for while I write the wind is howling from the north in a manner that portends mischief. Such primitive coverings as Fir branches, evergreen Oak, &c., often save a crop. These should be inverted, so as to throw off any rain that may fall on them, as, placed in the contrary way, they would conduct it on to the trees, and wet is often more fatal than frost. Should we get anything like favourable weather shortly, the present season will be one of the most fruitful on record, as all kinds of trees are thickly studded with bloom-buds. The dry summer of last year checked that exuberant tendency to produce wood that is always fostered and encouraged by a season of the opposite character, and the result has been an unusual development of flower-buds. Apricots have been laden with bloom, and appear to be setting well. The trees were quite a sight, and I do not remember to have before seen them with anything like the quantity of flower they have had this season. Peaches and Nectarines give equal promise of an abundant crop, as their blossoms are just opening, and look strong and vigorous. Pears on the Quince are very full of bloom-buds, but less so on the Pear, except the Passe Colmar, which is laden. Cherries of all kinds are thickly set, and the buds are fast swelling. Apples are more promising than I ever remember to have seen them before in this district. The present season is therefore one of great promise as regards fruit, especially the hardier portion of it, as they will be unusually late before getting into bloom. *J. Sheppard, Woolverstone.*

Tulipa sylvestris.—Some years ago I brought over from Nyon, in the Canton de Vaud, a quantity of this plant. It has flourished in my garden ever since, spreading rapidly. Last year several blossomed, having two blooms on the same flower-stalk; and this year three bulbs have thrown up stems, bearing three buds each. This, coupled with the fact that a specimen Triteleia uniflora growing close by has adopted the same plan of proceeding, and produced two flowers on a single stalk, seems worth recording. *Bernard Piffard.* [Both specimens are instances of fasciation, the result, probably, of an over-vigorous condition. Eds.]

Five-rayed Stars.—I should be very glad if you would tell me and my companions how to strike out a five-rayed star. We have tried and tried again to accomplish it successfully, but in vain, and shall be very thankful for a few hints. *A Youngster.* [We reproduce from a former volume a diagram (fig. 107) which, with a few words of explanation, will put our correspondent in the right way to work. Describe two circles, the inner one with a radius of 5 inches, the outer one with a radius of 20 inches, or in the same proportions. Divide

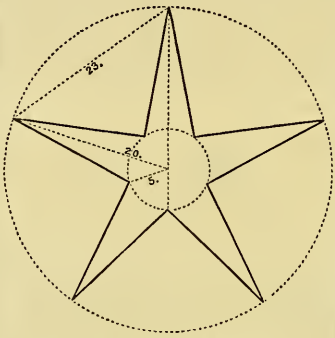

Fig. 107.—Diagram of a five-rayed star.

the outer circle into five parts by five points, 23 inches from each other. Then mark the inner circle off in the same way, but place the points just halfway between those on the outer circle, and by ruling lines from the points on the one circle to those on the other, a five-rayed star is obtained. The points on the inner circle of a five-rayed star may be easily determined by ruling lines from the points on the outer circle, through the centre and beyond it, until the inner circle is reached. Eds.]

Aucubas.—Some years ago a very fine Aucuba, 10 feet high, was budded in three or four places with the male plant, and it has been covered with berries every spring since. The male grows much stronger budded than on its own root. *J. H. N., Tenterden.*

"National Health and Wealth."—I have read your review of my *National Health and Wealth*, Part 1., and for the greater part of it I return you my sincere thanks. There are, however, two or three points in this review with respect to which I feel confident you will allow me space for a few remarks. 1. If such of your readers as shall act on your recommendation to read this little book will first look at the title of my other work, which is given on the cover, and then read in chapter 1 that which I call my apology, they will surely judge me undeserving the taunt of "riding a hobby," and of having made dry earth closets my favourite theme. 2. For dealing with "liquid manures" I cannot be said to have proposed two remedies. Chapters 3 and 4 of my pamphlet go to establish the fact that, wherever there is a sufficient extent of ground the operation of removing the liquid refuse may, and ought to be at once changed into that of an inoffensive and profitable manuring of the soil. Cremation is mentioned only in the two appendices to the work—in the former in connection with the abolition of ash-pits in London and other large towns, and in the latter as a safe inoffensive mode of destroying infectious matter. That which I have set forth on these points is indeed novel and very startling, I admit; but I am not about to press it—I am too old for such work. Let others, with the object of improvement in view, dive into the courts and yards of St. Giles' and Marylebone, and judge whether anything can be "more horrible to think of" than the watercloset accommodation there for the working classes. 3. If your readers will look with some degree of attention at pp. 8 and 39 of my pamphlet they will see that there is no real inconsistency between my recommendation "for the disposal of the liquid refuse of villages," and my "strong condemnation throughout the pamphlet of the worthlessness and incompetency of the water system to deal with the problem or remedy for the evils of our present sanitary state." For, first, the two manures entirely differ. The one is free from the solid and most offensive matter, and is applied before putrefaction. The other is heavily charged with that matter, and can scarcely ever be applied otherwise than in a state of putrefaction. The one is undiluted with flushing water, the other diluted by five times its bulk. The one would be applied as much as possible in detail, the other in a very large mass or masses. 4. As to "the abolition of privy vaults and cesspools near dwellings, by Act of Parliament" (I have not spoken of surface wells), the substance of my remarks is as follows:—If a safe and profitable substitute for the privy vaults, the cesspools, &c., can be provided, then the abolition of those evils may reasonably and justly be the subject of an Act of Parliament. If no such substitute be provided their attempted abolition would be absurd. The earth system can provide such a substitute, the water system cannot; and no other device has ever been mentioned. Your concluding hint on this subject, "by the dry-earth system to wit," is perfectly just. *Henry Moule, Fordington Vicarage, Dorset.*

Making Asparagus Beds with Seaweed—In April, 1874, I made two plantations of Asparagus, one bed being composed of equal parts of seaweed and long dung, and the other of good rotten dung and the ordinary soil, only the land being nearly all sound no drainage was required. The plants, which were very small, were taken from the seed-bed, and duly planted out. The one made with seaweed held out against the parching drought of last summer without showing the least signs of distress—without the help of the water-pot; and the "grass" on this bed is 8 inches above ground, so strong that I am almost tempted to cut: whereas the bed made of dung was watered frequently, and at present shows no signs of growth, although the crowns are good. I am about to plant another bed this season, and shall make it entirely of seaweed and sea sand, as I consider the success was owing to the diffusion of the moisture the seaweed contained. *G. Taylor, Gr. to G. C. Bentinck, Esq., M.P., Branksea, Poole.*

Masdevallia Trochilus.—This interesting Masdevallia having been discovered by me, it may be interesting if I communicate some observations respecting it. In the year 1868 I first met with this plant growing in the frosty heights of the Sonson district in New Grenada. The whole of the plants I then remitted to Europe died, and I afterwards sent others, in the year 1872, to M. Linden, of Brussels. Masdevallia Trochilus suffers greatly from tropical heat, and from excess of heat generally. Only a dozen out of 200 plants arrived alive in Europe the first time—I brought them under my personal care. The name Colibri, which is given to this plant in its native country, is simply an allusion to the fantastic bird-like appearance of the flower—though this allusion is rather far-fetched, as are so many of the allusions in use by the South Americans, especially the Indians. The long-tailed petals seem to be comparable to the long-drawn, prominent feathers of a bird's tail and to the beak of a bird—hence the reason for the vernacular name! I heard it surmised that the name Colibri alluded to a sheen such as exists on the colours of the flower. This is erroneous, as the colours have no metallic glitter whatever. The colours must rather be designated as dingy and monotonous. Nevertheless this Masdevallia is a very interesting one in more than one sense. It seems, indeed, that Nature, in compensation for the poor colours of its flowers, has bestowed on this plant a most exceptional and picturesque shape. From my sketches and notes (taken from stove-flowered specimens), now before me, I reproduce here the following items. The flowers, as to colour, are less showy than interesting by their original shape. The contour is strangely and sharply cut out, especially as to the upper petal; it is elegantly bent, first backward and then gradually forward. The general size of the flower (properly speaking) does not surpass that of a Walnut. The winged sepals have a length of about 4 to 5 inches each. There is a peculiarity of the plant well worth mentioning, and that is its power of producing out of the same spathe several subsequent flowers. I observed many plants in my stores that

produced flowers out of the old stalks, and which I had considered as being dead. It is possible, therefore, that this Masdevallia in its native place has two flowering-seasons each year. The strong and compactly formed root-balls get sometimes to a considerable weight and size. The plant, being once established, must possess an extraordinary vital power. The flower-stalks are exceedingly strong, and have in section a well-marked triangular outline; the leaves are of a bright green colour, short and strong, and of an unusual thickness—the term coriaceous will not suffice for them. Masdevallia Trochilus has the happy faculty also of growing and doing well under any conditions. It grows quite as well in a loose compost as on the bark of trees, or on decomposed pieces of trunk, and even in a common heavy soil. The amateur Orchid grower will also appreciate its habit of growing in highly elevated regions, as cold as any Masdevallia can exist in, not even excepting M. elephanticeps. *Gustavus Wallis.*

Hardy Varieties of Broccoli.—The severe winter has tested the hardiness of the different varieties of Broccoli in a manner scarcely to be desired, and it may not be without profit to compare notes respecting them, especially as the time for sowing has arrived, as it will afford an opportunity of selecting such as appear tolerably frost-proof for growing for next season's supply. We have here the following varieties growing side by side under the same conditions as to soil, shelter, cultivation, &c.:—Backhouse's Early Winter, Snow's do., Veitch's Spring, Improved Wilcove, Knight's Protecting, Dilcock's Bride, and Cattell's Eclipse. Most of these appeared to have passed safely through the severe weather, owing to the protection afforded by the snow; but since then two-thirds of all except the two latter have succumbed. Cattell's Eclipse appears thoroughly hardy, for out of 500 plants only one is at all impaired, and that does not appear to have resulted from frost. Dilcock's Bride seems equally hardy, as the whole of these (over 300) are standing unscathed. Eclipse is one of the latest and most serviceable Broccoli grown, as it comes in after most of the other sorts are over, affording a supply of close compact heads till the early Cauliflowers come in. Dilcock's Bride is a very desirable variety, having pure white heads, which attain a large size and are well protected. The two appear, from all I have seen of them, and the satisfactory way they have resisted frost during the past winter, to be the best late spring varieties we have in cultivation. Adams' Early White, at least a select variety we have of it here, is a first-class mid-season kind, as it is very hardy, having withstood the weather much better than any referred to above; and it is now turning in fine heads of the purest white, equal in this respect to a Cauliflower. Such as Snow's, Osborn's, and Backhouse's are indispensable for an early winter supply, and Adams' Early White appears the best to succeed them. Broccoli planted in ground that has been recently dug and manured are not capable of standing nearly the degree of cold as others grown on hard poor land. The thing is to get a hard woody stem to resist the effects of frost, and this may be partly attained by planting in hard undug land that was fairly cultivated for the previous crop. The stems of such as are planted in loose heavily-manured ground are sure to be soft and sappy, and in this state the sap vessels are easily ruptured. Of course the heads of such as grow in hard ground will not be quite so large as on others more freely cultivated; but it is better to secure small heads than to risk an entire crop for the chance of obtaining large ones. Cattell's Eclipse and Dilcock's Bride have naturally hard woody stems, hence the reason of their having passed through such a winter in so satisfactory a manner. *J. Sheppard, Woolverstone.*

Obituary.

From our Irish contemporary, the *Gardeners' Record*, we obtain the intelligence of the death of Thomas Bewley, Esq., which sad event took place on the evening of the 5th inst., at his residence, Rockville, Blackrock, near Dublin. Mr. Bewley's name has been long known in connection with horticultural affairs, of which it may safely be said that he has been, in that division of the United Kingdom, the leading spirit. In him horticulture has lost one of its most liberal, genuine, and staunch supporters. As a cultivator of Orchids, Ferns, and other plants he was remarkably successful; and, indeed, the collection now existing at Rockville is, perhaps, second to none in Ireland. Mr. Bewley was one of the leading merchants of Dublin, and took a very active part in commercial matters, being at the same time among the foremost of its citizens in promoting by voice and purse whatever might tend to advance the prosperity of the country. In private life he was greatly esteemed among a wide circle of friends, for his kindness, benevolence, and generosity. Our volume for 1864 contains at pp. 580, 603, 675, and 698, a full account of Mr. Bewley's garden, and his grand collection of plants, which is there spoken of as "the finest collection of exotics to be found in any private garden in the United Kingdom."

The Villa Garden.

Seed Sowing.—How imperfectly this is done by inexperienced gardeners can very frequently be observed by any one residing in a suburban district, who takes an interest in what his neighbours attempt in their gardens. Two main faults are committed by persons who take an immense deal of trouble about their gardens, and yet do not succeed as they could desire, because they do the right thing in the wrong fashion. They sow seeds in unsuitable places, and they sow them in an imperfect manner, which prevents them germinating so freely and vigorously as they would if better managed. Looking over into a neighbour's garden some days ago, we were much interested in his mode of sowing peas; it was an excellent illustration of the principle just laid down, of doing the right thing in the wrong fashion. Between the Box edging and a line of Gooseberry trees on one side of his garden path there was a space, some 18 inches in width, that would have done well for rearing some Parsley, Mustard and Cress, Broad-leaved Cress, Radishes, and other useful things of dwarf growth; but of all the unsuitable places in his garden he selected this, seemingly the most unsuitable, to sow some tall Peas; and the way he went to work furnished an excellent example of "how not to do it." In the first place, he merely pricked the surface of the soil with a fork, for the purpose of loosening it, so as to enable him to draw a drill, instead of boldly digging it deeply—for it had lain by all the winter without moving, and had become close and stiff—and then breaking it finely so as to be suitable for the seed. His next proceeding was even more alarming, for by dint of a good deal of chopping with a hoe he drew a drill, pulling the soil into the gravel path and tearing up or breaking off the Box edging in the act of doing so. This done, the Peas were next sown, far too thickly; and the layer of Peas was something like 3 or 4 inches in width. To make matters worse, rain fell during the act of sowing; the work had to be suspended, and when the rain had passed away the state of the path can be better imagined than described. Alas! that so many good intentions, and so much patient labout, should have been so unprofitably invested. Even had the spot been suitable for Peas, the mode of sowing was radically wrong.

Peas.—If the garden be small let dwarf Peas, such as Maclean's Advancer, Wonderful, and Premier, be selected—varieties that require only short sticks to support them. An open spot must be provided, and the ground deeply dug, and some manure mixed in with the soil if it be poor, for it is a waste of labour to sow Peas in poor soil. The drills should then be drawn, using a line across the ground to have them straight, and they should be at regular distances from each other, say from 2 to 2½ feet apart in the row for such sorts as those just mentioned. Such Peas are of a branching habit: the main stalk throws out branches, and therefore the seed should be sown thinly to allow of a free branching growth. Peas sown in this way cannot fail to bring good and acceptable crops. Supposing that the early crops of Peas are above the ground, some such varieties as these we have indicated should be sown for successional crops, if the size of the garden will admit of it.

French and Runner Beans.—As a general rule, amateur gardeners, and especially those who are not much versed in the art of gardening, attempt too much; they want to grow something of all the leading vegetables, and the result sometimes is a mere taste of all and a good crop of nothing. It is said a man should cut his coat according to his cloth, but it seems to be a sounder principle to improve on that by saying, cut out your coat according to the size of the body it is intended to cover. In like manner we would say to amateur gardeners, adapt your vegetable crops to the size of your garden. If it is limited in space—and the tendency of these modern times is to restrict rather than to extend the dimensions of Villa Gardens—grow a few good leading vegetables, such as Peas, French Beans, Asparagus, Cauliflower, Potatos, Salads and Onions. The common green crops, useful as they are as winter vegetables, might reasonably be excluded, to give room for better things. Thus space should be reserved for a few Dwarf French Beans, which may soon be sown. The Negro Dwarf and the Early Dun are good free bearing varieties; the best proof of their excellence is that they are so much grown in kitchen gardens, and the first-named is an esteemed market variety. Dwarf French Beans might be sown sufficiently wide apart to allow of the Celery trenches coming between the rows. And what is a more profitable and acceptable vegetable than the Scarlet or any other Runner Bean? A line of beans running up stakes, or tall pea-sticks, combines the useful with the ornamental; for not only is a fence of Scarlet Runner Beans a cheerful aspect from the floral point of view, but it may also serve as a temporary screen to shut out an unsightly object. Let the Scarlet Runners have some of the best ground the garden affords; let the plants grow to a height of from 2 to 2½ feet, then pinch out each leader about 6 or 8 inches from the top, and place the sticks against them. Then draw up the soil on either side so as to form a slight trench, and if dry weather sets in water can be poured into the roots without danger of its running away.

Some economical gardeners, desirous of saving a little seed, leave their first crop of Beans for this purpose. This is scarcely a sound principle in gardening, because the energies of the plants are directed in part towards the ripening of seed-pods, instead of being wholly devoted to the production of pods for table purposes. Some pods are pretty certain to be overlooked during the successive gatherings, and these will supply ample seed in the long run.

Hardy Annuals.—Some of the dwarf and more showy hardy annuals should now be sown in cases where it is desirable to use them for decorative purposes. Now-a-days seedsmen employ packets in which to retail them, and these packets are printed with minute directions for sowing, &c. A few simple hints may, however, be supplied, which are likely to prove useful to elementary gardeners; and first, here is a selection of pretty annuals that may be employed for the summer display:—Acroclinium roseum, rose; Sweet Alyssum, white; Campanula Loreyi, blue, and the white form also; Candytuft, crimson and white; Collinsia bicolor; Convolvulus minor, blue; Indian Pink, Eschscholtzia crocea, yellow; Gilia laciniata, dark blue; double Jacobæas, Leptosiphon roseus, Lupinus nanus, Mignonette, dwarf Nasturtium; Nemophila insignis, blue; and N. maculata, spotted; Portulacas, double and single; Sanvitalia procumbens, double; Saponaria calabrica, Silene pendula, and red and white Virginia Stock. All the foregoing can be sown in the open ground, but let the soil in which they are sown be good and friable; let it be well stirred, and broken to pieces before sowing. Use some fine rich soil to sow the seeds on and cover them with; sow thinly; sow just below the surface, for they all strike root downwards; sow the dwarfest towards the front of the border, and the tallest at the back. Lastly, have the courage by-and-bye, when the plants are above the ground, to thin them out, so that a few may go on vigorously, and not all be puny for want of room in which to grow. Add to all this the virtue of cleanliness, which will induce the gardener to keep his patches of annuals free from seeds, and the soil occasionally stirred about them, as well as kept moist in dry weather. Do all this, and an exceedingly precious reward of floral beauty will crown the labours of the attentive and interested gardener.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
For the Week ending Wednesday, April 14, 1875.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 Years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 18 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Editioo. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 5th Editioo. Degree of Humidity. Sat.=100.	Wind. Average Direction.	Rainfall.
April	In.	In.	°	°	°	°	°	°			In.
8	29.45	−0.29	56.5	36.0	19.6	44.0	−1.5	43.1	97	ESE: NNE: N.	0.51
9	29.74	+0.01	45.4	38.5	6.9	40.3	−5.3	39.4	97	N.E.	0.35
10	29.94	+0.20	46.4	40.2	6.2	41.5	−4.2	40.9	98	N.E.	0.25
11	29.96	+0.22	50.2	41.9	8.3	44.0	−1.8	43.6	98	NNE: N.E.	0.00
12	30.01	+0.27	46.0	38.0	8.0	40.5	−5.4	39.6	97	N.E.: N.	0.00
13	30.07	+0.33	53.4	37.0	16.4	43.4	−2.6	39.0	84	E.N.E.	0.00
14	30.14	+0.39	55.6	34.6	21.0	42.8	−3.4	41.0	94	E.S.E.: E.N.E.	0.00

April 8.—Fine, cloudy, and mild, rain fell in early morning. Overcast at 5 P.M., and heavy rain fell till midnight.
— 9.—Overcast, very dull, and thin rain fell throughout.
— 10.—Overcast, dull, and mild; rain fell in morning and evening.
— 11.—Overcast, dull, and mild; fine at intervals.
— 12.—Overcast, dull; fog in early morning. Brisk wind.
— 13.—Overcast and dull till noon; fine, and nearly cloudless afterwards.
— 14.—Fine, bright, and nearly cloudless throughout. Dense fog in early morning.

—— In the neighbourhood of London the reading of the barometer at the level of the sea decreased from 29.74 inches at the beginning of the week to 29.31 inches by the morning of the 5th, increased to 29.50 inches by about mid-day on the 6th, then turned to decrease to 29.38 inches by the morning of the 7th, again increased to 30.14 inches by the morning of the 10th, decreased to 30.11 inches by the afternoon of the same day, and was 30.13 inches at the end of the week. The mean reading for the week was 29.66 inches, being 0.71 inch below that of the preceding week, and 0.28 inch below the average.

The highest temperatures of the air (at 4 feet above the ground) ranged from 45½° on the 9th to 59° on the 4th, the mean value for the week being 52⅜°. The lowest temperatures of the air varied between 43¾° both on the 4th and 5th, and 37° on the 8th; the mean value was 40¼°. The mean daily range of temperature was 12½°, varying from 19½° on the 8th to 6½° on the 10th. The mean daily temperatures of the air and the departures from their respective averages were as follows:—4th, 49°.7; + 4°.7; 5th, 48°; + 2°.8; 6th, 47°.6, + 2°.3; 7th, 43°.6, − 1°.8; 8th, 44°, − 1°.5; 9th, 40°.3, − 5°.3; 10th, 41°.5, − 4°.2. The mean temperature of the week was 45°, being 0°.4 below the average, as deduced from observations extending over a period of sixty years.

The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in sun's rays, were 118° and 120¼° on the 4th and 8th, but on the 10th 52⅜° was the highest reading. The lowest readings of a thermometer on grass, with its bulb fully exposed to the sky, were 36¼° and 33¼° on the 6th and 8th, but on the 4th the lowest reading was 42⅜°. The mean for the seven low readings was 38°.

The direction of the wind was S.W. and N.E., and its strength brisk.

The weather during the first five days of the week was fine, partially cloudy, and mild, but on the last two it was dull, somewhat cold, and the sky overcast.

Rain fell on every day in the week: the amount collected was 1.22 inch.

In England, the extreme high day temperatures ranged from 64° at Sunderland to 51° at Liverpool and Newcastle-on-Tyne, the general average over the country being 55½°. The extreme low night temperatures varied from 30° at Sunderland to 32½° at Bristol, the general average being 35½°. The mean of the extreme ranges of temperature in the week was 20°, the greatest range being at Sunderland, 29°, and the least at Bradford and Truro, 14°. The mean high day temperatures ranged between 53¼° at Sunderland, and 47¼° at Newcastle-on-Tyne, with a general average of 50°. The mean low night temperatures varied from 42° at Truro to 37° at Newcastle-on-Tyne, with an average value of 39½°. The mean daily range of temperature in the week from all stations from 10¾°, varying from 14½° at Sunderland to 7½° at Truro. The mean temperature of the air for the week was 43½°, being 1½° lower than the value for the corresponding week in 1874; the highest was at Blackheath, 45¼°, and the lowest at Newcastle-on-Tyne, 40⅝°.

Rain fell on every day in the week at Blackheath, Bristol, and Leicester, and on five or six days at most other stations; the amounts varied from 1¾ inch at Bristol to a quarter of an inch at Liverpool, the general average fall over the country being three-quarters of an inch.

The weather during the week was fine, dull, showery, and the sky generally cloudy.

In Scotland, the highest temperatures ranged from 57° at Greenock and Paisley to 51° at Leith, the general average value being 54¼°. The lowest temperatures varied between 37° at Leith and 29° at Perth, with a general average of 33°. The mean range of temperature in the week was 21½°. The mean temperature of the air for the week was 43½°, being ¼° lower than the value for the corresponding week in 1874. The highest occurred at Leith, 44½°, and the lowest at Glasgow, Aberdeen, and Perth, 43¼° respectively.

Rain fell to the amount of 1 inch at Aberdeen, but at Leith a quarter of an inch only was measured. The average fall over the country was rather more than half an inch.

At Dublin, the highest temperature was 54½°, the lowest 31¼°, the mean 44°, and the rainfall 0.11 inch.

JAMES GLAISHER.

Variorum.

The Bamboo.—Among the minor products of the Indian forests the production and utility of the Bamboo, as referred to in the report of Mr. Baden Powell, the Inspector-General of Forests, are such that their use supersedes in many instances the necessity for wood. In the northern districts they are not common. Thus, in the Punjab, only a few are found in the lower hills, as Kangra, Hushyapore, and Umballa, and a few near Rawulpindee and the Salt Range. Some are small and solid and are prized for spear handles, staffs, &c.; others are larger and hollow. In the higher hills a small graceful species, said to be Arundinaria falcata, found above 8000 feet, is used only for the stems of pipes. In the North-western Provinces Bamboos are found throughout the forests of Dehra Doon, Kumaon, Gurhwal, and Goruckpore, and form a considerable item of revenue. In Bengal they are everywhere abundant. In Sikkim they are almost as much used as in Burmah; buckets, water-troughs, and every kind of utensil being made from them. The very large Bambusa gigantea is not found, and, indeed, it is said that no true Bambusa is found in Sikkim; all are referred to Dendrocalamus, Schizostachyum, &c. The peasantry almost everywhere are dependent on these useful articles for building. In many districts two-thirds of the houses are mere huts, consisting of a Bamboo framework, thatched with grass, and filled up at the sides with mats made of split Bamboos or of grass screens. In Madras immense quantities are floated down the various rivers on the western coast. The Bamboo is one of the riches of these provinces. The stems are ordinarily 60 feet long, and 5 inches in diameter near the root. They are readily purchased standing, at 5r., and small ones at 3½r. per mille. Millions are annually cut in the forests and taken away by water in rafts. From their great buoyancy they are used for floating heavier woods, and piles of them are lashed to the sides of "pattimars" going to Bombay. The larger ones are selected as outriggers for ferry-boats, or studding-sail booms for small craft. In addition to the vast export by sea, it is estimated that two lakhs are taken eastward from the Supattalook. The Malabar Bamboo is smaller than the Burmah species. The export by land is stated to have affected these jungles near the railway line so as to threaten exhaustion. But of all provinces producing Bamboos Burmah is unrivalled. As there is no fee charged for the cutting, use, or export of the stems, it is impossible to give even an idea of the quantities cut and exported. The Burmese and Karens have names for twenty-eight varieties, from the Bambusa gigantea, whose huge hollow stem is often from 10 to 16 inches in girth and upwards, to the useless creeping Bamboo that is found in shady dells along streams. The Burmese turn the Bamboo to every purpose; they weave slips of it into boxes, mats, and baskets, floor their room with flattened pieces, and weave fine slips into boxes, which are then lacquered, and but for their beautiful elasticity would never be supposed to be made of Bamboo matwork as a basis. The common kinds are used by all classes to hold betel and tobacco. The Karens readily light a fire with two pieces of dry Bamboo. They place the half Bamboo on the ground, cut a notch in it, put a little bit of tinder under the hole of the notch, and then inserting a small bar of Bamboo crosswise saw it backwards and forwards with great rapidity till the heat produced ignites the tinder below.

The Helensburgh Horticultural Association.—The annual meeting of this Association was held on March 26, ex-Provost Breingan in the chair. From the report submitted by Mr. Galloway, the secretary, it appears that the Association has just completed its third session, and that the work of the past year has been of a highly satisfactory character. Instructive papers on various botanical and horticultural subjects have been read every fortnight during the year, which have led to lively discussions at each meeting. The attendance of members has been fairly satisfactory, and the number on the roll has now reached seventy. The medals and other prizes competed for last session were the means of evoking the enthusiasm of the members, and we are glad to learn that several prizes are to be competed for at the end of the present session. The following office-bearers were unanimously elected for the year, viz.:—President, ex-Provost Breingan; vice-presidents, Walter Ure Waddell, Esq., ex-Bailie Stuart, and James Niven, Esq.; secretary, Mr. George Galloway; treasurer, Mr. James Telfer; and six directors. After the business was concluded, the members spent the evening in a social manner, the President occupying the chair, and Mr. Waddell, Vice-President, acting as croupier.

The Oregon Myrtle Tree.—Dr. F. S. Matteson, of Coos County, Oregon, sends us the following account of the Myrtle tree of that region:—The Myrtle is one of the most beautiful of trees. It grows from 20 feet to 50 feet high, and from 6 inches to 20 inches in diameter. Many specimens are larger. It is of very full foliage, with a leaf about 3 inches long by half as broad, of an ovoid-lanceolate form, not serrated, and of a deep shining green. It is an evergreen, and after the habit of its class sheds its leaves in summer. Before they fall, these old leaves turn a bright golden yellow, glistening in the sunlight and flecking the green foliage of the tree with golden spangles. The leaves are delightfully fragrant, and a ride through a grove of Myrtles reminds one of the storied "odours of Araby," or the flower-perfumed "vale of Cashmere." The wood is hard, heavy, fine-grained, and susceptible of receiving a high polish, and when thus finished, and varnished, is of a dark variegated colour. It is useful for all the purposes for which Walnut, Mahogany, and other like woods are used, and is scarcely surpassed even by Rosewood. The tree is very tenacious of life, sprouts freely from the stump after the tree is felled, is a vigorous upright grower, and may be trained or cut into almost any desired shape. It blossoms in early spring, and the finest honey in the world is gathered by bees which work in the Myrtle groves. It grows in abundance on the river bottoms in this county and one or two counties south of here, but only on the western slope of the coast mountains, and along the streams. It is being cut for lumber and for fuel, and burned in heaps to clear the land for cultivation. Many trees are left standing for ornamental purposes, for which they are unsurpassed by any evergreen known. The fruit is also ornamental, being a round nut inclosed in a smooth green hull, which hangs pendant-like on the branches, something after the manner of Fuchsia blossoms. These nuts are somewhat bitter, and are therefore not eaten by people, but are valuable food for pigs, which in these river bottoms keep fat and fine all winter. Large numbers of young trees are to be found in the woods here, grown from nuts which have lain over winter. This tree must certainly become a leading evergreen for ornamentation, as it is unsurpassed by any known tree for all the qualities which make an evergreen desirable; and I have no doubt that a very finely fragrant oil may be distilled from the leaves, useful as a perfume, and perhaps for medicinal purposes. Having no facilities at hand for the purpose, I have not experimented in this direction, but propose doing so at no distant day. *Dr. Matteson, in the Boston "Journal of Chemistry."*

Carboniferous Fruits.—Dr. Dana, in the new edition of his *Manual of Geology*, states that the well-known genus of fossil fruits in the coal measures called Cardiocarpus was probably related to the modern Conifers of the Welwitschia type. This is shown by the similarity of the fruit, and also by the close relation of the leaves, that is to say, if those called Cardiates belong, as is generally supposed, to Cardiocarpus. The Welwitschia is an embryonic form of Conifer, producing no leaves except the cotyledonous; but while probably unlike Cardaites in its embryonic features, it shows what leaves and fruit are consistent with the type of Conifers. *Hardwicke's Science Gossip.*

The Wood Industry of Switzerland.—The wood-carving industry of the Bernese Oberland, which does not date further back than 1815, now furnishes remunerative employment for upwards of 2000 workmen, and within the last few years the sales have risen from some £40,000 to nearly double that amount. These are not, absolutely speaking, large sums, but still they have sufficed to spread ease over districts the inhabitants of which, before the introduction of this industry, were pinched by want, and that, too, by supplying work of such a nature that it does not interfere with many other avocations. The cowherd and shepherd tending their flocks in the alpine pasturages, the charcoal-burner watching his fires, and the peasant families sitting round their stoves during the long winter evenings can, at the expense of but little physical exertion, add greatly to their store of comforts by means of some little skill in carving. A very large proportion of the cheaper articles are actually produced in this manner. The wages for regular workmen in this branch of industry range from one franc (10*d.*) to six francs (5*s.*), and even reach eight francs (6*s.* 8*d.*) per diem. Almost every variety of timber may be utilised: Fir, Lime, Walnut, Oak, Pear, and Apple trees have all their special applications, and of late years the most renowned makers have taken to carve "Palissandre," or Rosewood, Mahogany, Cedar, &c. Side by side with the wood-carving industry, but greatly surpassing it in pecuniary results, is the manufacture of parquets, which is of still more recent introduction. This trade is carried on in eighteen out of the twenty-two cantons of Switzerland, and is now in the most flourishing condition. As nearly as can be ascertained, the annual production of the twenty odd establishments which carry it on reaches the value of 8,000,000 francs (£320,000). It may fairly be said that hardly a Swiss house, with any pretension to comfort, is now built without a parquet in at least one of its rooms. In respect to neatness, solidity, durability, elegance, and cheapness, the use of machinery has certainly enabled the makers to achieve wonders. The prices throughout the country are nearly the same; they vary from fifty centimes (a little less than 5*d.*) per square foot for the cheapest description of parquet, to several francs, according to the richness of the designs and the fineness of the wood. The usual price for the kinds most in demand is, at present, from one franc to two francs per square foot. The ordinary parquet is made of deal, but the oaken floorings are most prized for their solidity. There are varieties of the former, however, made of the wood of Fir trees grown in the Alps, at a certain elevation, in which the snowy whiteness and the fineness of the grain is such as to render them suitable for the most elegant apartments. The favourite woods are Walnut, Pear,

Plum, Cherry, Maple, Lime, and Fir, and fine foreign woods are gradually being introduced. The diversity in the patterns is something really astonishing when the low rates obtaining are taken into consideration. Every species of mathematical figure is made use of, together with designs in various colours; the white, yellow, brown, and black lines are combined in every possible manner, forming lozenges, squares, rectangles, triangles, &c. The veneered floorings, though necessarily the most elegant, are not in such general demand as the massive parquets varying from 1 inch to 1½ inch in thickness. So far but little use has been made of curved lines in adding to the beauty of the patterns, which is to be attributed to the higher prices which the greatly enhanced difficulties of execution would render necessary. The home demand for parquets in Switzerland has been so far proportionally greater than that for any other country. The facility of procuring materials on the spot, the abundance of water-power, and the great increase of new buildings for the well-to-do classes, furnish a ready explanation of this fact. Hitherto the exportation, owing chiefly to the heavy expense for carriage, has not been very large; it attains perhaps to about 20 per cent. of the amount manufactured. *The Timber Trades Journal.*

California Redwoods.—Great inroads have already been made in the forests of the Pacific coast: at many points, especially within easy sailing distance of San Francisco, the available timber has been destroyed. There is, however, an immense belt extending from the Russian River northward. Mills are located at every available point, and at the present moment in Humboldt Bay, the great lumber port of the Redwood belt, even the little creeks and sloughs running into the bay have been cut; thus logging becomes every year more expensive and difficult. The supply is, however, so extensive, and the opportunities for opening new districts so great when the demand for lumber will justify increased expense, that it is not probable that our supply will diminish for many years. There are immense forests of Redwood on both the Eel and Mad Rivers, in this section, yet untouched. There is an immense belt also back of Trinidad. Thence northward the Redwood becomes scattered until we reach the vicinity of Crescent City. Back of this place, and covering the low land, once evidently overflowed by Pelican Bay on the north and Crescent Bay on the south, is an exceedingly heavy body of this timber. It extends up the flanks of the lower Siskiyon Mountain, which here juts down to the sea, and ceases at an elevation of about 1200 feet above tide. Many of the trees have a diameter at their base of 13 feet and 14 feet, and the average run of saw logs would be from 6 feet to 8 feet. *North Western Lumberman.*

Garden Operations.

(For the Ensuing Fortnight.)

[The subjoined directions are intended to supply general information, and must, of course, be adapted to the peculiar circumstances of each locality. Other departments of the garden will be treated on from week to week in succession, according to the requirements of the season. Special directions for the management of "The Villa Garden" will be found in the preceding columns.]

PLANT HOUSES.

Greenhouse Hard-wooded Plants.—As the weather gets warmer young growing stock should have the house closed in the afternoons whilst there is yet a considerable amount of sun-heat, at the same time syringing the plants overhead, and keeping the stage on which they stand damp. As has before been urged, the stage on which growing stock are placed should be covered with some material that will hold moisture, such as a mixture of sand and ashes. It should be borne in mind that young plants grown in pots in a necessarily small body of soil, and stood upon dry shelves, are surrounded by an atmosphere that, although well suited to them during the damp, dull, winter weather, is unnatural, and much too dry in the growing season when the sun is powerful. This is best corrected by the pots being stood as above described upon a material that will hold moisture from one day to another, regularly giving it a good wetting as it becomes dried. Where the atmosphere is too dry for the formation of healthy growth, what is made is necessarily small and puny, especially the leaves, and without these are developed to their natural size the health and constitution of the plants are far below what they ought to be. As a means of still further securing this necessary condition of the atmosphere continuously, day and night, through the season of active growth, keep the soil under the stages quite moist. The above is an important matter connected with the growth of hard-wooded plants, and one often insufficiently considered. Go carefully over the stock to see that they are free from aphides and red-spider, the eggs of which, if remaining from last summer, will now come to life with the increase of solar heat; moderate fumigation for the aphides and a liberal use of the syringe for the spider are the best means to apply to these plants. *Solanum Capsicastrum* and *Pseudo-Capsicum* cuttings, advised to be put in some time ago, should now be well-rooted, and at once moved into 48-sized pots, and kept growing freely in a genial temperature for a few weeks, after which gradually harden off and plant them out-of-doors; these next winter will succeed the old plants, which for profusion of berries and general effect as well as coming in early are the best: they should now be cut in nearly as close as a three or four years' old Pelargonium, at once turned out of the pots, two thirds of the old soil removed, and planted 18 inches apart each way on a warm open border. These Solanums will stand a good deal of frost, and there is nothing that may be expected to come after this time that will hurt them. The plants so treated and got out thus early get a start, are early in flower and berry, a good portion of the latter being coloured in the autumn by the time of taking them up and potting. It is a considerable advantage with these most useful decorative plants, to get their berries coloured early in the autumn when flowering subjects are not too plentiful. Many grow them in pots through the summer, but this is a mistake. So treated the leaves are always deficient in quantity, vigour, and the deep green colour, without which their appearance is much inferior. *S. Capsicastrum* makes naturally a beautiful little pyramid. *S. Pseudo-Capsicum* is equally useful grown in the shape of a small bush or trained with a clear single stem 18 inches or 2 feet in height, and then encouraged to form a head. These standards are very effective.

Soft-wooded Greenhouse Plants. — *Hydrangea* cuttings should now be struck for flowering next spring; suckers that spring from the bottoms of plants that are being forced into flower now taken off and inserted in small pots in a little heat will quickly root, after which they may be moved into 4-inch pots, grown on, and as soon as these are filled with roots remove them into others 6 or 7 inches in diameter—larger than these they should not be grown in, as with good management they will flower well in such. There is a variety now grown in the south of the kingdom that has heads of flowers double the size of the old sort; it is equally as free in blooming, and in every way a most desirable plant. Remove *Campanula pyramidalis*, both the blue and white varieties, into their flowering pots, putting the weaker plants into 8-inch, and giving the strongest 10 or 12-inch. Use for them good loam, with one-sixth leaf soil and a little sand. These are fine things for conservatory decoration, coming in when flowering subjects are not plentiful. Suckers now taken off from the base of the blooming plants will come in for next year, potting them simply in 48's, and placing them in a little warmth to induce them to root, after which they may be moved on, and kept growing in a pit or frame during summer. Seeds of these may also now be sown in a shallow pan in a little heat. If well attended through the summer, they will flower next season. *Salvia gesneræflora* and *splendens* should now be struck. Select cuttings of moderate strength, and put them in half loam and sand; place them in a moderate heat, keep moist and shaded during bright weather. As soon as they are well-rooted, place singly in 48-sized pots, and keep them in a little heat until fairly established, when they may be removed to a cold pit, and grown on, giving them more pot-room as they require it.

Conservatory. — Remove Camellias that have done flowering to their growing quarters. Their place should now be filled by *Azaleas*, *Acacias*, *Daphne indica*, *Amaryllis*, *Cinerarias*, *Primulas*, *Mignonette*, with *Hoteias*, *Deutzia gracilis*, *double Prunus*, *Roses*, and similar forced plants. *T. Baines.*

FRUIT HOUSES.

Figs.—The earliest forced Figs in pots will on some small varieties, such as the Early Violet and Early Prolific, soon show signs of ripening their fruit, when watering must be gradually reduced. Still continue to supply those swelling their fruit with a little manure-water twice a week, and syringe the trees at closing-up time. At this period the house can be kept well ventilated in favourable weather, which will cause healthy foliage and improve the quality of the fruit at the ripening time. In the later planted out trees continue to pinch out the points of the young growths, and likewise to thin all the overcrowded shoots. No kind of fruit tree is more benefited by the direct and full rays of the sun than the Fig, any kind of shading, therefore, by too much of their own foliage or that of other plants, is injurious. The borders may now be mulched with rotten manure, which the watering will carry down to the roots, thus imparting vigour to the trees. The night temperature may now be increased to range from 60° to 65°, and in the daytime from 75° to 80° by sun-heat. Early Figs.—If the shifting of the cuttings intended for growing in pots is not already done, it should be attended to as soon as possible, so as to give them a chance of forming nice small bushes before the autumn. A shift from the cutting pot into a 5-inch pot will be sufficient, then, as they get larger, which they will do rapidly, they may get another shift into a 12-inch pot for fruiting in. Use plenty of drainage, for the frequent waterings they get to percolate freely through it; and if soil can be got of a turfy loamy nature with a little old lime or brick-rubbish, burnt ashes, and rotten manure mixed in, it will form a compost that will suit pot Figs in all their different stages of growth. *William Tillery.*

Mushroom-Beds.—Materials should now be collected for the making of Mushroom-beds in more open and airy or exposed situations, and in view of insuring a supply of wholesome Mushrooms at such times as those which are grown within-doors become maggotty, as they invariably do about the month of May. Far less time or trouble will be requisite to collect and prepare the materials at this particular time than at others, owing to the fact that the dung may be dried so quickly by simple exposure to the outer air and drying winds. It will be necessary to have rather less of "straw litter" in admixture, as though this addition may have, and indeed has, its advantages during the more adverse winter months, it would at this time cause the materials to become too light, and to dry so quickly as not to leave sufficient latent moisture to ensure the necessary degree of success. Procure, therefore, crude fresh horse-droppings as early as possible, and add to them, where obtainable, about one-fifth part of cow-dung and sheep-droppings respectively, taking care to dry the latter somewhat, separately, before mixing all up together. Older beds, which are in bearing, will now need sprinkling daily overhead with tepid water; and, what is equally important, should any show symptoms of exhaustion they may be aided by a good watering with liquid manure. Following this, in about four or five days, give also a surface watering with water containing a few ounces of salt to each gallon, and with the same heated to about 100° Fahr. By such means insect pests will be destroyed, without injury to the buds. *William Earley.*

KITCHEN GARDEN.

The condition of the walks and edgings which surround them, even in the best cultivated and most systematically managed gardens, seems a matter which either materially adds to or detracts from the general appearance. Among the multitude of things requiring attention at this period are these, which, if neglected now, and the seed of those weeds which may exist are allowed to become scattered, will still add to this source of trouble and annoyance. Salt, in whatever manner it may be applied, is undoubtedly the cheapest and best means to be employed in extirpating weeds and purifying the walks. The application of this would prove fatal where live edgings exist as outlines, particularly in the case of Box, which is the plant most commonly used for the purpose, and which is peculiarly susceptible of injury from its effects, unless preventive measures are taken to arrest its penetration to the roots. So much time was formerly occupied in these gardens under such circumstances in hand-weeding the walks, that it became both vexatious and intolerable. We have, therefore, adopted the following means in the kitchen garden, which, so far as appearance is concerned, rather adds to the effect than otherwise: By placing a belt of finely sifted ashes, about 6 inches wide and 2 inches thick, next the Box on either side of the walks, these can then be moderately salted without in any way interfering with the well-being of the edging plants, and the walks are rendered clean at about a tithe of the cost in labour.

Certain kinds of hardy herbs are constantly in request in most establishments. These are such as hard and soft *Thyme*, pot and sweet *Marjoram*, *Winter Savory*, *Sage*, *Tarragon*, and *Chervil*. Plantations of those kinds which are largely used should be made annually at about this time, in a moderately warm place, change of soil in this as in most other cases being highly beneficial. Divide the roots of soft Thyme, the Marjorams and Tarragon, and plant in rows about 18 inches apart. Sow seeds of hard Thyme and Winter Savory at once, either in pans or outside, and that of Chervil about three times during the season outdoors. Cuttings of Sage should likewise be put in this month. The seeds of other kinds of herbs which are not so generally cultivated should be sown now, and those which are increased by cuttings or a division of the roots should also be made if a further supply be necessary.

The plots of ground where *Potato* crops are intended to be planted should all be in readiness for that operation, which should be proceeded with at once, and be terminated as expeditiously as possible. The distances between the rows and individual sets must be regulated by the condition of the soil; 3 feet apart in the rows, and 1 foot between the sets, will be a suitable distance apart in highly enriched soil. As soon as the early planted ones make an appearance, protection should be afforded either with litter, or by carefully drawing the soil round them, to prevent frost destroying the tops—an injury which, if

repeated, is irreparable. As the rows of recently-sown seeds, such as *Onions*, *Carrots*, &c., become visible, take advantage of the first favourable opportunity to use the hoe lightly between them, and attention to this matter will save much after trouble by destroying multitudes of weeds which are scarcely visible. See to the state of crops in seed beds. Where slugs abound sprinkle the plants through a fine-rosed watering-pot in the evening, and dust the plants over with slaked lime. To check the advancement of fly, dust in the same way with wood-ashes, or lightly with soot. Towards the end of the month make another sowing of Broccoli and similar plants if they will be required. When *Peas* are required in quantity, with quality combined, in August, sow now such sorts as *Veitch's Perfection*, *Wonderful*, and *James' Prolific*; another planting of *Broad* and *Long-pod Beans* should also be made. That invaluable winter sort, *Stanstead Winter Cabbage Lettuce*, is now furnishing new heads. Look over the *Cos* varieties, and tie up the earliest of these to succeed the others, keeping up successional supplies by using small quantities of seed occasionally. *Crystal* and *Brighton Cos* are both excellent summer kinds. Prepare the ground for *Beet*, which should be sown towards the end of the month; the true variety of *Henderson's Pine-apple* is one of the best, if not the best, for general use. Different methods of storing this root are practised; we have found no plan to equal that of putting it in a shaded corner, adding a little litter on the top of it, and covering it up with soil: by these means an early sowing is quite unnecessary, as the roots will keep in excellent condition until the ordinary crop is fit for use. If a warm south border is at liberty it will afford a suitable place for a sowing of dwarf *French Beans*, which should now be made: *Canadian Wonder* is certainly an admirable sort, and should be grown everywhere. Continue to apply former directions in regard to ventilating pits and frames; pot off and prick out seedling plants, as may be required in this department. As early *Tomatos* advance in growth, abundantly supply them with water having a dash of some stimulating agent in it. *G. T. Miles, Wycombe Abbey.*

Enquiries.

He that questioneth much shall learn much.—Bacon.

[Many enquiries which reach us would be more suitably answered by those of our correspondents whose experience or requirements are, or have been, similar to those of the questioner. These we propose, in future, to gather together for facility of reference; and as fellow feeling makes us wondrous kind, so we would fain hope that this enquiry column may serve as a bond of sympathy and good-will between our correspondents and readers, and be the means of eliciting much valuable information. Eds.]

46. Rose Tree Borer.—*G. L. A.* asks if any one can tell him how to put a stop to the inroads of an insect which bores into the stocks of his standard Rose trees, and apparently does much mischief. He also would like to know what the insect is, and whence it comes.

Answers to Correspondents.

Bees: *J. H. N.* writes: "On March 10 a drone was caught at the entrance of a strong hive, and on the 12th another was brought out dead."

Books: *Enquirer. Garden Plans, &c.*, 5s., published at 171, Fleet Street, E.C.

Boussingaultia, &c.: *W. W. C.* Boussingaultia baselloides is not the same as Basella tuberosa. The last-named plant is the same as Ullucus tuberosus, that was tried some years ago as a substitute for Potatos. The answer to your third question is No.

Camellia Leaves: *R. M.* The injury is doubtless caused by some insect; possibly by the leaf-cutter bee.

Camellias: *S. S. Roscoe.* Camellias live to a great age, if kept healthy—we really cannot say to what age or size they will attain. A tree "20 feet high and 60 feet in circumference" might go on increasing, if still in health and vigour; but such a tree must already be a grand specimen, and can scarcely be expected to increase very rapidly. Perhaps some of our readers may be able to supply records of still larger ones.

Chicory Growing for Profit: *A. S. B.* Chicory is largely grown in Belgium and Holland, and imported into this country, even though a duty of £20 per ton was levied on the dried root. We think it probable that you might succeed, if you possess the means and knowledge necessary to prepare the roots for market. The crop should be sown in drill-rows in April like field-Carrots, and thinned, &c., accordingly. As it is sold dry, we cannot inform you as to its market value in London. *W. E.*

Cinerarias: *J. G. P.* A good showy variety for home growth, but not new nor better than many flowers obtained from good strains—James', for example. *F. & S.* Varied and rich in colouring, and generally showing high quality as to form; some are perhaps rather wanting in size. They are a fine strain for decorative use, but scarcely equal to the best named sorts. Indeed many strains of this flower now come so good, and the differences are so slight, that the naming of them has in great measure been given up.

Fungus: *An Old Subscriber, Dublin.* The name of your fungus is Reticularia umbrina. The architrave of a door is certainly a most unusual habitat for such a plant.

Garden Engines. *G. T.* 35, Regent Circus, Piccadilly, London.

Names of Plants: *Amateur.* 1, Helichrysum; 2 and 3, Gnaphaliums, but in their dried state we cannot say which.—*T. H. S.* We cannot name your plant from the leaf only.—*W. S.* We do not undertake to name florists' flowers. There is too much of a family likeness amongst them.

Polyanthus: *J. G. P.* Exceeding rich as a border flower, large, deep maroon, with short whitish bars around the margin and broad deep yellow eye; not a florist's variety, but well worth cultivating as a border flower.

Shading: *C. H. S.* and *R. S.* A mixture of whitening and new milk, made to the consistency of paint, will answer well.

Tank: *J. H.* If tolerably well diluted with rain-water, the contents of your tank will not be at all injurious to the roots of fruit trees and garden products.

Vallisneria: *Subscriber.* Vallisneria spiralis is a perennial of the easiest culture. Plant it in a shallow pan of loamy soil, and drop this to the bottom of a pan or glass dish of water, 1 to 3 feet deep. It will grow very freely in a hothouse temperature; less rapidly, but in quite a healthy manner, in that of a greenhouse or sitting-room. A very suitable place for it would be a glass tank or aquarium, placed in front of a window.

Wireworms: *Lady Amateur.* The only remedy you can apply is to catch them. Spread Rape dust or cotton-cake dust on the surface of the soil, and lay Cabbage leaves on this, covering over with litter or short grass, and examine every second day. If you do not succeed in this way, carefully turn over the soil affected and pick out the wireworms.

*** Correspondents are specially requested to address, post-paid, all communications intended for publication to the "Editors," and not to any member of the staff personally. The Editors would also be obliged by such communications being posted as early in the week as possible. *Letters relating to Advertisements, or to the supply of the Paper, should be addressed to the Publisher,* and *not to the Editors.*

Catalogues Received.—John Saul (621, Seventh Street, Washington, U.S.A.), Catalogue of New, Rare and Beautiful Plants.—William Paul (Crossflat Nursery, Paisley), Catalogue of Florist Flowers, &c.—Louis Van Houtte (Royal Nurseries, Ghent, Belgium), Catalogue of Gesneraceous Plants, Caladiums, Begonias, Cannas, &c.—James Carter & Co. (High Holborn, London), Catalogue of Prize Farm Seeds, &c.—Messrs. Neher & Merten (Schaffhausen, Switzerland), Catalogue of Plants, &c.—J. Caven Fox (Exhibition Road, Kensington), Illustrated Catalogue of Rustic Summer Houses, Garden Requisites, &c.—J. Backhouse & Son (York), Catalogue of Stove and Greenhouse Plants.—Charles Turner (The Royal Nurseries, Slough), General Spring Catalogue of Plants for 1875.—Charles Van Geert (Rue de la Province, 11, à Anvers), Catalogue of Trees, Shrubs, Plants, &c.—Louis de Smet (à Ledeburg-lez-Gand, Belgium), Supplementary Plant Catalogue.—The Lawson Seed and Nursery Company (106, Southwark Street, London, S.E., and 1, George IV. Bridge, Edinburgh), Special Illustrated Spring Catalogue.—Read & Co. (35, Regent Circus, Piccadilly, London, W.), Catalogue of Garden Engines, Pumps, Syringes, Horticultural Machines, &c.—John Laing (Stanstead Park and Rutland Park Nurseries, Forest Hill, London, S.E.), Catalogue of Stove and Greenhouse Plants, Florists' Flowers, Roses, Vines, &c.

Communications Recieued.—F. C. Heineman (we received the box of flowers, in good condition).—P. B. K.—J. G. B.—F. J. H.—O.—C. G. H.—G. E. C.—J. H. H.—J. E.—W. S.—E. M.—P. B.—R. P.—A. D.—A. F.—W. L. B.—H. G. R.—C. Y. M.—An Old Subscriber.—A. F.—T. B.

Markets.

COVENT GARDEN, April 15.

A moderate supply, sufficient for the general requirements of trade, business not having improved to any extent. Large quantities of excellent Broccoli are still consigned from various places in the West, as well as the Channel Islands, filling up a large gap that would otherwise be felt in rough goods. French Asparagus has much improved both in quality and quantity. *Thos. Taylor, Wholesale Apple Market.*

Vegetables.

	s. d.	s. d.		s. d.	s. d.
Artichokes, Fr., doz.	4 0-	..	Lettuces, per doz.	1 6-	..
Asparagus, English, per bundle	8 0-	12 0	Mint, per bundle	1 6-	..
— French, p. bund.	20 0-	30 0	Mushrooms, per pott.	1 0-	2 0
Beans, French, p. 100	4 0-	..	Onions, young, bun.	0 4-	0 6
Beet, per doz.	1 0-	2 0	Parsley, per bunch	0 9-	1 0
Cabbages, per doz.	1 0-	2 0	Parsnips, p. doz.	0 9-	1 0
Carrots, p. bundle	0 6-	0 9	Peas, per quart	8 0-	..
— French, do.	0 2-	..	Radishes, per bunch.	0 2-	0 4
Cauliflowers, per doz.	2 0-	6 0	— black, Turnip, do.	.. -	0 6
Celery, per bundle	1 6-	2 0	Seakale, per bundle	2 0-	3 0
Cucumbers, each	1 0-	2 6	Shallots, per lb.	0 3-	..
Endive, per doz.	1 0-	2 0	Salsify, per bundle	1 6-	..
Herbs, per bunch	0 2-	0 4	Sprue, French, bund.	1 6-	..
Horse Radish, p. bun.	3 0-	5 0	Turnips, per bundle.	0 6-	..
Leeks, per bunch	0 2-	0 4	— French, p. bund.	2 0-	..

Potatos:—Early Shaws, 110s.; Early Regents, 120s.; and Early Dons, 120s. per ton.

Fruit.

	s. d.	s. d.		s. d.	s. d.
Apples, per ½-sieve	3 0-	4 0	Oranges, Malta, per dozen	2 0-	3 0
Grapes, English, per lb.	..	10 0-20 0	Pears, p. doz.	4 0-12 0	
— foreign, do.	1 6-	4 0	Pine-apples, p. lb.	3 0-	6 0
Lemons, per 100	8 0-12 0		Pomeloes, each	0 6-	1 0
Nuts, Cob, p. lb.	2 0-	.. 0	Shaddocks, each	2 0-	3 0
Oranges, p. 100	8 0-12 0		Strawberries, per oz.	1 0-	2 0
— tangierine, doz.	1 0-	2 0	Walnuts, p. bush.	.. 16 0-	..

There is no alteration in the prices of cut flowers or plants in pots.

SEEDS.

London: *April* 14.—As the season advances the seed trade naturally assumes more of a retail character. A fair business, however, is still doing in Red Clover and other farm seeds. Stocks being now reduced to narrow limits, prices of all descriptions keep exceedingly firm. A good quantity of Trefoil seed has been changing hands at full rates. Alsikes and White Clovers are steady. For Rye-grasses and Italian there is an improved request. An active inquiry at enhanced currencies has been shown for Sainfoin seed. The brisk demand for spring Tares noted last week still continues; of the larger varieties the market is now almost bare. Increased attention is directed towards sowing Mustard and Rape seed; good samples of either kind are scarce. In bird-seeds the business passing has been too small to materially affect quotations; more money is, however, asked for Hemp seed. Linseed is without change. Blue Peas are dearer. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C.*

CORN.

At Mark Lane on Monday trade was quiet. The show of English Wheat was small, but that of foreign large, and millers were not generally disposed to operate in either, unless at some reduction from previous rates. Grinding Barley of choice quality was about 6*d.* per qr. higher in price, but there was little notice taken of malting and other sorts. Malt was somewhat cheaper. In Oats it was difficult to maintain the rise of 1*s.* per qr. realised on the preceding market day. Maize was firm, and slightly dearer on the week. Beans and Peas were purchased at about late rates. In flour there was little business, and prices remained stationary.—Business was very quiet on Wednesday. Prices for Wheat underwent no material decline. Grinding Barley was fully as dear, but other qualities were cheaper, if anything. Malt remained dull. Oats were comparatively plentiful, and consequently somewhat easier in value; but there was no change in Maize, nor in Beans, Peas, and flour.—Average prices of corn for the week ending April 10:—Wheat, 43*s.* 1*d.*; Barley, 40*s.* 8*d.*; Oats, 29*s.* 6*d.* For the corresponding week last year:—Wheat, 59*s.* 5*d.*; Barley, 48*s.* 8*d.*; Oats, 28*s.* 3*d.*

CATTLE.

At the Metropolitan Market on Monday the number of beasts was not quite so large as on the previous Monday. The average quality was middling, consequently choicest descriptions were not quoted lower. For sheep the demand was good, and some choice half-breds and Downs were sold dearer. The Lamb trade was about the same as last Monday. Choicest calves were rather dearer. Quotations:—Beasts, 3*s.* 8*d.* to 4*s.* 8*d.*, and 5*s.* 6*d.* to 5*s.* 10*d.*; calves, 5*s.* to 6*s.* 4*d.*; sheep, 4*s.* 6*d.* to 5*s.* 6*d.*, and 5*s.* 4*d.* to 6*s.*; lambs, 7*s.* 4*d.* to 8*s.* 4*d.*; pigs, 4*s.* 4*d.* to 5*s.* 4*d.*—Trade in beasts was not brisk at Thursday's market, but Monday's prices were pretty generally realised. Sheep were readily disposed of at fully late rates. A large number of middling calves met with a heavy trade, and choice qualities continued dear. Lambs did not sell freely, and for milch cows trade was very dull.

HAY.

At the Whitechapel market good hay has been particularly scarce, and in consequence higher in price; but other kinds of fodder, though not plentiful, were not dearer than on Saturday. Prime Clover realised from 100*s.* to 130*s.*; inferior ditto, 85*s.* to 95*s.*; prime meadow hay, 90*s.* to 124*s.*; inferior ditto, 55*s.* to 75*s.*; and straw, 35*s.* to 40*s.* per load.—Cumberland Market quotations:—Superior meadow hay, 126*s.* to 134*s.*; inferior, 100*s.* to 110*s.*; superior Clover, 123*s.* to 132*s.*; inferior, 105*s.* to 112*s.*; and straw, 40*s.* to 45*s.* per load.

POTATOS.

The report from King's Cross is to the effect that trade is quiet at the followiog prices:—York and Lincoln Flukes, 120*s.* to 150*s.*; do. Victorias, 120*s.* to 140*s.*; do. Regents, 110*s.* to 140*s.*; do. Rocks, 70*s.* to 100*s.*; East Lothian Regents, 100*s.* to 130*s.*; Perth, Fife, and North Country Regents, 80*s.* to 90*s.*; do. Rocks, 60*s.* to 65*s.*; Essex, Kent, and Cambridge Rocks, 60*s.* to 80*s.*; do. Regents, 100*s.* to 130*s.*; French, 50*s.* to 60*s.*; do. seedlings, 62*s.* 6*d.* to 70*s.*; Belgian Kidneys, 55*s.* to 60*s.* per ton.—Borough and Spitalfields Markets reports state that the supplies on sale are moderate, and trade steady at the following prices:—Regents, 80*s.* to 120*s.*; Victorias, 100*s.* to 140*s.*; Flukes, 110*s.* to 150*s.*; Rocks, 65*s.* to 70*s.* per ton.

COALS.

The market on Monday was steady, and no alteration occurred in prices. The quotations were as follows:—Walls Ends—Hetton, 26*s.*; Hetton Lyons, 23*s.* 9*d.*; Hawthorn, 23*s.* 9*d.*; Lambton, 25*s.* 6*d.*; South Hetton, 26*s.*; Caradoc, 25*s.* 6*d.*; East Hartlepool, 25*s.* 9*d.*; Original Hartlepool, 26*s.*—The demand on Wednesday was a dull one, but no change occurred in prices. The following prices were quoted:—East Wylam, 20*s.* 6*d.*; Holywell Main, 20*s.* 6*d.* West Hartley, 20*s.* 9*d.*

H. CANNELL begs to draw the attention of the Public to the COLEUS "CHAMELEON," which is unquestionably by far the most attractive and the greatest acquisition in Coleus ever sent out; even the most accurate description conveys but a very inadequate idea of its beauty. The entire Horticultural Press speak of it in the most eulogistic terms.

The following is the report of the Editors of the *Gardeners' Chronicle* (May 16, 1874):—

"We have received from Mr. Cannell specimens of a new type of Coleus, of great beauty, and very distinct from those already in cultivation. Sometimes the leaf is mainly of an intense velvety maroon, flushed with bright rose, giving a kind of shot-crimson hue, the edge being just banded with green. In other cases half the leaf is of this character, while the other half is mostly of a deep rosy crimson with golden beaded edge, and sometimes the rose-tint and the maroon-crimson are variously streaked and blended. The flush of rosy crimson appearing in the maroon gives a remarkably velvety richness, which must be seen to be appreciated. With this superb and varied colouring the plant must be exceedingly effective."

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PETUNIAS.
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PHLOX.
MIMULUS, all the best varieties.
PYRETHRUMS, of sorts.
LOBELIA, of sorts.
PENTSTEMONS.
PANSIES.
CHRYSANTHEMUMS.
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TO NURSERYMEN.—A Youth (age 17) is desirous of entering a large Nursery Garden in the locality of London, where he could learn the profession thoroughly in all its branches—Address, with every particular, H. M., Post Office, Richmond, Surrey.

TRAVELLER and CORRESPONDENT.—Mr. THOMAS THORNTON, The Heatherside Nurseries, Bagshot, Surrey, can thoroughly recommend a highly respectable and energetic young Man as TRAVELLER and CORRESPONDENT in the Nursery or Seed Trade. One who understands his business, and is well known in England and Scotland.—T. T. will be pleased to answer any communications in reference.

TRAVELLER, or CLERK and TRAVELLER.—A young Man; thoroughly up in the trade. Highest references.—A. B., 8, Albion Place, Lower Broughton, Manchester.

LABOURERS.—Constant work Wanted as Labourer in a Gentleman's Garden, by a single Man; also for two Lads—one 14 the other years of age.—Address full particulars to A. B., Post Office, Ashford, Kent.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C. Printed by William Richards, at the Office of Messrs. Bradbury, Agnew, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the County of Middlesex, and Published by the said William Richards, at the Office, 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—Saturday, April 17, 1875.
Agent for Manchester—John Heywood. Agents for Scotland—Messrs. J. Menzies & Co., Edinburgh and Glasgow.

THE

GARDENERS' CHRONICLE.

Established 1841.

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CONTENTS.

SALES BY AUCTION.

Imported Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, April 28, at half-past 12 o'Clock precisely, an Importation of FIRST-CLASS ORCHIDS from India, in the finest condition, comprising Vanda cœrulea, Dendrobium Devonianum, D. Farmeri, D. densiflorum, D. chrysotis, and others; also Pleione maculata and Wallichii in fine masses, and Cypripedium hirsutissimum, Saccolabium guttatum, and Cymbidium eburneum or Mastersii.

On view the morning of Sale, and Catalogues had.

Odontoglossums.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, April 28, 600 ODONTOGLOSSUMS, many of them supposed to be Alexandræ, just arrived, in good condition, from the mountainous parts of the United States of Columbia, and for Sale without the least reserve.

On view the morning of Sale, and Catalogues had.

Unusually Choice East Indian Orchids.

VANDA CATHCARTII, PHALÆNOPSIS LEUCORHODA, P. MANNII, &c.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, April 29, twenty-three very fine plants of VANDA CATHCARTII, growing freely, and in the most luxuriant health; splendid plants of V. CRISTATA, some of them showing flower; rare SACCOLABIUMS, many hundreds of DENDROBIUMS; also four plants of the extremely rare PHALÆNOPSIS MANNII, and two plants of P. LEUCORRHODA, one the original plant described in the *Gardeners' Chronicle* (No. 62, p. 301).

On view the morning of Sale, and Catalogues had.

Important Sale of East Indian, Guatemala, and OTHER NEWLY-IMPORTED ORCHIDS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, April 29, at half-past 12 o'Clock precisely, by order of Messrs. James Veitch & Sons, of Chelsea, a very fine IMPORTATION of ORCHIDS, all in excellent condition. The Sale will include splendid masses of Dendrobium lituiflorum, some with forty to fifty shoots, and throwing up numerous young growths; D. devonianum and D. chrysotoxum. Also a magnificent importation of Saccolabium guttatum, in the best possible health, some of the masses having eight to ten shoots; Vanda cœrulea, &c.; Lycaste Skinneri, fine plants, just breaking; Odontoglossum pulchellum, in fine condition; Sobralia macrantha, Masdevallia Veitchii, and a few fine plants of the very rare and beautiful Oncidium concolor, just received from Brazil, and now offered by Auction for the first time. The whole to be Sold without reserve.

On view the morning of Sale, and Catalogues had.

Specimen Plants—Important Sale.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, May 3, at half-past 12 o'Clock precisely, a Collection of Specimen PALMS, FERNS, ALOES, AGAVES, and other Plants, being duplicates from a well-known old Collection, and comprising many very rare sorts; an importation of 200 lb. of SEED of CEDRUS DEODARA, several small Collections of Established ORCHIDS, and an importation of Dendrobium Falconeri, D. crassinode, D. formosum, Saccolabium curvifolium, S. giganteum and many other choice sorts.

On view the morning of Sale, and Catalogues had.

Established Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, May 5, at half-past 12 o'Clock precisely, a Collection of ESTABLISHED ORCHIDS, including, amongst many others, the following:—Phalænopsis, several plants supposed to be Pontei; Cattleya exoniensis, Dendrobium bigibbum, D. Devonianum, Oncidium leopardinum, Zygopetalum rostratum, Cypripedium Parishii, C. Harrisianum, Masdevallia Harryana, M. Lindeni, Odontoglossum Bluntii, O. triumphans, O. Pescatorei, O. Alexandræ, Angræcum caudatum, &c. To be Sold in consequence of the owner going abroad.

On view the morning of Sale, and Catalogues had.

Important Sale of Specimen Stove and Greenhouse PLANTS, removed from Albury Park, Guildford.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on FRIDAY, May 7, at half-past 12 o'Clock precisely, SPECIMEN STOVE and GREENHOUSE PLANTS, British and Exotic FERNS, formed for Exhibition purposes by William Kemp, Gardener to His Grace the Duke of Northumberland, at Albury Park, Guildford, who is giving up exhibiting plants. They consist of well-grown specimens of Azalea indica, Cape Ericas, Epacris, Genetyllis, Aphelexis, Phænocomas, Chorozemas, Dracophyllums, Boronias, Adenandras, Acrophyllum venustum, Polygalas, Hibbertias, Stephanotis, Allamandas, Clerodendrons, Franciscæas, Rondeletias, Combretums, Pandanus, &c. This well-known Collection has taken numerous Prizes at the London and Provincial Shows—viz., Regent's Park, South Kensington, Crystal Palace, Reading, Guildford, Tunbridge Wells, Godalming, &c. Also two EXHIBITION VANS, with good springs and patent axles. The whole for Sale without reserve.

On view the morning of Sale, and Catalogues had.

Specimen Stove and Greenhouse Plants, Ferns, PALMS, FRUITING PINES, VINES, &c., mostly the Property of a Nobleman, removed for convenience of sale.

MESSRS. OLIVER, NEWBOLD, AND OLIVER, have received instruction to SELL by AUCTION, as above, at Mile Ash Nurseries, Duffield Road, Derby, on WEDNESDAY, May 5, at 11 o'Clock. The Collection comprises, in part, seven handsome specimen Crotons, 2 to 4 feet; Dracænas, Marantas, and other fine Stove Plants; thirty splendid specimen Azaleas, 3 to 5 feet, beautifully trained and full of flowers; 100 Camellias, including some fine specimens, 6 to 10 feet high; magnificent specimen Palm (Latania borbonica), 6 by 12 feet; large Orange and Lemon trees; specimen Rhynchospermum, Musa Cavendishii, 6 feet; Pandanus utilis, 5 feet; Davallia elegans, 4 feet through; thirty-eight Fruiting Pine Plants, Fruiting Vines, and a large quantity of smaller Camellias, Azaleas, and general Greenhouse Plants, all of the choicest varieties, and in the finest possible condition.

Descriptive Catalogues may be obtained of the Auctioneers, and of Mr. E. COOLING, Mile Ash Nurseries, Derby.

Kingston-on-Thames.

By Order of the Executors of the late Mr. Bruce.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, at the Mart, Tokenhouse Yard, City, E.C., on MONDAY, April 26, at 1 for 2 o'Clock punctually, a compact, valuable FREE HOLD ESTATE, known as Bruce's Nursery, and situate in the Richmond Road, Kingston, Surrey, possessing a highly important frontage of 332 feet 6 inches to the high road, by 594 feet depth, comprising about 4 acres 2 roods of very eligible Building Land, together with the ornamentally brick-built Detached Residence standing thereon. The Property offers great scope for profitable subdivision and re-sale in small plots, or for the creation of ground rents.

Cards to view, with printed Particulars and Plans, may be had of R. B. WHEATLY, Esq., Solicitor, 2, New Inn, W.C.; and of the Auctioneers and Estate Agents, 98, Gracechurch Street, E.C., and Leytonstone, E.

Theobald's Park, Waltham Cross.

IMPORTANT CLEARANCE SALE of choice GREENHOUSE and STOVE PLANTS, valuable LIVE-STOCK, GARDEN and FARM IMPLEMENTS, &c.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from Mr. Alderman Cotton (who is leaving the neighbourhood upon the expiration of his tenancy) to SELL by AUCTION, on the Premises, Theobald's Park, Waltham Cross, Herts, on TUESDAY, April 27, at 11 for 12 o'Clock precisely, the whole of the choice COLLECTION of STOVE and GREENHOUSE PLANTS, consisting of large and handsomely grown Double Camellias and fine Azalea indica, sixty half-specimen Pelargoniums, a beautiful example of Alsophila australis (12 feet through), fine Ficus, Cattleyas, Dilechnums, Adiantums, and several other Exotic Ferns; large Fuchsias, Vallotas, Dracænas, Gardenias, &c.; 150 Fruiting and Succession Pines; also the valuable LIVE-STOCK, consisting of Brougham, Saddle, and Cart Horses, handsome Norwegian and other Ponies, twenty-four Cows, Heifers, and Calves, Breeding Sows, ten cross-bred Ewes with Lambs by side, Poultry; a capital Brake, useful Brougham, Dog Cart, a well made Pony Cart, a Tumbril Cart, the superiorly-made Silver-plated and Brass Harness, a Green's 18-inch Lawn Mower, Oat Crusher, a Chaff Cutter, Haymaking Machine by Barret & Co., and other Implements; ten large ornamental Gas Tripods, and Statuary on Pedestals, comprising "The Deluge," from the Colosseum, and the "Head of Musa."

On view the day prior to the Sale. Catalogues may be had on the Premises, of Mr. STEPHENS; and of the Auctioneers and Estate Agents, 98, Gracechurch Street, E.C., and Leytonstone, E.

City Auction Rooms, 38 and 39, Gracechurch St., E.C.

MESSRS. PROTHEROE AND MORRIS SELL BY AUCTION, as the Rooms, as above, on THURSDAY, April 29, at half-past 12 o'Clock precisely, a first-class Collection of CARNATIONS and PICOTEES, of the finest growth; a choice assortment of GREENHOUSE and BEDDING PLANTS, HARDY AMERICAN PLANTS, CONIFERÆ, SHRUBS, Standard and Dwarf ROSES, choice SEEDS, FUCHSIAS, DAHLIAS, LILIUM AURATUM, &c.

On view the morning of Sale. Catalogues had at the Rooms, and of the Auctioneers, &c., 98, Gracechurch Street, E.C.; and Leytonstone, E.

Preliminary Notice of FORTHOMING SALES, by PROTHEROE AND MORRIS.

MAY 15.—WOOD GREEN, N. The Vineries, Nightingale Road. Important Sale of 30,000 Bedding Plants, &c.

MAY 19.—SYDENHAM, KENT. Kirkdale Nursery. Clearance Sale of the whole of the Greenhouse and Bedding Plants.

MAY 20 and 21.—WEST DULWICH, S.E. An important Sale of Greenhouse and Bedding Plants; also some choice Camellias, Azaleas, &c.

MAY.—TOOTING, S.W. By Order of Mr. R. Parker. Choice Stove and Greenhouse Plants.

Offices, 98, Gracechurch Street, City, E.C.; and Leytonstone, E.

Edmonton.

MESSRS. JACKSON AND SON are favoured with instructions to offer for SALE by AUCTION, on the Premises, Tanners' End, Edmonton, without reserve, on THURSDAY, April 29, at 1 o'Clock precisely, by direction of W. Lobb, Esq., M.P. (who has changed his residence), a valuable collection of STOVE and GREENHOUSE PLANTS, including some fine specimen Camellias, from 5 to 10 feet high; Azaleas, Ferns, Orchids, choice Pelargoniums, Fuchsias, Chrysanthemums, a large number of Miscellaneous Plants.

May be viewed the morning of Sale. Catalogues may be had of WILLIAM ARDDY, Gardener, on the Premises; at the usual Inns in the neighbourhood; of Mr. JACKSON, Auctioneer and Appraiser, Hitchin, Baldock, and Royston; and of Messrs. JACKSON AND SON, Auctioneers and Land Agents, Hertford, Ware, and Bishop Stortford.

Bexley Heath.—Freehold Farm, consisting of about 25 acres.

To MARKET GARDENERS AND OTHERS.

MR. E. BENTLEY HAYNES is favoured with instructions (by Order of the Executrix of Mr. William Smith, deceased) to SELL by AUCTION, at the Mart, Tokenhouse Yard, E.C., on THURSDAY, May 6, the highly cultivated MARKET GARDEN FARM, known as Woodlands, for very many years in the occupation of the owner, now deceased. The Farm is situate near the main Dover Road, and is well placed for conveying produce to the London markets. The premises comprise a capital Dwelling-house, Stables, Sheds, Piggeries, Barns, &c. The property is situate in Church Road, Bexley Heath, about 1½ mile from Bexley Station, and 2 miles from Abbey Wood Station on the South-Eastern Railway. The tenant will show the property.

Particulars and Conditions of Sale can be obtained at the principal Inns in the neighbourhood; of W. YANT, Esq., Solicitor, 27, Leadenhall Street, E.C.; and of E. BENTLEY HAYNES, Auctioneer, 113, Cannon Street, E.C.

Cairnforth House, Moorgate, Rotherham.

TWO DAYS' SALE—WEDNESDAY and THURSDAY, May 12 and 13, commencing each day at 11 A.M.

MR. ROWLARD WARD, of the Central Repository, Sheffield, is favoured with instructions from George Brown, Esq., to announce that a SALE by PUBLIC COMPETITION will take place, as above, of very choice PALMS, CROTONS, TREE FERNS, Specimen ALLAMANDAS, CLERODENDRONS, DIPLADENIAS, BOUGAINVILLEAS, TODEAS, PHORMIUMS; also a variety of choice ORNAMENTAL PLANTS.

For days to view, prior to Sale, see Catalogues (*6d.* each), to be had of Mr. H. ALBISON, Gardener, Cairnforth Lodge, Moorgate, Rotherham; and of the Auctioneer, Central Repository, Castle Hill, Sheffield.—April.

WANTED to RENT, a large Private GARDEN with a quantity of Glass, or a FRUIT and FLORIST'S ESTABLISHMENT near London.

ALPHA, Mr. Thomas Frewins, New Street, Henley-on-Thames, Oxon.

To Nurserymen and Others.

TO BE LET, the GUILFORD NURSERY, Whitfield, near Dover, comprising Residence, Stable, and Outbuilding, with 7 acres of First-class Land. Rent £60. The Houses, comprising large Plant-house, Vinery, Stove and Fern Houses, Greenhouse, &c., together with the contents, and some Nursery Stock, to be taken by Valuation or Arrangement. Incoming moderate. Apply to Messrs. WORSFOLD AND HAYWARD, Auctioneers and Estate Agents, New Bridge, Dover.

Victoria Estate, Kansas, U.S.—To Farmers and OTHERS.

FINE STOCK FARMS of 640 Acres and upwards, to be SOLD, Freehold, from 12s. to 50s. per acre. Grass in its natural condition unsurpassed for feeding Sheep and Cattle. For PAMPHLET containing full particulars respecting this Property, apply to

ROBERT W. EDIS, Esq., F.S.A., 14, Fitzroy Square, London, W., Architect to the Estate.

To Gentlemen, Amateur Horticulturists, and Others.

TO BE SOLD, a very compact and flourishing NURSERY, FLORIST, and JOBBING GARDENING BUSINESS, consisting of an excellent Shop and Conservatory (with Plate-glass Windows), Offices, Sheds, Greenhouses, and Pits. Situate in the principal road to London, about 5 miles distance south-east, surrounded by a first-class neighbourhood. Also, together or separate, a very genteel and excellent modern-built DETACHED VILLA RESIDENCE, in the centre of its own Grounds, beautifully and artistically laid out and planted; approached by a carriage drive from the entrance, near the business premises. This Property is very desirable for a Gentleman Horticulturist, the business portion being distinct from the residence grounds, &c., and may be let off very advantageously.

Further particulars can be had of Mr. J. JENKINS, Land Agent and Auctioneer, Lewisham High Road, New Cross, S.E.; or of THOMAS KEPPING, Esq., Solicitor, 45, Essex Street, Strand, W.C.

GRANTHAM and SOUTH LINCOLNSHIRE HORTICULTURAL SOCIETY.

President: The Right Hon. EARL BROWNLOW, Lord-Lieutenant of the County.

The next EXHIBITION will be at Grantham, JULY 7 and 8. Schedules of Prizes (£200—two Silver Cups) are now ready, and may be had of Mr. LYNE, Bookseller, Grantham.

NOTTINGHAM and MIDLAND COUNTIES GRAND ROSE SHOW and HORTICULTURAL EXHIBITION (open to all England) will be held at the ARBORETUM, Nottingham, on THURSDAY, FRIDAY, and SATURDAY, July 8, 9, and 10. The Mayor of Nottingham President; the Town Clerk Honorary Secretary. Schedules in the course of preparation, and may be obtained on application to

ALFRED KIRK, Municipal Offices, Nottingham.

CRYSTAL PALACE.—GREAT FLOWER SHOW of the SEASON, SATURDAY, May 29.

ALEXANDRA PALACE.—OPENING FESTIVAL, SATURDAY NEXT, May 1. Grand Concert, under the direction of Sir MICHAEL COSTA. The following, amongst other distinguished *artistes* of Her Majesty's Opera, will take part:—Mdlle. Titiens, Madame Trebelli-Bettini, Signor Campanini, and Herr Conrad Behrens. Orchestra and Chorus of 500 performers. The Band of the Grenadier Guards, under the direction of Mr. DAN GODFREY, will perform a Selection of Music in the Park, on the South Terrace, before and after the opening ceremony.

Admission by ticket—5s., if purchased before the day; by payment at the doors, 7s. 6d., or by the Guinea Season Ticket, which also includes Membership of the Alexandra Palace Art Union.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION, for the relief of decayed Farmers, their Widows and Orphans.

Patron—HER MAJESTY THE QUEEN.

President—HIS GRACE THE DUKE OF RICHMOND.

Allowances to Pensioners.

Married	£40 per annum.
Male	£26 "
Widow and unmarried Orphan Daughters	£20 "

Every information to be had of the Secretary, by whom Subscriptions and Donations will be thankfully received.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.—The FIFTEENTH ANNIVERSARY FESTIVAL, in aid of the Funds of the Institution, will take place at Willis's Rooms on SATURDAY, June 5, at 6 o'Clock.

H.R.H. The PRINCE OF WALES, K.G., in the Chair.

Dinner tickets, 21s., application for which should be made to the Secretary not later than May 22.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.—The ANNUAL GENERAL MEETING will be held at Willis's Rooms, St. James's, on WEDNESDAY, June 16, at 11 o'Clock precisely, and the ELECTION of PENSIONERS will take place on the same day, at half-past 11 o'Clock.

All Subscriptions shall be deemed payable on January 1 in each year; and no Committee shall vote in respect of an Annual Subscription while the same is in arrear.

Offices of the Institution—

No. 26, Charles Street, St. James's, London, S.W.

CHILDREN'S HOSPITAL BAZAAR, Manchester.—The FLORAL COMMITTEE beg to THANK most heartily those Ladies, Gentlemen, and Nurserymen who sent so kindly Flowers and Plants for disposal at the late Bazaar for the Hospital for Sick Children.

(Signed) J. BROOME, Chairman.
B. FINDLAY, Hon. Sec.

FLORISTS' FLOWERS.—Named exhibition varieties of Carnations and Picotees, 6s. per dozen plants; Pinks and Pansies, 4s. per dozen; Pentstemons and Antirrhinums and Phloxes, 4s. per dozen; all good plants and first-class sorts. LISTS of above, and other plants, in great variety, for two stamps. Trade terms on application.

WM. CLIBRAN AND SON, Oldfield Nursery, Altrincham.

ROYAL HORTICULTURAL SOCIETY.—SHOW of EARLY RHODODENDRONS, &c., APRIL 21.

AWARDS of the JUDGES.

CLASS 1.—12 FORCED RHODODENDRONS, distinct. (Open.)
1st, Messrs. H. Lane & Son, The Nurseries, Great Berkhampstead, £1 10s.

CLASS 5.—9 CINERARIAS, distinct. (Nurserymen.)
1st, Messrs. J. Dobson & Sons, Woodlands Nursery, Isleworth, 15s.

CLASS 8.—6 ORCHIDS, distinct. (Nurserymen.
1st, Mr. B. S. Williams, The Nurseries, Upper Holloway, N., £1 10s.

CLASS 12.—18 HARDY SPRING FLOWERS, in pots, distinct. (Open.)
1st, Mr. R. Parker, Exotic Nursery, Tooting, £1.
2d, Mr. R. Dean, Ranelagh Road, Ealing, 15s.

CLASS 16.—12 ALPINE or FANCY AURICULAS, distinct. (Open.)
1st, Messrs. J. Dobson & Sons, 10s.

CLASS 18.—2 BUNCHES of BLACK GRAPES. (Open.)
1st, Mr. W. Bones, Gr. to D. McIntosh, Esq., Havering Park, near Romford, £1.
2d, Mr. J. Ridout, Gr. to W. S. Brown, Esq., Woodhatch Lodge, Reigate, 15s.

CLASS 21.—1 BRACE of CUCUMBERS. (Open.)
1st, Mr. J. Lane, Gr. to Major-Gen. Fytche, Pyrgo Park, near Romford, 7s. 6d.
2d, Mr. W. Rapley, Gr. to R. Hudson, Esq., Clapham Common, 5s.

MISCELLANEOUS.—EXTRA PRIZES.
Mr. B. S. William, for Group of Plants, Silver Medal.
Mr. J. Walker, Nurseryman, Thame, for Three Boxes of Cut Roses, Silver Medal.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS: also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.
Mr. WEBB, Calcot, Reading.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

Mr. Postans's New Zonal and Fancy Variegated PELARGONIUMS for 1875.

CHARLES BURLEY begs to announce that he has been entrusted with the distribution of the above magnificent NEW PELARGONIUMS, to be sent out, for the first time, the beginning of May next. Priced LIST and full descriptions on application.
Paradise Nursery, Brentwood.

SURPLUS STOCK of POTATOS.—Hundredfold Flukes, 140s. per ton; Paterson's Victoria, 120s.; do. Redskinned Flourball, 100s.; do. Regents, 105s.; do. Dalmahoy, 110s.; do. Bresee's Prolific, 110s.; do. Bresee's Peerless, 100s.; do. Climax, 110s.; do. Rivers' Ashtop, 20s. per sack; Belgian Kidney, 12s. do. New 4 lb. sacks, 1s. 3d. each. Cash. CHRISTMAS QUINCEY, Peterborough.

Cinerarias, Cinerarias.

MESSRS. JOHN STANDISH AND CO. have to offer SEED saved from their celebrated strain of CINERARIAS, 2s. 6d. and 3s. 6d. per packet. Also, PRIMULA SEED, 2s. 6d. and 3s. 6d. per packet. Post free on receipt of Stamps or Post Office Orders.
Royal Nurseries, Ascot, Berks.

Unrivalled Verbenas, Fuchsias, &c.

GEORGE SMITH, 61, Penrose Street, Walworth, S.E., begs to intimate his VERBENAS, &c., are very strong; in single pots from 2s. per dozen. GOLDEN FEATHER GEM, double white-flowered, 2s. per dozen. PETUNIA (Crystal Palace), striped, extra fine, 2s. per dozen. LIST free.

Verbenas, Verbenas.

JOHN SOLOMON offers White, Scarlet, Purple, Pink, Crimson, Rose and other mixed sorts, good strong spring-struck cuttings, well rooted, at 6s. per 100, 50s. per 1000, package included. Cash to accompany all orders from unknown correspondents.
Islington Nursery, Park Street, Islington, N.

Pelargoniums for the Million.

JAMES HOLDER'S unrivalled COLLECTION of Show, French, and Fancy Varieties, strong Plants, distinct sorts, at 40s. per 100; 25s. for 50; or 15s. for 25. Hamper and packing included. Extra strong plants at 9s. and 12s. per dozen. Cash. CATALOGUES free on application.
Crown Nursery, Reading.

LAXTON'S NEW PEAS.—Each of the following 5s. per quart:—

WILLIAM THE FIRST.	SUPERLATIVE.
OMEGA.	LAXTON'S No. 1.
	POPULAR.

DANIELS BROS., Seed Growers, Norwich.

STELLARIA GRAMINEA AUREA—100 cuttings sent post free for 2s. 6d. This is quite distinct from Golden Feather, and certainly the best yellow carpet-bedding plant ever introduced; quite hardy.
H. CANNELL, New Florists' Flowers and Florist Flower Seed Merchant, Woolwich, S.E.

SIR GARNET WOLSELEY.—The best new Rose of the season. See coloured plate in the *Floral Magazine* for April. Strong plants now being sent out, price 7s. 6d. each. The usual discount to the Trade.
CRANSTON AND MAYOS, Nurseries, King's Acre, near Hereford.

Bedding Roses.

CRANSTON'S CRIMSON BEDDER: strong plants, in 5-inch pots, 30s. per dozen.
TEA-SCENTED, CHINA, NOISETTE, and HYBRID-PERPETUAL ROSES, in 4 and 5-inch pots, 9s. to 15s. per dozen.
Now is the best time for bedding-out the Tea-scented and China Roses, and Hybrid Perpetuals, on their own roots.
Address, CRANSTON AND MAYOS, King's Acre Nurseries, Hereford.

To the Trade.

HURST AND SON can offer PEAS and SCARLET RUNNERS to the Trade. Quotations on application to
HURST AND SON, 6, Leadenhall Street, London, E.C.

New Double Petunia,

"MRS. WILSON."—The above is a fine Double Crimson variety, striped and edged with white, very fine and distinct. It received three First-class Certificates last year. Good Plants, now ready, 3s. 6d. each, post free 3s. 9d.
T. JACKSON AND SON, The Nurseries, Kingston, Surrey.

DENDROBIUM DEVONIANUM.—Having received a large importation, Mr. WILLIAM BULL makes special offer of this handsome and favourite Orchid, at £3 per dozen. Special quotations by the 100.
ESTABLISHMENT for NEW and RARE PLANTS, King's Road, Chelsea, London, S.W.

GIANT ASPARAGUS PLANTS, the best that money can procure, all certain to grow, 2s. 6d. per 100. This delicious vegetable does not require half the expense usually incurred in planting it. See RICHARD SMITH'S SEED LIST for 1875.
Extra strong SEAKALE, 2s. per dozen.
RICHARD SMITH, Nurseryman, Worcester.

VINES, extra strong leading sorts, close-jointed and well ripened; SEAKALE, ASPARAGUS, and RHUBARB, extra strong, for forcing; ROSES, FRUIT, FOREST, and ORNAMENTAL TREES, STOVE and GREENHOUSE PLANTS, &c.
Priced Descriptive CATALOGUE, post-free.
DICKSON AND ROBINSON, 23, Market Place, Manchester.

CUTTINGS of GERANIUMS, &c.—100 Geraniums, in forty choice varieties, including Tricolor, Gold and Bronze, Variegated, Zonal, Nosegay, and Ivy-leaf, for 10s., 50, 5s. 6d., 25, 3s.; 24 Fancy Pelargoniums, 3s. 6d., 12, 2s.; 24 Chrysanthemums, 2s. 6d., 12, 1s. 6d.; 24 Pompons, 2s. 6d., 12, 1s. 6d.; 24 Fuchsias, 2s. 6d., 12, 1s. 6d. All post free.
CATALOGUES one stamp.
J. COOMBS, The Ferns, Enfield.

Lawn Grass Seeds.

FRANCIS & ARTHUR DICKSON & SONS' Mixture of LAWN SEEDS is composed only of the FINEST and DWARFEST EVERGREEN GRASSES, and is very superior to mixtures generally offered, quickly forming a close velvety turf. For New Lawns sow 60 lb. to 80 lb. per acre. To Renovate Old Lawns sow 10 lb. to 20 lb. per acre. Price 1s. per lb. Orders over 20s. Carriage Free.
The Old-Established Seed Warehouse, 106, Eastgate Street, Chester.

New Fuchsia procumbens.

T. JACKSON AND SON have much pleasure in introducing this exceedingly interesting Novelty, which they have purchased from the Gardener of T. C. Blackett, Esq., of Thorpe Lea, seeds of which he received from New Zealand. It is of a shrubby trailing habit, producing freely at the axils short erect flowers with orange-yellow tube and violet-black sepals. Strong Plants 5s. each, free by post 5s. 6d.; extra strong ditto, 10s. 6d. each.
Nurseries, Kingston, Surrey.

PRIMULA JAPONICA.—Strong healthy plants of this beautiful hardy Primrose, quite distinct from, and greatly superior to, any other kind recently introduced from Japan, that will blossom this season, may be obtained in various colours, mixed, at the moderate price of 2s. 6d. for half a dozen, or 4s. 6d. per dozen, package included, sent by rail, on application to
JOHN LEWIS, Gardener, Whitland, Carmarthenshire.
No Orders will be attended to unless accompanied with Postage Stamps or Post Office Order, made payable at Whitland, to JOHN LEWIS, to the amount of quantity of plants required; and applicants are requested to write their name and address distinctly, to prevent any mistake occurring in forwarding the package.
Seed saved last year of the above, 6d. and 1s. per packet.

Verbenas for Sale.

S. BIDE can now supply, for cash, Verbenas, spring-struck, strong, and free from disease of any kind, including Purple King, Scarlet, White, Pink, and many other varieties (of which he will send a descriptive application), at 8s. per 100, package free. PELARGONIUMS, show and fancy, of the best varieties, 40s. per 100. GERANIUMS, plain-leaved and zonal, strong autumn-struck plants, 10s. per 100; Mrs. Pollock, in single pots, 20s. per 100; Crystal Palace Gem, in single pots, 20s. per 100. COLEUS VERSCHAFFELTII, 12s. per 100. IRESINE LINDENI, 10s. per 100; IRESINE HERBSTII, 10s. per 100. CENTAUREA CANDIDISSIMA, struck last autumn, and well established, in large 60 pots, 40s. per 100. AUREA FLORIBUNDA and other CALCEOLARIAS, 8s. per 100. HELIOTROPES, light and dark, 8s. per 100.
S. B. would particularly wish to draw the attention of his numerous customers to his fine stock of VERBENAS for this season, which are the admiration of all who see them; and would request that all orders should be sent to him as early as convenient, as he was unable to supply many who applied late last season—general satisfaction being expressed by all those who favoured him with their orders.
S. BIDE, Alma Nursery, Farnham, Surrey.

Cheap Plants!

WILLIAM BADMAN offers the following plants for present potting:—
VERBENAS, Purple, White, Scarlet, Crimson, and Rose, good plants, from single pots, 2s. per dozen, 12s. per 100; rooted cuttings, 1s. per dozen, 6s. per 100, 50s. per 1000.
LOBELIA, speciosa (true), from cuttings, 3s. per 100, 20s. per 1000.
CALCEOLARIA, Yellow Bedding, 1s. per dozen, 6s. per 100, 50s. per 1000.
HELIOTROPIUMS, fine dark varieties, 1s. per dozen, 6s. per 100.
AGERATUM, Imperial Dwarf, blue, makes a fine bed, 1s. per dozen, 5s. per 100, 40s. per 1000.
IRESINE, Lindeni, crimson leaf, fine, 1s. per dozen, 6s. per 100.
COLEUS, Verschaffeltii, 1s. per dozen, 6s. per 100.
STELLARIA, aurea, new golden edging plant, 1s. per dozen, 4s. per 100, 30s. per 1000.
PELARGONIUMS, Silver edge—May Queen and Flower of Spring, 2s. per dozen, 15s. per 100.
" Gold leaf—Crystal Palace Gem, 2s. per doz., 15s. per 100.
" Tricolor—Mrs. Pollock, 2s. 6d. per dozen, 18s. per 100.
Terms cash, package included.
Cemetery Nursery, Gravesend.

Spring Planting.

FOREST TREES, ORNAMENTAL TREES, and SHRUBS, a large stock at moderate prices. CATALOGUES free on application.
THE LAWSON SEED AND NURSERY COMPANY (Limited), 106, Southwark Street, London, S.E., and at Edinburgh.

Grass Seeds.

BOLTON AND CO.'S stock of NEW GRASS SEEDS for PERMANENT PASTURE is now complete. It comprises all the best varieties of Fescue, Poas, Meadow Foxtail, Cocksfoot, &c., and the mixtures are arranged to suit the different kinds of soil.
Prices can be given either by measure or by the acre, but in sending orders it is desirable as far as possible to mention the nature of the soil on which they are to be sown.
BOLTON AND CO., Seed Merchants, Wood Green, London, N.

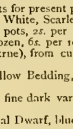
NEW ROSES.
SIR GARNET WOLSELEY (Cranston's).
CRIMSON BEDDER (Cranston's).
CLIMBING JULES MARGOTTIN (Cranston's).
All the new Continental Roses for 1875—upwards of forty varieties.
Descriptive LIST on application to
CRANSTON AND MAYOS, King's Acre Nurseries, near Hereford.

CRANSTON'S NURSERIES, Established 1785.—The following CATALOGUES are just published, and will be forwarded on application:—
DESCRIPTIVE CATALOGUE of ROSES (1874 and 1875).
DESCRIPTIVE CATALOGUE of FRUIT TREES.
DESCRIPTIVE CATALOGUE of CONIFERS, SHRUBS, and FOREST TREES.
DESCRIPTIVE CATALOGUE of BULBS. Address,
CRANSTON AND MAYOS, King's Acre Nurseries, near Hereford.

To Planters and the Trade.

MESSRS. MASTERS AND KINMONT beg to call the attention of Planters and the Trade to their stock of the following trees, which can be furnished at low prices:—
LIMES, 7 to 9 feet, clean grown.
THORNS, of sorts, Standard and Pyramid, including Paul's new Double Scarlet.
ASH, Weeping, 6 to 10 feet stems, good heads. [nock.
WILLOWS, Weeping, American, Babylonian, and Kilmar-
ELMS, of sorts, grafted, 5 to 7 feet, including Huntingdon, fastigiated, and cork-barked.
BIRCH, 8 to 10 feet.
PHILADELPHUS, of sorts.
VIBURNUM, of sorts.
LILAC, of sorts.
OAK, Scarlet, 6 to 8 feet.
YUCCA RECURVA, very fine.
ROSES, Standard and Half-Standard.
" Dwarf, on Manetti.
CURRANTS, Black.
GOOSEBERRIES, of sorts.
ABIES CANADENSIS, 3 to 5 feet.
AUCUBA JAPONICA, 1 to 2 feet.
CUPRESSUS SEMPERVIRENS, 2½ to 4 feet.
Exotic and Vauxhall Nurseries, Canterbury.

BEAUTIFUL SPRING FLOWERS.
PRIMROSES, Double Yellow and White, 4s. per dozen.
HEPATICAS, Double Red and Pink, Single Blue, 2s. 6d. p. doz.
" Single Mauve, in pots, beautiful, 1s. each.
" White, in pots, beautiful, 6d. each.
VIOLETS, Double Varieties—The King, The Queen, Crimson Neapolitan, Blue Tree, White Tree, Blandy, and odorata pendula, the new weeping Violet, 3s per dozen.
" Single Varieties—The Czar, Devoniensis, obliqua striata, suavis, Princess Louise, 3s. per dozen.
HELLEBORUS NIGER (Christmas Rose), 3s. per dozen.
" OLYMPICUS RUBER, 6s. per dozen.
DAISIES—Bacchus, Magpie, Pink Beauty, Queen of Whites, Red Rover, Rosy Gem, 2s. 6d. per dozen.
AURICULAS, finest Alpines, very choice, in pots, 3s. per doz.
" " " named varieties, in pots, 6s. per dozen.
HELIANTHEMUM, twenty-four named varieties, very showy, 3s. per dozen.
A Collection of 100 choice HARDY ALPINE and ROCK and HERBACEOUS PLANTS, showy and free flowering, 20s.
HOLLYHOCKS, selected named seedlings, very double and good, 4s. per dozen.
" Seedlings, from the very best named sorts, very double and good shaped flowers, 3s. per dozen.
GENTIANA ACAULIS, in pots, 3s. per dozen.
POLYANTHUS, choice Gold Lace, selected, 2s. 6d. per doz.
WALLFLOWER, Black Ball, very double and large, 3s. per dozen.
" Golden Ball, rich golden, 3s. per dozen.
PAMPAS GRASS, large flowering clumps, 6s. per dozen.
ROSES, choice Tea, in pots, best yellows, &c., 9s. per dozen.
CATALOGUES by Post, free.
L. WOODTHORPE, Munro Nursery, Sible Hedingham, Essex.



H. CANNELL begs to draw the attention of the Public to the COLEUS "CHAMELEON," which is unquestionably by far the most attractive and the greatest acquisition in Coleus ever sent out; when the most accurate description conveys but a very inadequate idea of its beauty. The entire Horticultural Press speak of it in the most eulogistic terms.
The following is the report of the Editors of the *Gardeners' Chronicle* (May 16, 1874):—"We have received from Mr. Cannell specimens of a new type of Coleus, of great beauty, and very distinct from those already in cultivation. Sometimes the leaf is mainly of an intense velvety maroon, flushed with bright rose, giving a kind of shot-crimson hue, the edge being just banded with green. In other cases half the leaf is of this character, while the other half is mostly of a deep rosy crimson with golden beaded edge, and sometimes the rose-tint and the maroon-crimson are variously streaked and blended. The flush of rosy crimson appearing in the maroon gives a remarkably velvety richness, which must be seen to be appreciated. With this superb and varied colouring the plant must be exceedingly effective."
This variety has received First-class Certificates wherever shown. Post free, 2s. 6d. each.
New Florist Flowers and Florist Flower Seed Merchant, Woolwich, S.E.

NEW PLANTS.—The three best new plants recently sent out are :—
CROTON MAJESTICUM,
DIPLADENIA FREARLEYANA,
CROTON SPIRALE.
Price Two and Three Guineas each.
Mr. WILLIAM BULL'S Establishment for New and Rare Plants, King's Road, Chelsea, London, S.W.

American Plants without Peat.

WM. MAULE AND SONS beg to offer the choicest Hardy English and Continental RHODODENDRONS, with Belgic and other AZALEAS, at 30*s.* per dozen, £10 per 100.

The Plants are grown in a stiff Loamy Soil, on an exposed and elevated situation, and will thrive in any soil free from Lime, Iron, or Chalk. Large Bushes of the Ponticum and Catawbiense varieties, 4 to 5 feet high and as much through, 60*s.* per dozen. April and May is the best time for planting.
The Nurseries, Bristol.

Hollies.

ANTHONY WATERER respectfully invites the attention of Holly buyers to the very fine Stock to be seen growing at Knap Hill. It comprises upwards of Thirty Thousand Plants, from 3 to 10 and 12 feet high, of the finer Gold, Silver, and Green-leaved kinds, affording a choice in size and variety such as can be met with in no other Nursery in Europe. Every Plant has been recently removed, and will be guaranteed.

The Stock of Common Green Hollies alone occupies 5 acres of land, and Purchasers will find them in large numbers of all heights up to 15 feet.
Knap Hill Nursery, Woking, Surrey.

Variegated Bedding Geraniums.

ALFRED FRYER offers the following GERANIUMS at per dozen for cash :—Golden Tricolors : Mrs. Dunnett, 3*s.* 6*d.*; Louisa Smith, 3*s.* 6*d.*; Mrs. Pollock, 3*s.* 6*d.*; Sir Robert Napier, 3*s.* 6*d.*; Sophia Dumaresque, 3*s.* Silver Tricolors : Miss Burdett Coutts, 3*s.* 6*d.*; Mrs. John Clutton, 3*s.* Golden Bronze : Aurie, 3*s.* 6*d.*; Bronze Beauty, 3*s.* 6*d.*; Kentish Hero, 2*s.* 6*d.*; Roi de Siam, 3*s.* 6*d.*; Waltham Bronze, 3*s.* 6*d.* Baskets and packing, 6*d.* per dozen, or 3*s.* 6*d.* per 100 extra.
PRICED LISTS post free.
ALFRED FRYER, The Nurseries, Chatteris, Cambridgeshire.

Carnations, Picotees, and Pinks.

ISAAC BRUNNING AND CO. beg to announce that they have this Season a very fine and extensive Collection of the above to offer, strong plants of which are now ready for sending out. LIST of Varieties and Prices, together with Illustrated SEED CATALOGUE, on application.

Our ONE GUINEA COLLECTION of CARNATIONS, &c., contains six pairs of choice Show Carnations, six pairs of choice Show Picotees, twelve pairs of Show Pinks, and twelve choice mixed Carnations and Picotees for borders.

Carriage and package free on receipt of Post Office Order. Half of the above quantities, 11*s.*
"Belgrove, Queenstown, County Cork, Ireland.
" February 15, 1875.
"Mr. W. E. Gumbleton has this day received the Carnation and Picotee Plants, with which he is much pleased, and would like another dozen of either the same or other varieties."
ISAAC BRUNNING AND CO., Great Yarmouth Nurseries.

New Double Zonal Pelargoniums for 1875.
First-class Certificate Royal Horticultural Society.

Emily Laxton.

MESSRS. W. AND J. BROWN have again been entrusted by Mr. Laxton with the distribution of the following set of New Double ZONAL PELARGONIUMS raised by him, viz.:—

EMILY LAXTON.—First-class Certificate Royal Horticultural Society. The largest flowered and most remarkable Scarlet Pelargonium, either double or single, hitherto sent out. Individual flowers upwards of 2 inches in diameter; full, but not crowded; truss enormous. Free-flowering, and suitable for winter work. Figured in the *Floral Magazine* for October last. Strong plants, 15*s.* each.

GUIDING STAR.—The most shrubby and dwarf Double Pelargonium yet raised. Foliage pale green, and partaking somewhat of the character and habit of the Show Pelargonium. Flower very pretty purplish pink, and double: quite unique and distinct. Strong plants, 10*s.* 6*d.* each.

ILLUMINATOR.—A striking and distinct purplish carmine-coloured variety of the Emily Laxton type, but darker in colour; semi-double, but full; petals large and stout. Strong plants, 7*s.* 6*d.* each. The set for £1 10*s.*

Prizes will be offered for the above in 1876. To be sent out in May next. Coloured Plates of Emily Laxton post-free for 1*s.* 6*d.* Electros of Single bloom 2*s.* 6*d.* each.

NEW STRAWBERRIES.

Messrs. W. & J. BROWN are also now sending out Mr. Laxton's fine firm-fleshed New Strawberries—TRAVELLER and EXQUISITE; the flavour of both these is distinct and unequalled. Traveller has received a First-class Certificate from the Royal Horticultural Society, and is undoubtedly the most suitable Strawberry for transmission yet raised. Strong plants of last season :—Traveller, £1 per 25, £3 per 100. Exquisite, 12*s.* 6*d.* per 25, £2 per 100. Early struck runners of each, in 60-sized pots, 7*s.* per 25 extra. Prizes for fruits of these will be offered in 1876. Trade terms on application to
W. AND J. BROWN, Nurserymen and Florists, Stamford.

Silver-margined leaved Geranium, Laura.

FRANCIS R. KINGHORN has much pleasure in offering this superior variety, being a strong grower, with very large trusses of pale scarlet flowers, freely produced. Suitable for centres of beds and back rows in borders. Received the highest commendation (a First-class Certificate) from the Floral Committee at Chiswick in 1873, which was again confirmed in 1874. Plants 5*s.* each, seven for 30*s.*
Sheen Nursery, Richmond, Surrey.

Vines.—To the Trade.

S. BIDE can still supply good strong PLANTING VINES, in Pots, of the undermentioned varieties, at 30*s.* per dozen (a special price for a large quantity will be given on application) :—Tynningham Muscat, Madresfield Court, Black Hamburgh, Mrs. Pince's Black Muscat, Lady Downe's Seedling, Burchard's Prince, Seacliffe Black, Frankenthal Hamburgh, Ferdinand de Lesseps, Black Morocco, Primaral's Frontignan, Black Barbarossa, Sweetwater, Troveren Muscat, Bowood Muscat, Muscat of Alexandria, White Nice, Duchess of Buccleuch, Rasin de Calabre.
S. BIDE, Alma Nursery, Farnham, Surrey.

LOBELIA "LADY MACDONALD."—Pure white, deeply edged with ultramarine-blue, in the way of "Paxtonii," with flowers four times the size; unrivalled as a bedding or pot plant; one of the greatest novelties introduced for years. This beautiful variety was twice submitted for the opinion of the judges at two of the Exhibitions of the Royal Caledonian Horticultural Society, Edinburgh, last summer, and on both occasions was unanimously awarded a First-class Certificate.

Plants first week in May, 2*s.* 6*d.* each.
DOWNIE AND LAIRD, 17, South Frederick Street, Edinburgh.

NEW PELARGONIUM—"DUCHESS of EDINBURGH."—This splendid new Pelargonium received First-class Certificates at the Royal Horticultural Society, May 13, and at the Royal Botanic Society, May 20, 1874. It is of dwarf compact habit, and a most profuse bloomer: we have it at the present time (April 12) in 48-pots, with forty trusses of bloom averaging from six to fifteen flowers in each truss. The flowers, which are crinkled-edged and of good form, are delicate white blotched with purple. It is without doubt the best decorative variety ever offered. See the Opinions of the Press in the *Gardeners' Chronicle*, the *Garden*, and the *Gardeners' Magazine* of May 16, 1874.

To be sent out May 1. Price One Guinea each.

A remittance or reference to accompany all orders from unknown correspondents.
G. BRAID, Nurseryman, Winchmore Hill, Middlesex.

NEW CLEMATIS, to be sent out by JOHN STANDISH AND CO. on May 10 :—

ASCOTIENSIS.—The flowers are considerably larger than Jackmanni, and are well shaped, containing six petals each colour, a fine azure-blue; it throws a profusion of flowers the whole summer long, and is of a very vigorous habit. 10*s.* 6*d.* each.

MRS. QUILTER.—A magnificent white flower, containing eight petals; it is the largest, smoothest, and purest of all the whites, and a very free bloomer, with strong habit. 10*s.* 6*d.* each.

The above are decided acquisitions, and should be in every collection. Orders are now being booked for them.
Royal Nurseries, Ascot, Berks.

PAXTON'S CALENDAR.

NOW READY, A NEW AND THOROUGHLY REVISED EDITION OF THE

COTTAGER'S CALENDAR OF GARDEN OPERATIONS.

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

Price 3d., Post Free 3½d.

W. RICHARDS, 41, WELLINGTON STREET, STRAND, LONDON, W.C.

ROSES IN POTS.

MANY THOUSANDS TO SELECT FROM. INSPECTION INVITED.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WILLIAM WOOD & SON

Have now the honour of offering a Magnificent Stock of ROSES in POTS, consisting of CHINA, TEA, NOISETTE, CLIMBING and other Kinds.

The Plants offered are exceedingly robust and healthy.

From 9s., 12s., to 18s. per dozen, and Established in 6-inch Pots at 24s. to 30s. per dozen.

CATALOGUES READY. TRADE PRICE ON APPLICATION.

SATURDAY, APRIL 24, 1875.

LORDS AND LADIES.

If we examine the flowering plants which form the most conspicuous portion of our British flora, we shall be struck with the comparative want of variety in type which they present. This is the more striking if our view should be a very superficial one; indeed, it is in external features that the general resemblance is noticeable, although, of course, in some cases these are united with other points of greater scientific importance. Excluding such well-marked and natural groups as the Umbelliferæ, Compositæ, and Leguminosæ, we shall find a certain type of flower echoed as it were in very different orders; thus, the round five-petalled flowers of the Buttercup are repeated in the larger Cranebills, and again in the Potentillas and Strawberry. Yet further evidence of this general resemblance is offered, on the principle that "the exception proves the rule," by the way in which the attention is arrested by any plant which is strikingly different from the surrounding species, and of this no better instance would be found than is offered by the common Arum maculatum, one of the many names of which heads the present paper.

The Arum is now beginning to occupy an important position among spring-flowering plants, and is expanding its handsome arrow-headed and usually spotted leaves on many a hedge-bank, while in the centre shoots up the at present unexpanded green spathe. This plant is so different in general appearance from any other British species, and is, moreover, so well known, that any description of it would be unnecessary. Indeed, it is not surprising to learn that it is an outlying species; that is to say, a species which occurs in regions remote from the rest of its congeners, most of the Aroideæ being tropical, abounding especially in the large forests of South America.

"Lords and Ladies," one of the most widely known names of the plant, is a favourite flower of the children, who find amusement in opening the spathe, and examining the colour of the spadix. Should this be of a dark hue it is called a "lord;" if light, it is a "lady." Dr. Prior says that this name is "of recent introduction, to replace certain older, and generally very indecent ones." From the wide diffusion of the name the accuracy of this opinion may be doubted, although it does not appear in any of the old Herbals. For the observations as to the objectionable nature of some of the older names of the Arum there is, unfortunately, only too much justification. Our ancestors called a spade a spade; and many of their designations for the Arum correspond closely with the "grosser name" which "liberal shepherds" used to give to the "long purples" of Shakspeare (Orchis mascula), and which we believe is still in use in some parts of Warwickshire. Dr. Prior's comments on Wake Robin and Cuckoo-fruit—two of the most romantic-sounding names of the Arum—supply all necessary information, and show plainly enough that the poetical explanations of these designations, which are often given by popular writers, must be unhesitatingly rejected.

But the Arum has as many names in English alone as would suffice for several Spanish grandees—far too many, indeed, for bare enumeration here, although one or two deserve special notice. Such, for instance, is that of "Bobbins," or "Bobbin-Joan," by which it is known in the lace-making districts of Buckingham and Northamptonshire, in allusion to the resemblance of the spadix to the bobbins employed in lace-work. "Parson-in-the-pulpit" and "Jack-in-the-box" explain themselves: while the relative idea of male and female which is exemplified in "Lords and Ladies" is carried out in "Bulls and Cows" and "Stallions and Mares," two of its Yorkshire names. When the spadices are very dull and sober-looking they are called "Quakers," in some parts of Lancashire. This connection of the dark and light colours with the male and female sex respectively is very general; and is exemplified in many of the paintings of the Holy Family and other sacred subjects, where the Virgin Mary is usually represented in a robe of a blue colour, while a red or dark green one is given to Joseph and other saints.

The Arum has quite as large a number of names in other languages many of which correspond closely with our own. Thus in some parts of France it is known as Vicaire, or Curé while it is called from its spadix Buttant de Clode, or Chandelle; Chou poivre, or Pepper Cabbage, is another of its common French names. In the neighbourhood of Frankfort it is called Aaron's-wort, and its relative abundance or scarcity is regarded as an indication of the fruitfulness or sterility of the ensuing season.

In Hertfordshire, the handsome spotted foliage is called "Our Lord's Leaves," and is associated with a tradition that the plant grew at the foot of the Cross, and was stained with the drops of the Saviour's blood which fell upon it. A similar tradition is connected with other spotted-leaved plants, as with the Purple Orchis (O. mascula), which is called in Cheshire "Gethsemane;" and the idea is not peculiar to England, as it is applied in Belgium to a spotted leaved plant, called in Flemish Roodselken, because it stood under the Cross; this grows in Flax fields, but we have been unable to identify it from the meagre description given. With regard to the Arum, the superstition is probably widely spread in England, although we have no other names which are connected with it. It was familiar to Mrs. Hemans, who, speaking of the spots on the leaves, says :—

> "These deep unwrought marks
> The villager will tell thee (and with voice
> Lowered in his true heart's reverent earnestness)
> Are the flowers' portion from the atoning blood
> On Calvary shed. Beneath the Cross it grew;
> And in the vase-like hollow of its leaf,
> Catching from that dread shower of agony
> A few mysterious drops, transmitted thus
> Unto the groves and hills their healing stains,
> A heritage for storm or vernal winds
> Never to waft away."

Those who are interested in tracing out the employment of plants in the sculptures of the middle ages should not omit to consult a little *brochure*, by Dr. Woillez, entitled *Iconographie des Plantes Aroides.* He enumerates and figures a large number of examples of sculpture, in which he considers Arum maculatum to have been employed, and enters at some length into the symbolical sense which they were intended to convey. We are inclined to think that in some, at any rate, of the instances which he cites, no aroideous plant is intended; but the paper is evidently the result of careful study and investigation, and demands attention. He also regards some aroideous plant as having originated the fleur-de-lis of France—that much debated emblem, which has already been traced by different authors to crosses, bees, toads, halbert-heads, and yellow Iris!

Regarded simply from a utilitarian point of view, the Arum has considerable claims to our consideration. The thick fleshy farinaceous roots yield a pure white starch, which was at one time in great repute, and which explains the name Starch-wort which was applied to the plant by Gerarde and other herbalists. For

many years, and, indeed, until a comparatively recent period, a preparation similar to arrowroot was sold in shops under the name of "Portland Sage," or "British Arrowroot." This was chiefly manufactured in Portland Island, where the Arum was very abundant; the root was crushed in a mortar, and then stirred in water, which was afterwards strained off. The remainder was then again washed and dried, the yield being about four pounds of flour to a peck of corms. The repeated washing was necessary in order to dispel the acridity of the root, which is very considerable, and not removed by several hours' boiling. Some advocate the drying and subsequent grating of the root, the water in which it is subsequently soaked being strained off, as in the previous method. According to Pallas, the flour from the Arum roots enters largely into the food of the Lapps and Finns. At one period the collecting of Arum roots for the London dealers was the regular occupation of some of the Portland islanders. As recently as 1797 the Society of Arts granted a gold medal to the preparer of a sample of starch from the tubers of the Arum. The powdered root also formed an important ingredient in the French cosmetic called Cypress powder, which was said to be both harmless and efficacious; and Ray mentions the use of a lotion for similar purposes prepared from the roots. In severe winters the handsome scarlet berries are eaten by birds; and White, of Selborne, says that thrushes will even dig up and eat the roots.

The Arum is almost exclusively a European plant, being widely distributed throughout the Continent, and extending into Algeria. The structure of its flower is at first sight puzzling, but a little investigation renders it easily intelligible. A considerable development of heat in the spadix at the time of expansion is one of the more remarkable phenomena presented by the Arum; in our British species it does not exceed from seven to nine degrees that of the surrounding atmosphere, but in some foreign members of the order the development of heat is much greater. *B. M.*

New Garden Plants.

Iris (Pogoniris) rubro-marginata, *Baker, n. sp.**

This is a well-marked new species of the fugacious-flowered vernal Irises, cultivated in the collection of Herr Leichtlin, from the neighbourhood of Scutari, where it was gathered by M. Barbey, of Geneva, the son-in-law of the distinguished botanist, Boissier. The specimen from which these notes were made was sent by him to me by post in the first week of April of the present year. In its long tube, and the shape of its two rows of perianthial segments, it is most like Iris pumila, but in other respects (the size of its flowers, and the fact that there is a pair of them, one following the other in expansion) it agrees with pseudo-pumila and nudicaulis. The flower, though large, is not at all handsome, and in all these the flower is too fugacious for them to be general favourites, when there are so many other species in which it is fairly persistent. The most striking note about it, from the horticultural point of view, is the red edge of its leaves and spathe-valves.

Whole plant, when flowering, not more than 4 inches above the surface of the soil, quite glabrous. Leaves ensiform-falcate, not at all glaucous, green, with a distinct red edge, 2—3 inches long at the flowering time, ½ inch broad. Flowers two to a root, one expanding after the other. Stem absolutely none, the ovary being placed direct on the crown of the root-stock. Spathe-valves lanceolate-navicular, reaching quite to the top of the tube, 2½—3 inches long, 1—1¼ inch broad, green and almost herbaceous in texture, acutely keeled, and both keel and edges with a distinct red-purple line, like the leaves. Ovary oblong, green, ⅙ inch deep; tube 2 inches long, green, tinged with lurid purple in the upper half; limb 2—2¼ inches deep, a uniform lurid purple; segments of both rows oblong-spathulate, the falls with a reflexed limb as long as the claw, which is ⅔ inch broad, eroso-dentate at the tip, and bearded down the lower half of the face with a row of purple hairs; the standards erect, an inch broad at the middle; stigmas an inch long, the same colour as the perianth, the recurved points deltoid, small, and little-toothed. *J. G. B.*

New Hybrid Hellebores.

M. Heinemann, of Erfurt, has sent us a box of flowers of crossed seedling varieties of Hellebore raised by him. These were first mentioned in our columns in 1874, vol. i., by Professor Koch, but we have not previously had an opportunity of seeing them. In colour they vary from purple to greenish white; many of the latter flowers are sprinkled with pink dots (fig. 108), which give a very striking appearance to the flowers. Some of the sepals are fringed, while in other flowers the tubular petals (formerly called nectaries), instead of being in a single row, are in two or three series. The flowers then show a tendency to become double, and we may predicate, from the results before us, the introduction of a new and distinct race, valuable for their beauty and botanical interest.

Fig. 108.—Hybrid Hellebore.

Odontoglossum præniteus, *n. sp.**

This is a most interesting addition to our knowledge of Odontoglossa. The flowers are smaller than those of O. triumphans; the petals very wavy, both sepals and petals beautifully shining, of a bright yellow colour, with much more sulphur and less orange than the above-named species, and with a few large maroon spots. The claw of the lip is white, its anterior part bright yellow, with a cinnamon bilobed spot in the centre. Accustomed as we are to see natural mules, I had to see whether I could find any traces of such descent; I presumed O. triumphans and tripudians might be the parents, but nothing would have then explained the novel shape of the lip, recalling the old Miltonia cuneata. Hence I must give up any suspicion about the loyal descent of the plant. It may prove as good a species as O. nevadense. The shining clear colours are very meritorious. This plant was collected in New Granada by Mr. Gustav Wallis for Messrs. Veitch, who kindly sent it for inspection. A young bulb has two peduncles, just as O. luteo-purpureum has. *H. G. Rchb. f.*

Anthurium Patini, *sp. nov.*†

A handsome Anthurium, with dark green lanceolate leaves and erect flower-stalks, bearing spreading

* *Iris (Pogoniris) rubro-marginata*, Baker, n. sp.—Vernalis, acaulis, foliis parvis ensiformibus viridibus rubro-marginatis; floribus geminis perfecte sessilibus; spathæ valvis maguis lanceolato-navicularibus rubro-marginatis et carinatis tubo æquilongis; ovario oblongo sessili; tubo bipollicari, limb, segmentis luride violaceis omnibus oblongo-spathulatis exterioribus facie barbatis, interioribus erectis reliquis latioribus.

* *Odontoglossum præniteus*, Rchb. f., n. sp.—Pseudobulbis oblongo-triangulis ancipitibus, medio tandem tricostatis; folio terminali ac foliis fultientibus ligulatis acutis; racemo pluriflore; sepalis tepalisque oblongis acutis; labello basi utrinque angulato ungue lineari subito in laminam hastato-rotundatam denticulatam crispam dilatato; carinis geminis apice acutis basi confluentibus a basi in discum; callis acutis geminis extrorsis utrinque; columna trigona medio angulato, alis rhombeis.—New Granada.

† *Anthurium Patini*, Mast., sp. nov.—Caulibus cæspitosis, assurgentibus; foliis vaginantibus lanceolatis basi apice que acutatis, 7-nerviis; pedunculis folia æquantibus vel superantibus; spatha aperta patente oblonga longissime acuminata albida nervo medio viridi percursa; spadice erecta cylindrata nutra spatham persistentem breviter stipitata eaque breviore; floribus 6-meris.—*Anthurium Patini*, hort. Williams; Columbia ubi legit Patin.

oblong acuminate white spathes, traversed by a green midrib. The spadix is shorter than the spathe, and densely covered with green-tipped flowers.

The contrast of the dark foliage and green striped spathe is very striking, and the greenish spadix is also noteworthy. Remembering what a poor thing A. Scherzerianum was on its first introduction we venture to anticipate that this plant (fig. 109), striking as it already is, will become more so as the plant gets more cultivated. It is, we believe, a native of Columbia, whence it was introduced to Mr. Williams' nursery by M. Patin.

The stems are tufted, about 2 feet in height. The leaves are provided with stalks about 6 inches in length, the lower portion being sheathing and membranous at the edges, the upper portion is compressed sulcate, provided at the top with a short thickened geniculus. The blade of the leaf measures about 6 by 1½ inches, is sub-membranous, glaucescent, lanceolate acute at both ends, midrib prominent beneath secondary lateral nerves distant, tertiary nerves smaller, closer, all arching from the midrib to the margin. Peduncle as long or longer than the leaf, erect, slender, sub-compressed, spathe 2½ by ¾ inches and upwards, flat spreading, persistent, sub-coriaceous, oblong, acute at the base, acuminate at the apex, and traversed by a green midrib ; spadix shortly stipitate within the spathe, 1½ inch long, cylindric obtuse, as thick as a swan-quill, densely covered with hermaphrodite, 6-merous flowers ; perianth segments oblong truncate, hooded at the top, whitish beneath, green above ; stamens opposite the perianth segments, filaments flat whitish, anthers whitish, with two parallel cells dehiscing longitudinally, pollen elliptic ; ovary truncate, oblong 3-sided, with a sessile cushion-like stigma, 4-celled, with 1 (or 2?) erect anatropous funiculate ovules, arising from the base of each. The 6-parted flowers are unusual. The walls of the ovary are remarkable for the numbers of very large branching cells which they contain, similar to what are found elsewhere among Aroids, but so far as we have observed not to the same extent. *M. T. M.*

Fig. 109.—Anthurium patini.

THE LANCASHIRE OPERATIVE BOTANISTS.

In the columns of the *Gardeners' Chronicle* on two or three occasions some particulars have been published respecting the Lancashire botanists in humble life, and their long-standing and earnest love of plants. Much remains to be stated, alike as to their beneficial influence upon horticulture and upon the temper of the particular communities in which the various societies have their centres. The devotedness of these men is not only interesting in itself, it has been remarkably efficacious as an example to others. Incredible as it may appear, there are at this moment in the Manchester district no fewer than fifty independent societies definitely organised and holding regular meetings. Among the chief of them are the societies at Ashton-under-Lyne (sixty members), Tyldesley (forty members), Miles Platting, Padiham (sixty members), and Whitefield, near Prestwich, the meetings of which last are held at Besses o' th' Barn, once the abode of the celebrated handloom weaver, John Horsefield, for many years the leading botanist of the county, and a man whose acquaintance, thirty-five years ago, it was a pride and delight to possess. The Whitefield Society is possessed of a good library and herbarium. In addition to the fifty well-established societies, there are many smaller associations, less methodically constituted, but the members of which are as active as their brethren, and find, in their simple field botany, recreation at once permanent and substantial. As far as can be distinctly ascertained, it is now rather more than ninety years, say close upon a century, since the original society, the Adam of all the existing ones, was set on foot. It was established at Eccles shortly after the publication of that famous old book, Dr. Withering's *Arrangement of British Plants*, now nearly forgotten, but in its time inestimable, and which incited thousands to the study of our native flora. As with many other societies, in course of time the old Eccles Club was succeeded by a progeny of younger ones, several of which may be considered the immediate parents of the confederacies now existing. Botany since 1780 has moved forwards in South Lancashire like the concentric ripples on a sheet of smooth water. In those beautiful undulations we have the truest picture this world affords of growth from small beginnings.

Curious is it to note at the same time how the manufacture of Cotton, and the botanical and horticultural tastes of this neighbourhood have advanced *pari passu*, since it was only in 1770 that American Cotton was first brought to England, and only in 1789 that a steam cotton-spinning engine was first erected in Manchester. The expansion of the love of plants in and about Manchester, as most people in-

terested in horticulture are aware, has not been confined to the artisans; it has shown itself, with corresponding conspicuousness, among the wealthier, though not more zealous classes. The *modus operandi* of the societies is simple enough. They explore every nook and corner of the adjacent country, hunting out its productions, determining the species with minute accuracy, and learning the names, but not attempting much in the way of physiology, except when incidental. As a rule they appear indifferent to the lower Cryptogamia. But in mosses and Jungermannias the knowledge of many of the members is often astonishing. For ready reference in the matter of plant names there was printed at Ashton-under-Lyne, many years ago, "A Little Guide to Botany," price one penny. In addition to Withering, the patriarchs of the societies made considerable use of old Galpine, the volume being more portable, and of another once celebrated English Flora, the guide compiled by Dr. Hull, himself a Manchester botanist. Being constituted of harmless, peaceful, and consistent men, bent only on plant-finding, the societies very generally have the privilege granted them by the large landowners of traversing moors and other portions of property preserved for game, and to which no one else can obtain access. Hence, whenever a gentleman desires to visit some particular spot forbidden to all, with the object of seeing some rarity or curiosity in its natural habitat, he is glad to seek the kindly aid of some member of the local society, whose passport will go anywhere, and neutralise the most terrible of keepers, though these, upon the whole, are friends rather than foes. The excursions, of course, are controlled by circumstances, and are generally made by parties of only three or four. In addition, from time immemorial, there have been regular monthly indoor meetings, held upon Sunday afternoons, or more generally, perhaps, on Sunday evenings.

No doubt it would be more in harmony with the established theory of the Sabbath, if the meetings took place on week days. But with 999 out of every 1000 working-men, to insist upon this would be to put a stop to the meetings altogether. Beginning work at 5 or 6 A.M., exhausted when they finish, and probably soiled from head to foot, they are in no very fit state of preparedness for the enjoyment of science on week-days. Sunday is the only time when these worthy men can assemble, either with comfort to themselves or with nervous energy enough to do one another good; and it is no little credit to them, as well as a compliment to botany, that they decline to approach the Lady Flora except in their Sunday clothes. Silly and degrading and vicious entertainments, and the public-house, do not require that a man shall be either clean or intellectually receptive and communicative: noble and commendable pursuits require that body and mind alike shall be unfatigued. Besides, only the very prejudiced would make objections to the reverent study of God's works on the Sabbath. Were the Sunday meetings to be forbidden by law there cannot be a doubt that botany would disappear from among the Lancashire operatives, their wholesome and kindly influence would die clean out, and the change would certainly have a bad moral effect. They are no worse than reading a Monday morning's newspaper, the editors and compositors of which have had to stay away from church in order to get it ready. Being held on different and specific Sundays the meetings allow of much pleasant reciprocal visiting, and brotherly fellowship is constantly encouraged. The aggregate number of meetings in the course of the year, including the annual meetings, amount to little short of 700, the total quantity of work done must therefore be immense. Every one who attends a meeting brings what he considers curious or novel. At a fixed hour it is the duty of the president to name the plants exhibited, and the remainder of the time is spent in conversation. Many of the members of the different societies have little gardens, crowded with rare plants, chiefly British. From some of these it is that there are sent for sale in the Manchester flower-root market such uncommon plants as Veronica saxatilis, Ajuga alpina, Draba aizoides, Antennaria dioica, Meum Athamanticum, my first acquaintance with all of which, and with many more of the kind, was first made at the stalls of these rustic cultivators, or at all events at those set out by their fathers. Rare herbaceous exotics are also extensively cultivated. In the Manchester root-market years ago I saw for the first time and purchased *con amore*, Ramondia pyrenaica, Ranunculus amplexicaulis, Hordeum jubatum, and a score of others of kindred description. The gardens are owned chiefly by men who earn their livelihood in or in connection with cotton mills. It must not be supposed, however, that there are operatives of no other class in the societies. Collieries, foundries, and other scenes of hard and subduing toil furnish their contingents; one of the most distinguished of the present generation of Lancashire botanists is employed at a dye-works, another of rare promise is a journeyman painter, and a third—an honoured old leader, formerly engaged in a mill—is now the village postman. Many of the societies are united in a kind of loose federation—once a year endeavour is made to have a grand gathering of representatives of the whole. Subordinate annual meetings are likewise held of the local federations, and one of these it was, held in Ancoats, a suburb of Manchester, on the 11th inst., which suggested the writing of the present sketch. The report on this occasion, duly read by the secretary, consisted simply of a record of quiet, painstaking, and industrious effort; of rising at daybreak so as to secure a ramble without trenching on the time for earning wages, and of the successful "finds" of the season. The cash account lay in a nutshell. Honest, straightforward, faithful in every particular, the unanimity and whole-heartedness displayed from beginning to end were most delightful. Would that the same could be said of every other annual meeting! *G., Manchester, April* 16.

A REVIEW OF THE PROGRESS OF VEGETABLE PHYSIOLOGY IN 1874.

(*Continued from p.* 494.)

The Colouring Matters of Plants.

The last important work on the constitution of chlorophyll was published by M. Krauss in 1872: he inferred the existence of two colouring principles—xanthophyll and cyanophyll, which, by their mixture, produce the green colour we are familiar with. This hypothesis was partly based on the fact that superposition of the spectra of these two substances reproduces the spectra of chlorophyll with its characteristic absorption-bands.

M. Pringsheim has been studying the subject, and has arrived at somewhat different results. He affirms that the colouring principle of chlorophyll is single, cannot in any case be divided into two, and only undergoes certain transformations, according to the conditions of illumination. This theory is mainly based on the fact, that in the different solutions—yellow, blue, or green—the author always found all the bands of absorption that are characteristic of the chlorophyllian spectrum. It is only necessary to employ liquid layers of sufficient thickness and concentration.

Examining, *e.g.*, the alcoholic extract of etiolated plants (which, according to M. Krauss, contains only xanthophyll), M. Pringsheim has found in it, quite distinctly, the seven spectral bands. Only while a layer 94 m.m. thick of the green solution (normal chlorophyll, mean concentration) was sufficient to yield them, the band III. (the least visible of all) appeared in the yellow solution only with 370 m.m. thickness of liquid. The same with fluorescence, which M. Krauss denies to his xanthophyll, but which M. Pringsheim has observed quite clearly. If we retain the theory of co-existence of two colouring principles, it will be necessary, in order to explain these observations, to suppose that a certain proportion of cyanophyll had already been developed in the darkness, and that the action of the light was limited to modifying the proportions of the mixture. But none of the means indicated for producing dissociation of the chlorophyll had the least effect on the yellow solution; moreover a slight difference in the position of the first bands would oblige one to conclude that the cyanophyll of the etiolated plants is not the same as that of normal plants. In view of these contradictions M. Pringsheim considers the other hypothesis much more probable. He thinks, then, that the colouring principle of etiolated plants is only a modification of normal chlorophyll, to which he proposes to give the name etioline.

In his attempts to separate the green solution into a blue and a yellow (*e.g.*, by means of benzine), M. Pringsheim says he has found it impossible to prepare a yellow solution, which, examined in suitable conditions, did not present all the absorption-bands, and therefore no longer contained chlorophyll. It was the same with a blue solution. Further, if cyanophyll be a substance really existing in the green matter of leaves, how is it that a green, very dilute, alcoholic solution (or employed in thin layers) does not give all the absorption-bands, but only those which are specially attributed to xanthophyll?

The differences between the blue and yellow solutions may be explained by the degree of affinity of each solvent for the colouring matter, by the degree of purity of the solvent itself, &c. In every case each of the two solutions contains true chlorophyll, and not merely one of its elements.

The colouring principle of yellow plants (anthoxanthine) is closely allied to etioline; solutions employed in layers sufficiently thick give the absorption-bands. It is not a principle uniform in all flowers, but rather a series of substances, the first of which is closely related to chlorophyll, whereas the last is considerably removed from it; still the band I. is always found most characteristic of all. The autumnal yellow colour of leaves is also derived from chlorophyll, as its spectrum proves, which is, however, distinguished by a marked weakening of certain rays (xanthophyll).

M. Pringsheim, then, considers chlorophyll as a unique colouring principle, beside which there are three other principles of similar constitution, etioline, xanthophyll, and anthoxanthine; the first precedes the appearance of chlorophyll, the second succeeds it; they are perhaps also found sometimes mixed together, and then the green solutions may indeed contain a yellow principle, but this is not a constituent part of chlorophyll.

M. Wiesner had already taken a step in the same direction as M. Pringsheim, in suggesting the idea that the cyanophyll of M. Krauss is no other than chlorophyll, of which it has all the important characters. The same author has shown that benzine is not the only neutral substance which may be employed for these observations, but that others, such as sulphuret of carbon, chloroform, and castor oil give quite similar results.

M. Wiesner has also studied the action of light in conservation and destruction of the colouring principle. He has brought forward two interesting considerations. 1. Etiolated plants become green more quickly when they are exposed to the more refrangible rays of the spectrum than when they only receive the bright rays. This may be explained by supposing that the plant is always the scene of a double action; production of green matter and its destruction, which advances equally with the phenomena of assimilation. It is the yellow and adjoining rays that preside over the latter operation. The green colour which we see in plants is only the difference between these two opposite actions, and when the blue rays, which have hardly any action on carbonic acid, act alone, the coloration of the tissues progresses more quickly. 2. The destruction of the colouring principle of chlorophyll is always connected with the presence of oxygen, and is only effected by the luminous rays which act at the same time in the decomposition of CO_2. It is natural, then, to think that a part of the oxygen which the assimilation of carbon has set at liberty serves for oxidation of the grain of chlorophyll itself. The phenomena, of which the latter is the scene, are very complex, and it is not correct to conclude directly from the quantity of oxygen eliminated to the nature of the organic substance produced.

M. Chautard has for some time been engaged in researches as to the modifications of the spectrum of chlorophyll under certain agents, such as alkalis, sulphurised substances, &c. These modifications are all reduced to the appearance of new lines or the decomposition of characteristic lines, and though very interesting as regards chemical analysis of solutions of doubtful origin, they have no very direct bearing on vegetable physiology, properly so called.

M. Filhol some time ago indicated a method for obtaining in the alcoholic solution of chlorophyll a precipitate by means of hydrochloric acid. This precipitate collected on a filter is almost black, while the liquid is yellowish brown. Renewing these observations, the author has remarked that the chlorophyll of dicotyledonous plants gives a pulverulent amorphous precipitate, while that of monocotyledons gives one that is crystalline. The crystals take the form of small needles gathered into tufts. Their solution varies in colour; it is brown-yellow in ether or benzine, yellow and fluorescent in sulphuret of carbon, and violet in chloroform. The absorption-bands are similar to those of chlorophyll. This fact is entirely new; hitherto observations have concurred in showing the perfect identity of chlorophyll in all plants, and the subject deserves to be thoroughly investigated.

We have still to notice some interesting observations on chlorophyll considered in living plants. M. Krauss has studied the winter coloration of evergreen plants; he has not arrived at any general conclusions, but enumerates the following cases:—1. In the Gramineæ the state of things appears to be the same in winter as in summer. 2. In herbaceous plants (Bellis perennis, Stellaria media, &c.) the grains of chlorophyll of palissaded cells accumulate irregularly in the middle of the cell; the others do not change their places. 3. In plants in which the cell contains in winter small masses of tannin, the grains of chlorophyll accumulate irregularly along the walls; in the palissaded cells they occupy the inferior half of the cavity (leaves of Mahonia, Ledum, bark of branches of Oak, young Elm, Lime tree, &c.) 4. In branches, the cortical part of which does not contain tannin, the chlorophyll is grouped round the nucleus (Ribes, Lonicera, Sambucus). 5. Lastly, in certain isolated cases, the grains are scattered in the cells without apparent order (branches of Ash, leaves of Lavender). These modifications are directly due to the influence of the cold; all the movements of the grains of chlorophyll were effected in four days—from November 7 to 11, 1873—at the time that the frost appeared.

M. Batalin has studied the æstival discoloration of certain plants. The Conifers especially are remarkable in this respect. In many of them, under the influence of a too ardent sun, the branches grow yellow, and the cells of the leaves come to contain only yellow grains of chlorophyll surrounded by colourless protoplasm. This effect is quite local, and

while the upper face of a branch bears yellow leaves, the lower, withdrawn from the sun, will remain quite green. Sheltered some days by a screen, the leaves will resume, if the temperature be sufficiently high, their normal colour. The yellow colour may persist during the whole summer, and then during winter the temperature is too low for greening to be possible; it does not appear till spring. The same leaf may be discoloured several times without suffering. It is especially exotic Conifers that have presented this phenomenon (Chamæcyparis obtusa is the subject most favourable for the observation); but the author also observed it in several indigenous species (Juniperus communis, Picea excelsa). It is to be remarked that the branches which have reached autumn without having recovered their green colour are much more apt to suffer from frost in winter.

Lastly, M. Prillieux has studied the movements of chlorophyll in Selaginella exposed to the sun. S. Martensii, in particular, presents, in the cells of the superficial layer of its leaves, an amorphous chlorophyll which uniformly covers the upper wall. Under influence of the solar rays a white spot presently appears in the centre of the cell; the protoplasmic mass is set in motion, goes along the walls, and finally is applied to the lateral wall, leaving the upper face completely free. The general colour of the leaf then diminishes in intensity.

In Elodea canadensis the grains of chlorophyll accumulate similarly at one point of the wall, under influence of the solar rays. M. Prillieux does not think that their transport can be attributed to protoplasmic currents that one observes in the cells; these he considers accidental, and due to the disturbance produced in section of the leaf.

PLANT GOSSIP.

Cultivators of Celosia pyramidalis and its varieties are frequently found complaining that the young hearts are apt to throw a small comb, and this leads them to infer that the strain is bad, and they throw the plants away believing them to be unworthy further trouble. But it must not be supposed that because the plants develope the small and insignificant comb in the young state, they are not worthy a farther attempt; and if for the future the growers would content themselves with pinching out the small combs, and encourage the plants to make a vigorous growth, they will be surprised at the result and at the quality of the strain. It is a fine decorative plant for late summer, and the wonder is it is not more generally cultivated. If the seed be sown in April on a gentle bottom-heat, and treated as one would the Balsam, the result will be satisfactory. One great point in the cultural process is to occasionally stop the other shoots by pinching them back, so as to produce bushy plants of vigorous growth. The Celosia is a Cockscomb that has shot up and producing heads of elegantly feathered plumes, and of these the yellow carmine, crimson, and silver are very attractive.

—— In order to appreciate the decorative beauty of the new race of Fancy Polyanthuses, they should be seen growing at Castle Ashby, Northampton, the seat of the Marquis of Northampton, in many semi-wild spots and woodland ways. Mr. Beech, the gardener at Castle Ashby, makes spring gardening a prominent feature during the spring months, and the gardens have a high reputation for this feature of modern gardening. But, in addition to the ordinary flower-beds, there are many nooks and corners profusely aglow with floral life in March and April, in which the free-blooming Polyanthuses play an important part, with some charming common Primroses bearing them company. They are planted out in big clumps and patches in cool and inviting spots, and, flourishing in a congenial soil, they grow vigorously, and send up very strong flower-stems, surmounted with umbels or trusses of immense high-coloured flowers. Numbers of these flowers are in constant requisition for decorating the dining-room tables at Castle Ashby, and, in addition to their affording bright and attractive hues of colour, they emit a most agreeable and sweet perfume.

—— A golden-leaved form of Valeriana, probably a sport from N. officinalis, is now a very showy and striking object in one of the hardy perennial borders at Chiswick. It is also very telling at South Kensington, where Mr. Barron employs it along the Rhododendron beds in the Royal Horticultural Gardens. It is a plant worthy the attention of spring gardeners, as its foliage assumes its best tint in early spring, and retains it up to May, when it turns green. It is a good subject for the mixed border, because the golden foliage blends well with the spring flowers; and it blossoms in June and July, thus affording a second period of decorative service.

—— A fine example of the Chusan Palm (Chamærops Fortunei) can be seen growing in the open ground at Gunnersbury Park, Acton, the residence of Baron L. de Rothschild. It is thought to be one of the finest specimens to be found planted in the open air in this country, as the dimensions of the plant are remarkable. It occupies a somewhat moist position on the south-west side of the mansion, and below the level of the ornamental water. It is protected during the winter by a tent of mats, and now it is uncovered it presents no trace of injury from the severity of the past winter.

—— On the rockwork at Kew several plants of Primula cortusoides are producing a lively effect. The rose-coloured flowers are very pretty, and quite distinct from the reputed varieties, which, though much larger, should not be permitted to drive the species from alpine collections. P. nivea, sometimes known as P. nivalis, is also in flower, and is one of the most beautiful and easily cultivated of all. P. carniolica is now very attractive. It is interesting to see, after the past winter, that the delicate and rare Omphalodes Lucilæ is alive, and commencing to grow.

—— The charming Violet, which has on two or three occasions come before the Floral Committee of the Royal Horticultural Society as an improved form of Devoniensis, and which was shown by Mr. C. Turner under the name of Lady Hume Campbell, is so nearly, at least, identical with one known as Marie Louise, that it cannot be recognised as a distinct variety. Several who are growing the latter unhesitatingly pronounce it to be the same. It is a beautiful variety for flowering at this season of the year; the blossoms are large, very double, lavender-blue in colour, with a white centre, and are produced with great freedom. It is a continuous flowerer, and has a close and compact tufted habit of growth.

—— Prunus triloba makes a great display every year on one of the walls at Kew, and this season is, perhaps, more beautiful than ever. The tree on every twig is studded thickly with fine double flowers like little Roses, and being in different stages a variety of colour is presented—the younger buds are dark pink, and the older buds almost white. It is best to manage the tree by allowing some of the shoots to retain the natural position of their growth, and to defer the final pruning to a week hence; there is then the greatest possible display of bloom. It is one of the best of its allies to force for the conservatory.

—— The great freedom with which Primula intermedia flowers at this season of the year commends it to the attention of all lovers of hardy Primulaceæ. We have seen a plant scarcely more than 3 inches across, growing in a 48 pot, bearing eight trusses of its deep-hued rosy-purple flowers, two or three of the trusses carrying as many as sixteen individual pips. It may be said to immediately succeed P. nivea, and, like that species, if kept in the shade, the flowers will last for a considerable time. It is a plant that should be allowed to well establish itself when grown in pots, top-dressing it from year to year, until the size of the plant requires more roomy quarters in which to develope itself.

—— A fine plant of Fuchsia Dominiana can be seen in one of the greenhouses at Chiswick House, originally planted out for the purpose of training it over the interior surface of the roof. Mr. Edmonds states, however, that the training process appeared to be so distasteful to the plant that it did not flower. It was then allowed to grow at will, spreading out its branches freely and in any direction that suited it. The effect was remarkable; it blooms with great freedom on the untrained shoots, and it may be said to be never without flowers, though they are only sparingly produced at this season of the year, as might be expected.

—— Glancing over the herbaceous collection at Kew we observe the following that deserve mention: —Sanguinaria canadensis, the Blood-root, is in great beauty, from the profusion of its large, pure white Anemone-like flowers, and is indispensable to the spring collection. Muscari botryoides pallidum exhibits a pale porcelain-blue, forming a fine contrast with the darker blue and pure white forms. Among the Erythroniums are E. americanum, with flowers of golden-yellow, and E. giganteum, with creamy-white. The leaves of the former somewhat resemble those of E. dens-canis, for which it is a good companion plant.

—— A good useful single yellow Hyacinth, named Alphonse Karr, pure in colour, and forming a good spike, is much grown by Mr. A. F. Barron, at Chiswick, for decorative purposes. Good as it appears to be, it does not seem to have found its way into the bulb catalogues of this country. It is cultivated by Messrs. E. H. Krelage & Sons.

CARNIVOROUS AND SENSITIVE PLANTS.

In the hard frost which we experienced in the past winter there was something to be learnt of the behaviour of certain plants under its influence. In the hoar-frost, the exposed edges of the evergreen leaves had an elegant fringe of lace added, not niggardly, but profusely, as if the new year had made himself a nuptial robe worthy of the occasion. Every twig and thorn had holiday attire, and the long bare shoots of the autumnal Roses seemed to fringe their shrouds with silver, grand even in decay. But it is not to the beauties of the plants thus clad that I would now beg leave to direct attention, but to the movements of the Rhododendron leaves, suiting their position to the action of the weather. When the hard frost comes on, instead of the leaves stiffening where they stand, they do just the reverse, and every one with supple joint drops some 50° or 60°, thereby exposing the smallest surface to the storm, just as a skilful general would command a drop, that the enemy's fire might go harmlessly overhead. But this is not all, for as soon as the thermometer shows a rise in the temperature, the Rhododendron leaves take notice of the fact, and raise themselves up to meet the thaw, just as they had dropped to receive the frost, and all the while the earth was a lump of ice where the roots of the plants were locked up. We wonder to see the Mimosa drop its pinnæ first, and then its footstalk, and raise them again at its leisure; but we do not give the Rhododendron its due, for who would call such a shrub sensitive? Yet here is the evidence of its rising and falling, and that by a power and an influence exerted contrary to the natural law, which renders the foliage exposed to frost rigid. If we take a Cabbage leaf, and bend it in frosty weather, it will break short; but who would have imagined, *à priori*, that the leathery leaf of such a shrub as the Rhododendron would have behaved in this way by having its petiole hinged so as to rise or fall full 50° to meet the emergency? Many alpine plants seem to be improved by a mantle of snow, and as soon as the snow has disappeared the green cushion shows its lovely contrast to all the death and ruin around; and many succulent plants, such as the Houseleeks, that one would expect to find in ruins after a visitation of frost and snow, seem to be preserved equally contrary to the natural law which should have ruptured every watery leaf that was above-ground, just as we see to our cost that tender shrubs are ruptured and killed.

I see that we are promised a monograph on the insectivorous plants—Sundew, Venus' Fly-trap, Pinguicula. It may be as well to prepare the reader for this coming storm—this trial by jury, where certain plants, hitherto of fair reputation, have to be acquitted or condemned for carnivorous propensities. Now, without forestalling my superiors in their argument, let me hint that I have known all these plants for at least thirty years, and their natural irritabilities and power to draw themselves up when tickled, and I have grown Sundews under glass in the sphagnum on which Orchids were planted, and I have sent by post many Droseras from the peat bogs around Manchester, where I have seen thousands of all ages, in flower and in leaf, evidently in the best of health; and having plenty of peat soil, water, and sphagnum, they grew, flowered, and seeded, leaving nothing to be desired.

But, some one will say, did you never see any of these plants more robust than their fellows, with their arms full of the wings and legs of departed flies? Gentle reader, "Carrion and coarse fare did not please them full as well," and I should just as soon have looked for a condor eating flesh on Carrington Moss as the elegant Sundew. There is a class of plants that have not till lately been blamed for feeding on insects, but which are beyond all doubt treacherous slaughterers, and these are the Sarracenias and all the Pitcher-plants: only look into their pitchers and you will find them fair enough without, but dark and dismal within, and many a score of ants, some in their agony and others dead and far gone in decay. When I first saw the subject of the Sundew being carnivorous mooted, I considered it a sensational ruse, and made light of it, supposing the author to be rather pressed for point to his pamphlet, but able hands seem to have taken up the cause, and would fain convince us that in the fair face of Flora there is a pit for dead flies, and, in short, that such fly-traps are guilty of premeditated cruelty: for what else could they mean by opening their jaws to catch the unwary insect, and worry it at their leisure?

Far be it from me to hinder the birth of new ideas, especially those which are said to throw light upon the relations of the animal and vegetable kingdom, for it is a law with very few, if any exceptions, that the animal kingdom has always been the aggressor on the vegetable—not, as is now sought to be set

up, by confusing irritabilities with accident, that a plant which is perfectly passive has become all at once an active butcher. Now, if science is to be exact, and this is never more necessary than in botany, we ought to have no romantic ideas introduced like those we have happily left, such as the efficacy of the Fern seed gathered at the wane of the moon, or the marvels done by the forked roots of the Mandrake. Many plants are of no known service to either man or beast, and many that I could name seem only created to confound our ideas and foregone conclusions, for many plants are playful, as it were, and others are grotesque. Thus we can see no reason for the heads and tails of many Orchids, the monkey's face in the Cocoa-nut, and the two sham outlets beside the real one for the milk to flow out of. [If our correspondent had studied the ovary or unripe seed-vessel, he would have seen the meaning of this. Eds.] The agency of insects in the fertilisation of flowers, upon which so much stress has been laid, is only one more example of the fitness of the machinery by which the work of the world is done. Where a mere shake in the wind will fertilise, as in grasses, nothing else is provided; but where a carrying process is required from the male to the female flower, then there is a winged messenger provided to carry the dispatches, and a sop in the shape of honey to pay him for his pains. But although this is a general law, it is by no means universal, for some like the Fig have a mode of impregnation after its own kind; while some have the male and female organs on different plants, as if they had made an unhappy marriage, and gone through the Divorce Court. No one disputes these ideas, because they are borne out by facts and every-day observation; but who can say with truth that a Drosera could pick a bone like a yard dog and digest the carrion; Dionæa may still be Venus' fly-trap without being her charnel-house; and as for Pinguicula doing that kind of business, judging from its locality, it would seldom have the chance, and would always lack the ability. When the leaves of some succulents are put in a saucer of sand to strike as cuttings, some small pebbles are sometimes put to keep them in their places, and they will curl up towards the pebbles, but no one supposes that they mean any harm to the stone that holds them down. *Alex. Forsyth.*

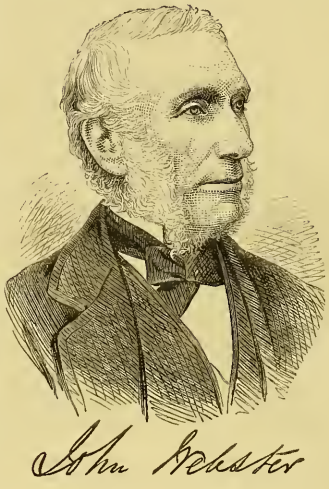
BRITISH GARDENERS.—XVI.

John Webster.

Our gallery of portraits of British Gardeners is this week enriched by that of Mr. John Webster, the talented gardener to the Duke of Richmond at Gordon Castle in the North of Scotland. Mr. Webster, in his autobiographic notes, informs us that he was born on December 8, 1814, at Blanerne, a small and beautiful estate on the banks of the Whiteadder, one of the lower tributaries to the Tweed in Berwickshire, where his father was then gardener to General Balfour, the proprietor. "In the autumn of 1817," he continues, "my father went to Manderston, about 3 miles distant, as gardener and general manager on the estate, in the service of General Maitland, father of the present Earl of Lauderdale. I received my education at Dundee, and having early formed a taste for gardening, was placed shortly after I was thirteen years of age to do light work in the gardens for three or four months during summer, when I again returned to school. I continued to do this until I was sixteen, when I went into the gardens for regular employment, and with the object of making horticulture my profession. As a proof that gardening was pretty well up at Manderston at that date, I may mention that several prizes for Grapes, &c., were gained at the shows of the Caledonian Horticultural Society in Edinburgh, the awards consisting of tea-pot, cream-jug, and silver spoons, with inscriptions upon each, and which are still heirlooms in the family. I left home about the age of eighteen, and went to Dalquharran Castle in Ayrshire, as journeyman, under Mr. David Dick, and remained there until November, 1833, when I went to Whittinghame, in East Lothian, under Mr. William Rintoul. The place was then in high keeping, and had a good range of vineries, Peach-houses, Pine-stoves, Pine-pits, &c. I derived considerable advantage during my services here from my having to assist in the laying-out of a new flower garden, of which I had the principal superintendence. I was three years at this place, the last one as foreman, and then took my departure in November, 1836, going to Claremont, in Surrey, as foreman in the houses of the fruit department under Mr. C. McIntosh, author of the *Practical Gardener*, who was then in the service of King of the Belgians. From Claremont all the Grapes and Pine-apples had to be sent during the summer and autumn months for the supply of the Royal table at Lacken.

"In the month of February, 1838, I went to Eartham, Sussex, as gardener to the Hon. Mrs. Huskisson, widow of William Huskisson, Esq., M.P. for Liverpool, who was killed at the opening of the Manchester and Liverpool Railway. My employer was a great admirer of Orchids, and during my long stay there, which was upwards of twelve years, I had an opportunity of getting together a choice collection. I was here successful in getting that shy-flowering Orchid, Renanthera coccinea, to produce fine large flower-spikes for a number of years in succession. On November 5, 1844, I was awarded a Silver Banksian Medal for one sent to the Horticultural Society's meeting in Regent Street; while on November 3, 1846, I had again a similar award for another spike, which was one of five borne on the plant at the same time. I am also in possession of a Gold Banksian, received for six Orchids shown at Chiswick on June 19, 1847, having been placed first out of seven competitors. These were the only occasions on which I competed in London.

"I then engaged with the late Duke of Richmond to take charge of the gardens and forests at Gordon Castle; and I also undertook to lay out for the Duchess a new flower garden in the Italian style, which had at that time been commenced. I came here on November 30, 1850. While carrying out the work of the flower-garden in an altered design, and completing it in its present form, which was the work of a number of years, I had the assistance of the late Sir Joshua Jebb, C.E., and also the guidance of the good taste of the Duchess, in deciding upon plans for the balustrades, fences, fountain, and ornamental work. The balustrading springs from each end of the Castle, which is 540 feet in length, and encloses a space 300 feet in breadth. The ornaments



on the principal piers are large classic dogs, and on others are deer in a standing position, while on all the intervening piers are placed vases of different sizes and forms. The central beds are raised and panelled with Portland cement, while to the right and left of these are two fountains, with walks 15 feet wide running towards each at four different points. The central walk, 22 feet wide, runs through the garden to a distance of 1150 feet, and is furnished at each side with a broad margin of grass, on which are placed alternately large Portugal Laurels in tubs, and large tazza vases on pedestals. This walk, which is nearly on a level, is terminated by a flight of stone steps of the same breadth, and margined by a stone balustrade fence, the design being different to that of the one that surrounds the flower-garden, which, although distant, may be said to be within it."

CARPET BEDDING.

Where hardy plants are used this is perhaps the easiest, certainly the cheapest, and possibly the laziest style of gardening. I would wish to raise a warning voice to amateurs on the subject, having felt the demoralising effect of the last superlative in myself, and therefore I can speak from experience.

I will not own how many seasons the following arrangement of a border and beds has stood. As all looked as well as possible, uninjured by any weather or season, we were thankful to let them stand, having in our small way always more trials, experiments, and work on hand in the garden than we can get through; and to have a border that required no digging, no manure, no time or labour, and yet to be filled with increasing and flourishing plants, is a temptation difficult to resist.

The border is 86 feet long and 5 feet 8 inches broad, exposed to the full sun, which is reflected oft a low wall at the back, and trees beyond the wall, which intercept rain, dew, and frost, and whose roots below the wall eat up all nourishment in the soil. In short, a very hot, dry and exhausted border, and suitable therefore for succulents, hoary and variegated plants. The whole is a carpet of Sedum acre aureum, margined at the back with a row of Sempervivum tectorum, and in front with S. calcareum, a narrow band of Sedum lydium forming a green line between the grey Houseleeks and the Sedum acre when it has got its yellow growth on. A line of purple Crocuses within the bottom verge completes the border in front, and behind the native Houseleeks is a row of Rosemary, which when first planted admitted of a variegated Pelargonium between each plant in summer, or a white variegated Kale in winter. Now, in spite of constant cutting for the inmates of the Royal Infirmary and the Blind Asylum, the Rosemary this winter will bear nothing between, so it is simply an aromatic spiky edge. In the carpet of gold Sedum are cut out sixteen circles of grey Sedum or Saxifrage, alternating with small Houseleeks, as Sempervivum montanum, &c., the object being that these rings show out of the carpet by colour or form, either when it is green or yellow. The circles are filled in summer with bright-leaved Pelargoniums which cannot have too much sun, and in winter with purple and lilac variegated Kale. In the flat piece of groundwork between each circle is a single good-sized plant of variegated tree Ivy, Cineraria acanthifolia, Yucca, or Aloe.

In summer a tuft of blue Lobelia was dotted at the four corners of the flat piece of gold Sedum, which in winter is replaced by Carex japonica variegata, Snowflakes, and Scilla bifolia. The Leucojum are in flower while the Sedum is still green, and the blue Scillas tell when it turns gold. This arrangement certainly requires the minimum of time, trouble, and expense, for the good effect it has. Some fresh soil of course is required before planting the summer plants, and the Sedums are cut into shape in spring, where they have encroached on rings or margins. When the plants on the wall—Roses, Chrysanthemums, Clematis, Smilax, Jasminum nudiflorum, Ampelopsis Veitchii—require pruning, training, or to be gathered, careful, steady footsteps do the Sedums no harm, rather otherwise, and weeds can hardly make their way through the consolidated groundwork.

The soil is so utterly dry and ash-like that Verbenas and Pelargoniums have stood the whole winter, and I have an idea that we might venture to leave out many a plant (or even plunge them for the winter in such a border) that would suffer or be killed in properly dug and worked ground, and this I fancy is the great advantage of the carpet-bedding, and one that admits of progress and experiment; at the same time the mere saving of trouble is such a temptation, and indeed so much of a necessity in many cases, that a warning voice must be raised, or it is possible that this fashion may end in a standstill—worse, as far as progress is concerned, than even the summer bedding when carried to excess led to.

The centre beds consist of a Yucca or variegated Aloe, centre plant, the Aloe replaced in winter by a Phillyrea or Box; groundwork of the common grey Sedum dotted with Carex japonica variegata, a ring of variegated Ivy, and edged with Crocuses. A few scarlet Tulips on the grey groundwork finishes off for spring. The groundwork of the opposite bed is the dark-leaved Ajuga orientalis fol. purpureis, dotted with Sedum spectabile, edged also with Ivy and Crocuses; and another pair of "lazybeds" are composed of a tender Cupressus (?) replaced in winter by a hardy evergreen and the Ajuga groundwork, dotted with Euonymus japonica aurea, and edged with Euonymus radicans variegata and Crocuses: when the dark blue flowers of Ajuga were in bloom these were charming little beds. The gold Euonymus has stood the winters of 1871, 1872, and 1873; it suffered in 1870, and my belief is that the drying effect of the groundwork has both kept up bright variegation (only one plant of fifteen having sported a branch back to green), and so checked gross growth that in spite of the late and wet season the plants were in a condition to resist the 13° of frost we had here last winter. We find a Sedum groundwork (a solid sod) saves us fully 6° of frost in the soil. We are near the sea, which often means no frost at all, and we can carry on our winter bedding work in such beds when we are stopped on uncovered ones. The roots and neck of the dotted plants are very considerably protected, and I think something useful and improving might be gained by experimenting on this system.

One other disadvantage of a Sedum groundwork, and I have done. A neighbouring walk (not much used) was so hopelessly dotted with the gold-tipped

Sedum that any hoeing or hand-picking merely broke and spread it, and we had to skin the whole walk, and have a complete new coating of fresh yellow ballast and thorough and repeated rollings. We flatter ourselves we are safe until next year. Such an accident can be avoided by using this inveterate Stonecrop on beds on grass, not on a border with gravel-walk.

It is our intention to lift and rearrange our little succulent border next spring, and collect there all our treasures in that department. The manure required to keep that border cool, and to feed plants of decent growth, would have gone far to supply us with Cauliflowers.

It is a wise plan to turn one's disadvantages into advantages, and there is no end of study, variety, beauty, and interest, in a succulent border, easy to grow, difficult to know, and quite distinct from mere lazy carpet bedding. *F. J. Hope, Wardie Lodge.*

A PALM GROVE.

The Palm grove which my sketch (fig. 111) illustrates, forms the central avenue of the Jardin d'Essai, or Botanic Garden, of Algiers. It is 1500 feet in length and about 30 feet wide. The Palms (Phœnix dactylifera) are fifty in number on each side, and are about 30 feet high; many of them are fine specimens, but some appear to have suffered a good deal from winter storms. Between every two there is a Dracæna Draco and a Livistonia borbonica alternately; the former are very fine, the trunks being nearly a foot in diameter before branching, and some of the Livistonias are also fine plants.

A beautiful perennial species of Convolvulus or Ipomœa, common in the gardens of Algiers, climbs up the two nearest Palms in the sketch, and its profusion of large blue flowers renders them very gay.

The effect of this unique and magnificent grove is very striking to European eyes, especially when viewed with the blue Mediterranean at the northern end, and never fails to astonish and delight the visitor.

The grove is crossed at right angles by an avenue of Bamboos of similar length, equally fine, and forming, from their dense umbrageous canopy of foliage, a striking contrast to the graceful feathery character of the Palm grove. Many of the canes, which grow in clumps, are very large, measuring 6 inches in diameter 4 feet from the ground, and are not less than 30 feet long. *W. L. B.*

Fig. 111.—Palm grove in the Jardin d'Essai, Algiers.

Foreign Correspondence.

Notes on Haïti.—The island of Haïti occupies an area of about eighteen millions of acres, and contains one million of inhabitants, or scarcely one-twentieth part of the population it could actually support. The surface of this island is irregular and mountainous, and beautifully diversified by hill and valley, forest and savanna, lake and waterfall. Along the coverts and in the valleys the surface soil is a deep black alluvium, with a subsoil of hard red clay or chalk. Upon the hills and mountain slopes a reddish clay prevails. The climate is damp and intensely warm in the lowlands, but in the highlands it is mild, equable, and more healthy than in any other country within the same degrees of latitude. The year consists of the two usual seasons of the tropics, viz., the rainy and the dry, both of which occur twice in the year, so that vegetation never ceases. The crops sown during the first rainy season are harvested in the succeeding dry season, when the ground is at once ready to receive a second crop. The splendid climate and fertile soil of Haïti produce a luxuriant and gorgeous vegetation, which is famed even in the West Indies for the beauty and variety of its forms. The vast primeval forests which clothe the mountains and valleys contain some of the noblest products of the vegetable world, and the countless gay flowers and blooming shrubs which stud the savannas attract no less by their extreme beauty than by the fragrant odours with which they fill the air. So little of the surface of the island is actually cultivated that it may be divided into two parts, forest and savanna. The lofty mountain ranges, which traverse the island from east to west, and the broad valleys, which intersect it in all directions, are clothed with dense forests full of magnificent timber and ornamental trees, whose value is scarcely known, much less utilised. The savannas resemble in many respects the prairies of North America, but, being studded with clumps of trees, and broken by low green hills, are less tame and monotonous, and have more the appearance of an English park. There are few native grasses, and the savannas are chiefly covered with Guinea-grass (Panicum maximum) and Bahama-grass (Cynodon Dactylon). The former, which was introduced by the French colonists in 1744, makes excellent fodder, and is generally cut three or four times in the year. The Bahama-grass forms a close, smooth turf, quite as beautiful as that of our famed northern pastures. The loveliest part of the savanna is unquestionably that which borders upon the forest. Here the foreground consists of an open grassy space carpeted with gorgeous flowers, and dotted with clumps of flowering shrubs, such as

Oleanders, Myrtles, Magnolias, and Laurels. Palms, isolated or in groups, meet the eye on every side; here is the beautiful form of the Royal Palm (Oreodoxa regia), with its ever-rustling leaves; there is a beautiful group of Dwarf Palms (Bactris minor), and here is the Cocoa (Cocos nucifera), with its slender trunk and handsome crown. Here and there lofty Ceibas (Bombax Ceiba) lift their lofty crowns high over the surrounding trees. Singular Tree Ferns alternate with elegant Bamboos (Bambusa vulgaris and Guadua latifolia). On every side are fruit trees, too various to enumerate, and either covered with gay blossoms or laden with luscious fruits. In the background towers, dark and gloomy, the primeval forest with its massive trunks, dense foliage, and deep solitudes. Gorgeous insects and birds of bright plumage enliven this charming scenery. Swarms of parrots shriek and flutter in the outskirts of the forest; beautiful doves coo in the lofty tree-tops; wood-peckers, in search of grubs, hammer loudly upon the trunks; and from the depths of the forest comes the shrill cry of the mocking-bird. Gaily-coloured colibris swarm around the blossoms, and magnificent butterflies sport in the balmy air.

Few of these savannas are of great extent. One of the most beautiful, and at the same time best cultivated, is the Vega real, which is situate in the north of the island. It is a rich alluvial plain, about 25 miles long by 10 broad. The view from all parts of this plain is extremely beautiful. It is bounded upon the north and south by lofty mountain ranges, which rise in wooded terraces to a height of 5000 or 6000 feet. The higher regions of these mountains are clothed with magnificent forests of evergreen Oaks and Pines (Pinus occidentalis and P. religiosa). The value of these forests for ship-building is manifestly immense, but, owing to the want of roads, and the indolence and ignorance of the people, many years will doubtless elapse before they are utilised. Great Britain possesses only three species of Oak, but in Haïti there are fourteen species, all of which differ considerably from our British Oaks in the form of their foliage and fruits. The value of the Oaks, Firs, and Pines at present growing in Haïti is estimated at £800,000,000 sterling. Upon the south-west of the Vega real is visible the lofty peak of Loma Tina, which, with its forest-clad sides and snow-capped summit, forms an imposing and picturesque object in the landscape. This peak, which is the highest in the island, is 10,250 feet above the level of the sea. Oaks are found upon its sides only to an elevation of 7800 feet, but Pines (Pinus religiosa) extend as high as 9500 feet. Some of the most important trees upon the lower terraces and plateans are:—Cypress (Taxodium distichum), Ironwood (Xanthoxylon Pterota), Logwood (Hæmatoxylon campechianum), Fustic (Maclura tinctoria) Mahogany (Swietenia Mahagoni), Guaiacum officinale, Homalium racemosum, and Diphollis nigra. The natives, however, are so far from endeavouring to utilise these valuable treasures that the boards employed in house-building, even in the interior of the island, are imported from the United States. In 1863 only 583,347 tons of wood, chiefly Mahogany and Logwood, were exported, and in 1873 the exportation did not reach one half of this amount.

The Haïtians bestow little care upon the culture of fruit trees, and are content merely to plant a few of different kinds in the immediate vicinity of their dwellings. Prominent amongst the cultivated trees is the Banana (Musa), the fruits of which form the principal sustenance of the poorer inhabitants. This useful plant, of which there are two species and numerous varieties, was introduced into Haïti, in 1516, from the Canary Islands. Almost every part of the Banana is utilised. The fruits are juicy, well-flavoured, and nutritious; the young shoots and marrow are also eaten, and the wood, fibres, leaves, and roots are employed for various purposes. The Banana lives and bears fruit for fifteen or twenty years. One acre planted with Bananas yields as much food as 44 acres planted with Potatos. The Breadfruit tree (Artocarpus incisa) ranks next to the Banana. This handsome and valuable tree was brought from Tahiti, in 1793, to the island of St. Vincent, whence it has spread over all the West Indian Islands. It is a tree of very rapid growth, and in seven years frequently attains a height of 40 feet. It is at maturity when sixty years old, and has then a massive, erect trunk, from 70 to 80 feet high, and from 3 to 4 feet in diameter. The branches are long and slender, and form an imposing and picturesque crown. The leaves are large, smooth, and dark green. The male and female flowers grow in catkins upon the same tree; the former depend upon long hairy peduncles from the angles made by the leaves with the twigs, whilst the latter grow at the extremities of the twigs. The fruits ripen from November to July; they are of a greenish yellow colour, and weigh 4 lb. or 5 lb. The Mamey (Mammea americana) is indigenous to Haïti. The trunk of this tree is 60 or 70 feet high, and the crown closely resembles that of the common British Oak (Quercus Robur). The wood is close-grained and durable. The fruits, which are about the size of a swan's egg, are sometimes angular and sometimes oval in shape. The flesh is yellowish, and very luscious. The Melon tree (Carica Papaya) is also indigenous. It has an erect, branchless trunk, about 20 feet high. The crown is composed of a large number of hand-shaped leaves of a greenish yellow colour, and furnished with very long petioles. The blossoms are yellow, and grow upon the trunk immediately beneath the leaves. When ripe the fruits are yellow, and contain a large number of black seeds. The leaves of this tree are used as a substitute for soap, and it is said that tough meat, if hung amongst them, soon becomes tender. The Guava tree (Psidium pomiferum) is a native of the island. It is a comparatively small tree; the trunk is low and crooked, the branches few and slender, and the bark smooth; the leaves are ovate in form; the fruits are yellow, and resemble an Apple in shape. Another species (Psidium pyriferum) bears a Pear-shaped fruit, about the size of a hen's egg. The Coco Plum (Chrysobalanus Icaco) is a small, handsome shrub, 5 or 6 feet high. Its fruits are acid, but very juicy, and are eaten with sugar. Amongst the other fruit trees may be mentioned the Sugar-apple (Anona squamosa), a small tree, with handsome fragrant leaves, and greenish cone-shaped fruits; the Sour-sop (Anona muricata), whose acid fruits frequently weigh 3 lb. each, and are covered with weak prickles; and the Sweet Sapote (Achras mammosa), Lemon, Orange, and Coffee trees are generally planted for fences.

The population of Haïti is composed of 600,000 negros, 390,000 mulattos, and 10,000 whites. Both physically and intellectually the negros of Haïti are superior to the negro races of the other islands, and they are a great improvement in every respect upon their African ancestors. Almost the whole population is engaged in agriculture, but each family produces little more than what satisfies its own demands. There is a lamentable want of co-operation and division of labour; and it is to these causes, as well as the partition of the island into two independent States with republican forms of government, rather than to the indolence or ignorance of the people, that the present wretched condition of the country is to be attributed. Ruins are one of the most characteristic features of Haïti. Everywhere throughout the green savannas and quiet valleys of the island the traveller perceives ruined villages and crumbling mansions, surrounded by deserted fields, and overgrown with wild and tangled vegetation. The magnificent mansions which were once scattered over the island are now piles of crumbling ruins; the gorgeous saloons, in which beautiful creoles and gay planters lounged, are become the lairs of wild beasts; the plains once waving with golden Sugar-canes, or fragrant with the rich perfume of Coffee plantations, are now covered with a dense growth of trees and shrubs, with here and there the miserable wooden or mud hut of the native; and the deep silence, which broods over the ruined factories once echoing with the busy tread of hundreds of slaves, is broken only by the scream of the Haïtian bat, or the harsh shriek of some bird of prey. *J. D. W.*

Forestry.

It not unfrequently happens that what we ourselves know and are familiar with, we conclude, or rest satisfied, that others know equally as well as ourselves. I was forcibly reminded of this the other day, on having some queries put respecting the propagation and culture of the Larch in its early stages of growth, and which have led to the production of this article at the present time.

First, respecting the seed of the Larch, I would say, always endeavour to procure the heaviest and soundest; and it matters little whether it is home-grown or foreign, so far as respects the future ultimate growth of the trees in the forest, or even in the nursery, beyond a few years. That is, plants grown from foreign seed, and those from seed collected at home, become so like each other after a few years that no person could distinguish them. After twice transplanting the difference is generally quite extinguished, nor is it ever again practically traceable in the history of the trees.

The seed imported from the Tyrol is generally larger and plumper than that of home growth, and consequently produces plants both in themselves stronger and earlier in the season than home-grown seed does.

The greatest disadvantages that I know of arising from the use of foreign seed are the earliness of the growth of the plants in spring, and their protracted growth in autumn, thus exposing them at both seasons to frosts from which plants from home-grown seed are exempt.

The price of seeds, both of home and foreign growth, vary greatly according to scarcity or abundance, being sometimes as low as 9*d.* and sometimes as high as 3*s.* per lb.; 2*s.* may, however, be regarded as a common price. Foreign seed is in general cheaper than home-grown, owing to the expense of labour and the difficulty in procuring the latter, which want of space forbids my describing.

2. The preparation of the soil and its quality are matters little less important than those respecting the seed. It is very difficult to describe soils so as to be properly understood, and so this description must be plain. The soil for seedling Larch should rather be over-poor than over-rich, light rather than heavy, and the situation should be well exposed, rather than sheltered.

Stimulating manures should be avoided, and to do this it is best to sow upon ground that had been manured the previous year, and cropped with Peas, Tares, Cabbages, or Turnips. Very rich black loam can only be rendered fit for seedling Larch by first putting it under grass for two or three years, and digging it down in the autumn previous to sowing, observing to turn over the ground sufficiently deep to cover the grass, which is done by digging it two spades deep. If, however, the ground cannot be prepared as above, but must be dug and manured the same season it is sown, then leaf-mould or very old rotten manure should be used. When the soil is at all stiff, it should be well exposed to the frost, so that it may pulverise under the rake, and form a very fine mould.

3. Sowing in the North of Scotland should be done about the last week of April or first week of May, and in the South about ten days earlier, observing, however, that the state and condition of the soil is of greater importance than a few days difference in the time of sowing.

4. The seed-beds may be of any convenient length, 4 feet wide, with an alley 1 foot wide between. The seed after being steeped in water, in bags or tubs, twenty-four hours, is taken out and spread upon a floor 4 inches deep, and regularly turned every day for eight or ten days, sprinkling it with water and keeping it covered with sheets to keep it moist, when it may be sown; but in order to prevent small birds from picking up the plants when they appear above ground, the best means I know of is to dust over the seeds, while they are wet, with red lead in the powdery state.

As the formation of seed-beds is so well understood, I need not describe the operation, beyond stating that the seed should be very lightly covered with about half-an-inch of fine earth.

If the weather is moist and warm the plants will appear above ground in from fifteen to twenty days, and if the seed is what is considered good, about 40 to 50 per cent. of the seeds will produce plants, and the crop will stand at about 2000 plants per lineal yard of bed. Though many more plants are frequently grown, it is not advisable to do so, as to give abundance of room in the seed-bed is the first proper step to take in the culture of the Larch. If the plants grow well they should be from 4 to 8 or 10 inches high the first season, and should either be well thinned out or entirely lifted from the bed, and run out into nursery lines in the form of what is termed bedding. If left in the seed-bed they should be well stirred up with a fine-tined steel fork, so as partially to check the top and encourage root growth, the object more fully attained by lifting and bedding.

The following are the prices at which the plants are sold this season in the North of Scotland, seedlings being very scarce:—One-year seedlings, 2*s.* to 3*s.* per 1000; two-year seedlings, 6*s.* to 7*s.* per 1000; bedded plants, 8*s.* 6*d.* to 10*s.* per 1000; one-year seedlings one year transplanted, 10*s.* 6*d.* to 12*s.* 6*d.* per 1000; two-year seedlings one year transplanted, 15*s.* to 20*s.* per 1000. *C. Y. Michie, Cullen, April* 12.

Apiary.

Work to be attended to in April.—Hitherto we have been very idle, and allowed our favourites to have their own way, thinking there was plenty of time before the working or busy season commenced, but now it is high time, if we have not yet done so, to awake out of sleep; for, if we are unwilling to give them a little attention, or carelessly suffer them to set about their work as they like, we may before long repent of this apathy, and incur losses that cannot afterwards be repaired.

1. Do not forget to encourage your weak stocks by rather liberal feeding every warm evening. You will soon learn when they have sufficient food, for when honey can be gathered your sugar will be left untouched. By neglecting to feed in this month I have, when I first commenced bee-keeping, lost many large stocks. They appeared to be very healthy and lively up to April, when all at once they died—yes, died of actual starvation. Nothing causes the kind bee-keeper so much sadness in his bee pursuits as this, because the thought will constantly arise in his mind, "Well, I might have saved the poor things, only I was careless."

Recollect, this is the most dangerous month in the year. Be as active as your bees. A little attention and care bestowed upon them now, will be amply repaid by your industrious subjects.

Floor, or bottom boards, should be scrupulously

cleansed; if it is not attended to now, on some nice sunny afternoon, it is probable you will never do it. Cut away all the little bits of comb which the bees last season fastened to the floor-board; they are only in the way, and will cause the inmates much annoyance and inconvenience in the busy season now rapidly approaching. I give all the straw skeps in my apiary either a new board, or, at all events, one which was well washed in the summer and laid by until the next spring to sweeten, so that it is equal to a new one. If you have no new ones at hand be sure you scrape the old ones with an old knife, and make them as clean as your own dinner-table. Do not for one moment think it is useless your doing so, a waste of time, labour, &c. Try the difference—clean one hive-board well, and leave the other hive to fight its own way uncared for—then another year you will remember our homely advice.

Water.—Observe your bees flying and humming lazily about the water-butts, pump-trough, and the little pools of water about your premises; when they alight watch them eagerly drinking, then flying off to their homes with joy. Bees are all water drinkers, so every teetotaler should be a bee-keeper. Perhaps in April and May, water is more needed than in any other month during the whole year. A friend has a square tin vessel, about 3 inches deep, placed opposite the stands, in which, when nearly filled with water, he places a quantity of moss; the bees seem to appreciate this contrivance, for they have no fear of death by drowning when running over the moss fronds. I am sorry to find that even thousands of my neighbours' bees are now (April 2) to be seen drowned in a water or rain tub, reared against his house. The water is rather low in the tub from the late drought, the bees have, therefore, been unable to make their escape, in fact they are veritable death traps. However, my bees seldom leave the garden if water is placed conveniently for them. It is surprising how soon they all learn where to go for the supply of water, for their young brood and cell-building.

Another matter should be attended to this month, although it does not exactly come within the bee-master's scope, yet if he studies the welfare of his stocks he will keep a sharp look out for *Queen Wasps*, which now begin to put in an appearance. The vicar of our parish, an enthusiastic apiarian, every spring encourages the boys belonging to his large day school to destroy these insects, and gives a penny for each wasp brought to his residence. This has been found to work well, for we have now but few wasps' nests in the district. Remember each queen wasp commences and sustains a new colony; they are more independent and vigorous than the queen of the hive, so every queen destroyed in April, in reality destroys a whole nest, or what would be a nest later in the season. It is not uncommon for one queen to rear a nest of 50,000. These thieves can soon eat a few pounds of your best honey, not to mention the immense number of working bees which they murder in the fields. Let war to the bitter end be at once and for ever declared against these villainous-looking insects. Look out for

Robbers and Thieves.—We dread the light-fingered gentry about our houses and homes, but hive-robbers are far worse to deal with. We have just mentioned a thief who is dressed in yellow livery. We are, however, informed in the good book that a man's foes are they of his own household. In respect to bee-houses this is a fact, for the little busy bee's foes, which it evidently dreads most of all, are bees from a neighbouring hive, often on the same stand, where several hives are placed close together. Every warm afternoon, if you can spare a few minutes, walk gently round your stocks, and note the entrance of each hive; you will easily detect friend from foe. The thief is buzzing about; when it alights at the mouth of the hive it first peeps in to see if the coast is clear, then, with a quickness not observed in the inmates, he darts into the hive, but often, or we might say always, if the stock is strong, as quickly darts out again, pursued by several bees. If robbing is actively going on, the sooner the hive is removed to a new stand the better. Sometimes it is well to remove them to a new locality, unknown to the robbers; it is only by this means that the stock can be saved. If it has only just commenced, enable the bees to defend their own by narrowing the entrance, so that only one or, at most, two bees can pass and repass each other at one time. I have always found the last remedy the best; and in several instances I have known those stocks which have been sadly weakened by robbers increase and become most valuable, simply by narrowing the entrance and liberal feeding. *R.*

Natural History.

Aspidiotus conchiformis (Mussel Scale) on Apple.—Before the advancing growths on the Apple trees make it almost an impossible matter to attend to the state of the bark without much injury to the young shoots, a little attention would be well bestowed on clearing away the mussel scale where it exists in any great quantities.

These scale insects, scientifically known as Aspidiotus conchiformis, are distinguishable by their resemblance to a mussel shell in miniature, sometimes curved to one side, sometimes to the other, at the smaller extremity, and sometimes straight. The length is about the sixteenth of an inch, the texture hard and shiny. The scale is transversely wrinkled, attenuated at the head end, and rounded at the other extremity, and adheres with great firmness by means of the white filmy substance beneath it, which leaves a very permanent mark on the bark when the scale has been removed. The colour is deep rich brown, but much paler, and of an orange tint at the head end.

Beneath the shell, and free from it, is the female and her eggs, and at present the scale will be found filled for the chief part with eggs—thirty or upwards in number—white, and of various irregular forms of oval, the extreme irregularity in the shape observable just at present being presumably merely the alteration sometimes noticeable when the insect egg is on the point of hatching.

From the minute size of the scales, and their correspondence in colour with the bark on which they are fixed, they attract little observation, and are apt to be passed over till they have increased into a settlement not easily got rid of. They appear to exercise some kind of choice in the selection of the spot on which to change from the more active condition of their early existence to the immovable state in which the females pass the latter part of their lives, preferring seemingly the dampest side of the tree, and the smoothest part of the bark, and also some special varieties of apple.

In my own garden, where, under previous ownership, the trees seem to have been little attended to, these scales have established themselves in myriads, and show at present in numbers far beyond anything I have ever met with elsewhere, appearing mostly on the Wellington and a kind of small Ribston Apple, and in the greatest quantities on the north side of the

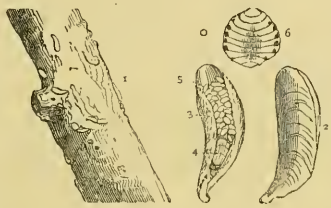


Fig. 112.—Aspidiotus conchiformis.

trunks and the under side of the branches, as if shrinking from direct exposure to sun-heat.

The position of the scales is not as generally (or often) the case with other cocci, with their heads pointing in one direction; the mussel scales point vertically or horizontally or in any direction indifferently, and on one of the trees are so numerous as literally almost to cover the trunk (excepting a strip up the sunny side) from a little way above the ground to the fork of the branches, about 5 feet above, the lower part of the branches being thickly infested also.

A little later in the season (probably in the course of May) the eggs contained beneath the little mussels that form the scale-like covering of the female Aspidiotus will hatch into temporarily active little cocci, which, whilst their legs and the power of using them remain, will spread over the more juicy branches, and provide themselves with a living by means of their rostrum, at the expense of the tree.

Just now is a good time for attack, before the young insects have begun to spread. The means especially recommended are, scraping off the bark and burning it with the infesting insects, or crushing the scales with a wooden knife on the tree, and rubbing the surface with gas-tar; but as far as my own experience goes, the most effective plan seems to be to wait till a wet day, and then with a large, fairly sharp pruning knife, held upright, to scrape the bark just firmly enough to bring away the scales, which come off easily under these circumstances. The curved shape and smooth edge of the knife gather the creatures off thoroughly and rapidly, where a rougher treatment might fail or do more injury to the bark, and the wet short moss, scales, and dirt generally make a kind of plaister together on the knife which can be easily scraped off and destroyed, whilst the same operation in dry weather would probably let many of the scales fall to where the eggs might hatch in safety.

When the young cocci are in the act of hatching (which may be made out by examining the infested parts with a common magnifying glass) a band of any kind of soft woollen rag well soaked in Gishurst Compound, or any other fluid prejudicial to insect life, and tied round the boughs above the scale-infested part, would probably check the advance of the young insects towards the more tender parts of the tree; but where the Aspidiotus is found in great numbers it is desirable to get rid of it as soon as possible, as, though of little consequence when in moderate numbers, where allowed to gain possession it often causes much injury. *O.*

Notices of Books.

Fungi Britannici exsiccati. Editio secunda curâ M. C. Cooke. Fasciculus I. London: Williams & Norgate. 1875.

This is a great improvement on the former series, the quarto form being much more convenient, and the specimens more neatly disposed. There is, however, a feature in the publication which makes it peculiarly valuable. Dr. Cooke, who is certainly indefatigable, has, in a large proportion of the specimens, figured the spores under the camera lucida, and has appended figures to the specimens. This is indeed not an entire novelty, for in the *Plantes Cryptogames du Nord* Desmazières adopted this very useful plan, but not to the extent in which it is carried out in the work before us. We only wish that Dr. Cooke had added in every case the microscopic measurement, and we should then have little left to desire. Four specimens appear on each page, in such a manner, however, that they can be readily divided if it should be thought advisable to intercolate them in the general herbarium. We wish Dr. Cooke every success in his laborious undertaking.

Obituary.

We sincerely sympathise with our Belgian friends in the severe loss they, and horticulture generally, have sustained in the sudden death of M. Edmond de Ghellinck de Walle. This gentleman was known to a large number of our own horticulturists as the able, courteous, and hospitable President, since 1870, of the Royal Horticultural and Agricultural Society of Ghent, in which capacity he presided with much tact and with splendid hospitality at the last quinquennial exhibition in that city. We owe to M. Oswald de Kerchove de Denterghem the following particulars concerning his distinguished townsman.

"Death has robbed us of a friend who took the highest rank as an amateur, and who was justly esteemed throughout Belgium. He died on the day following one of his greatest successes, when he had maintained the ancient reputation of Ghent at the neighbouring city of Antwerp, and obtained fresh honours in the contest. As a member of the jury he had fulfilled his duties with the delicate tact and kindliness of heart characteristic of him. On his return from this exhibition symptoms of his fatal disorder first made their appearance. The news of the dangerous condition of the President spread with rapidity, and excited consternation in the minds of his friends and of all those concerned in the advancement of horticulture. In his vast conservatories at Wondelghem he had accumulated collections of Palms, Ferns, Dracænas, Selaginellas, and Aroids, which were well known to amateurs. His fine Azaleas gained him the prize wherever they were exhibited. His Cycads were notorious, and many were the foreign visitors who begged permission to see the splendid specimen of Encephalartos Caffer, which, as many of your readers will remember, formed one of the main objects at the last quinquennial in 1873. It is needless to add that this permission was always freely granted, and the cordial reception accorded by M. Ghellinck de Walle to strangers showed that the traditions of Flemish hospitality were in him associated with the high breeding and refined feeling of the nobleman. The important services which M. de Ghellinck de Walle rendered to horticulture were acknowledged in 1873, when the King conferred on him the Cross of Chevalier of the Order of Leopold. By the votes of his fellow-citizens he was elected as their representative in the provincial Council of East Flanders, and the Government nominated him as Chairman of the Committee of Visitors (*Conseil de Surveillance*) of the school of horticulture connected with the University of Ghent. As President of the Royal Agricultural and Botanical Society of Ghent, and of the "Cercle d'Arboriculture," he had won the good opinion of all the members of those bodies. Impartial and just, active and devoted, retiring and well informed, M. Ghellinck de Walle exercised his delicate duties with a tact and a courtesy which will remain in the memory of all with whom he was associated. Indeed, his goodness of heart was only equalled by the modesty with which he disclaimed the favourable verdicts which were his due. His name will remain for ever associated with horticulture and the city of Ghent, less perhaps for the love he had for plants than for the *éclat* with which he presided over the quinquennial exhibitions which took place under his auspices; and his memory, justly honoured, will survive those of his venerated predecessors still held in honour by the Society."

HORTICULTURAL EXHIBITIONS, 1875.

May.

1 to 10, inclusive.—Royal Botanic Society, Regent's Park. Mr. William Paul's Special Show of Roses, Pelargoniums, &c.

1 to 24.—Royal Botanic Society, Regent's Park. Special Exhibition of Clematis, by Mr. G. Jackman.

7 and 8.—Exhibition of Plants and Flowers in the Kibble Conservatory and Royal Botanic Garden, Glasgow. Manager, Robert Bullen.

12.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees. Pot Rose Show.

14 to 21.—Manchester Botanical and Horticultural Society's Annual National Exhibition, at the Garden, Old Trafford. Manager, Bruce Findlay.

17 and 18.—Halifax Floral and Horticultural Society's Annual Exhibition. Sec., Leonard Kershaw, 20, Gladstone Road, West Hill Park.

20.—Royal Horticultural Society of Ireland. Early Summer Exhibition. Sec., A. Balfe, 28, Westland Row, Dublin.

THE

Gardeners' Chronicle.

SATURDAY, APRIL 24, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

Monday,	April 26	Sale of Bruce's Nursery, Kingston, Surrey, at the Mart, Tokenhouse Yard, E.C., by Protheroe & Morris.
Tuesday,	April 27	Auricula Show at the Town Hall, Manchester. Sale of Plants, &c., at Theobald's Park, Waltham Cross, Herts, by Protheroe & Morris. Sale of a Collection of Minerals, at Stevens' Rooms.
Wednesday,	April 28	Exhibition of Spring Flowers at the Royal Botanic Society's Garden, Regent's Park. Sale of East Indian Orchids, at Stevens' Rooms.
Thursday,	April 29	Sale of Imported Orchids from Messrs. Veitch & Sons, at Stevens' Rooms. Sale of Stove and Greenhouse Plants at Tanners' End, Edmonton, by Jackson & Son, of Hertford.
Saturday,	May 1	Opening of the Alexandra Palace. Special Exhibition of Clematis at Regent's Park (until 24th). Mr. W. Paul's Special Show of Roses, Pelargoniums, &c., at Regent's Park (until 10th).

LIKE many other expressions in general use the term "double flowers" covers several totally distinct conditions. We will not affirm that under the title "double" things as different as chalk and cheese are included, but we may fairly say that double flowers are far more different in their essential nature one from another than are the several varieties of cheese.

We do not propose at this time to descant upon this subject at length. The reader desirous of ascertaining what are the principal varieties among so-called double flowers will find them enumerated in a paper in the Proceedings of the London Botanical Congress, 1866. At this time we may confine ourselves to DOUBLE NARCISSI, pleading as our apology for so doing the interest which is felt in these beautiful flowers. It needs but a glance to see that these double Narcissi include very different changes in different cases. Some are comparatively simple, others very complex in organisation. In the single flowered varieties we have a perianth of six pieces, separate above but inseparate below, where they form a tube investing and inseparate from the so-called "inferior ovary" or immature seed-vessel. From the throat of the perianth springs the crown, or corona, or cup, or trumpet, or nectary—for it has been called by all these names, and by some others which we need not stay to cite. Probably we shall not be misunderstood if we use the term "corona," which is perhaps a little more definite than some others, and which, at any rate, does not convey any misleading idea as to its nature.

Within the corona, and springing from the flower-tube, are the six stamens, while quite in the centre is the style, proceeding as a single thread from the top of the ovary. Such is in general terms the structure of a single Narcissus flower. The most interesting peculiarity about it is the "corona," and many have been the discussions as to what this is. If the ordinary observer saw a wing proceeding from the shoulders of a man, he would be somewhat surprised; and if he were a man of intelligence and of a scientific turn of mind he would not rest satisfied till he had made out what that wing was and why it was there. So in the case of the Narcissus. The flower is "complete" in a botanical sense without the "corona." This latter is neither fish, flesh, fowl, nor good red herring—that is, it is neither sepal, petal, stamen, nor pistil; and it is the business of the botanist to settle what it is. It would take us too far out of our track to enter here into this discussion. It may suffice to say that while some—most, now-a-days—consider it a mere excrescence or outgrowth from the perianth-segment, others look upon it as a series of disguised or abortive stamens. Double Narcissi, as we shall explain presently, throw some light on this question, though the evidence derived from this source must not be taken by itself, but requires to be checked by evidence derived from other quarters.

All this by way of preface to double Narcissi, but really it is a question whether the preface here is not the most important part of the whole; at any rate, it is certain no one can understand a double Narcissus unless he is first of all conversant with the structure of the single one.

The double Narcissi are, as we have said, very varied in their construction, but their varieties admit of being classed under two primary categories—increase in the number of parts, and change in the nature of those parts, or, in other words, substitution of one part for another.

The increase in the number of parts takes place in different manners; the mutation or substitution of parts is equally varied. These changes occur together or separately, in slight or in excessive degree.

To illustrate these changes we must advert to some of the double Daffodils. First of all let us take the one concerning which there has been so much written lately—the double Daffodil, the double form of the wild Daffodil of our copses, the one we figured last week at p. 500, the "Narcissus pseudo Narcissus Anglicus flore-pleno," of PARKINSON, in whose *Paradisi in sole Terrestris* it is well, though somewhat conventionally, figured, and where also it is called Gerrard's Double Daffodil. In this we have first of all a condition analogous to the "hose-in-hose" condition in the Primrose, *i.e.*, the perianth with its corona is repeated twice or oftener; then within that the stamens are more or less changed into perianth segments, and probably increased in number.

Mr. SHIRLEY HIBBERD sends us a form almost exactly like this, but more than twice the size, and which we take to be the N. Pseudo-Narcissus hispanicus flore-pleno, or PARKINSON's Daffodil, which he says is "of mine own raising." We cannot distinguish with certainty the double forms of N. Telamonius and N. major. We are not now, however, concerned with the question what this is—that is, to what species or variety we are to refer it; enough for us that it is structurally the same as the true double English Daffodil of GERRARD and PARKINSON. Mr. BARR sends us flowers of N. cernuus and moschatus, which are changed in the same general way. It will be remarked that, in these hose-and-hose Daffodils the flower-tube and the corona are not more divided than in the single flowers, or but slightly so.

The ordinary double Daffodil of cottage gardens, and which is now so largely grown between the Gooseberry bushes under the Apple trees in the London market gardens, presents but a slight structural, though to all appearance a great difference from that just described. PARKINSON called this, or a very nearly allied form, Master Wilmer's Great Double Daffodil. Who *was* Master WILMER? But all this is beside the question: *revenons à nos Narcisses.* This great double Daffodil differs structurally from the smaller one first mentioned, in the circumstance that the flower-tube is much shorter, that is, the perianth segments are separated one from the other to a much greater extent than usual; the corona, which in the former case was trumpet-shaped, and only divided at the edge, is here apparently split into distinct segments, or rather, the segments were never united as they are usually; moreover, the stamens and the style are increased in number, and variously changed, some being quite petaloid, others half petal half stamen, and so on. Among the specimens obligingly communicated by Mr. BARR the following belong to this type, that is, so far as their doubleness is concerned—"the large double Daffodil, N. Pseudo-Narcissus lobularis plenus, and N. odorus plenus." We may remark that the lemon-and-gold Daffodil belongs to this section, and we may further add that the perianth segments are often of a green colour while the coronal segments are yellow.

A still more exaggerated form of double Daffodil is that resulting from prolification or branching of the axis or stem of the flower; so that in place of one centre, three to six or more "centres" or rosettes—each representing one flower—are found within one common envelope. The parts of these supplementary flowers are multiplied and changed as in the former cases. An illustration of this latter change is afforded by Mr. BARR's "Narcissus Pseudo-Narcissus grande plenus." We may as well say, *en passant*, that we believe this "prince of Daffodils" to be "Narcissus Pseudo-Narcissus aureus Anglicus maximus sive Roseus Tradescanti" of PARKINSON. Good reader, we appeal to you, *en parenthèse*, do you not think LINNÆUS did good service when he made the rule that plants should have but two names—one the family or surname, the other the specific name? And do you not agree with us that it is a mistake to go back to pre-Linnæan prolixity of appellation, as some are inclined to do?

In some other forms the perianth segments and the corona remain unchanged, but the inner parts of the flower—the stamens in particular—are increased in number, and more or less replaced by petals.

In all the preceding forms we have seen that the corona, whether changed or unchanged, plays an important part in the flower, often by its deeper colour serving to give a quasi-striped or parti-coloured appearance to the flower.

We have now to speak of a form of doubling in which the corona is entirely absent, and where the perianth segments are multiplied by equation or outgrowth one from another, so as to produce a star-shaped flower, with the segments laid over one another in strictly regular order. In these flowers the segments do not alternate one with another, as is the usual rule in most flowers, one segment coming between two others, but the segments are placed "opposite" one another, one immediately in front of another, like a pile of books, or like the leaves of a book. In this form, which is of high botanical interest, the corona is absent, or, if present, of the same colour as the perianth segments. To this form belongs the "N. capax" of Mr. BARR, the Ajax eystettensis of HERBERT, figured long before under a long name by PARKINSON.

The double forms of Narcissus incomparabilis, poeticus, odorus, Jonquilla, montanus, all come under one or other of the preceding heads. It would be tedious to pursue the matter further; suffice it to say that the forms were recognised by the older botanists. PARKINSON, in particular, figures several of them, and he was quite aware of the difference between a flos duplex or multiplex, *i.e.*, a hose-in-hose condition, and the flos plenus arising from the multiplication and transformation of the stamens.

We may fittingly add a postscript to this article by announcing the publication of a

volume on the flower of the day—*The Narcissus*,* by Mr. F. W. Burbidge, copiously illustrated, and of which it will be our duty and our pleasure to make further mention hereafter.

It is a rather disheartening thing to see so many lamentable examples of the inability, first, to observe properly, and, next, to weigh evidence, or reason correctly on what has been observed. We had occasion to allude to this lately (see p. 112), and we should not have referred to it again were it not for a discussion which took place at a recent meeting of the Society of Arts, as reported in the *Agricultural Gazette*. The subject of discussion was the utility and proper method of conducting experiments for agricultural purposes; the speaker was Professor Wrightson, the Chairman Mr. Clare Sewell Read, M.P. We may find occasion in another issue to make some comments on Professor Wrightson's paper. Our object now is to express our astonishment that the Chairman, unless by way of badinage, could ever have uttered such nonsense as is attributed to him. "Speaking to an audience, the majority of whom," said the Chairman, "probably were more gardeners than farmers, he would suggest that there were experiments which could be conducted on even a very small piece of ground; one in particular of a very interesting nature was the following:—If Oats were sown, and kept constantly cut as they grew, it would be found next year that they produced, not Oats, but something else. He knew an instance where this had been tried in a garden, the Oats being kept cropped with a pair of shears, and covered from the first with a little straw in the winter, and the next spring they produced a crop of Wheat. In other cases, Barley and Rye had been the result. It was only Oats, however, which thus varied—other grain always reproducing itself."

We have quoted this verbatim lest we should be accused of ridiculing a very estimable man. Seriously he might as well ask us to believe that, by keeping an ass shaved all the winter, and keeping it in the stable, it would in the spring develope into a horse. The one thing is not more preposterous than the other.

However perverted these statements may be—however erroneous the interpretation put upon them—yet they generally originate from some fact or condition not obvious in the sequel, though possibly they would be so in the beginning. The business of an intelligent man, if he have it in his power to do so, is, not to take these marvellous stories and old wives' fables for gospel, but to test them for himself—to ascertain what is the real basis of the story; or, if he cannot do so himself, at least to withhold his assent till some one with the requisite knowledge and care has done so. We are quite certain that neither Messrs. Lawes and Gilbert, nor Professor Wrightson, nor any of the many observers at the German Agricultural Stations, ever witnessed anything so marvellous as that of which Mr. Read "knew an instance." When a person in Mr. Read's position makes such astonishing statements, we cease to wonder at the belief and faith of the electors for Stoke and their fellow-thinkers.

* Reeve & Co.

—— It has now been definitely arranged that the International Potato Show will take place at the Alexandra Palace, Muswell Hill, on Wednesday, September 29, and Thursday, September 30. Regarding the Royal Horticultural Society as the headquarters of practical horticulture in London, the committee were naturally desirous that their exhibition should take place at South Kensington about the time of the Fungus Show. Certain proposals were made to the Council by the committee, but they did not meet with the response reasonably looked for, and the promoters had to abandon their intention of going to the Royal Horticultural Gardens. Negotiations were opened with the executive committee by Sir Edward Lee on behalf of the Alexandra Palace Company, and these were so comprehensive in scope and liberal in character that the committee closed with them, and the exhibition has been fixed as above stated. The sum of £30 has been placed at the disposal of the committee by the Alexandra Palace Company, as special prizes; and it has been arranged that this sum shall be given in the leading class of twenty-four varieties of Potatos in prizes respectively of £8, £6, £4, and £2, the balance to be added to the 1st prize in the form of a handsome silver cup. The show will extend over two days, and the committee have announced their intention of paying the prize money before the close of the exhibition. On the evening of the first day the committee, judges, exhibitors, and others, will dine together at the Alexandra Palace, under the presidency of Mr. Alderman and Sheriff Ellis; and at noon on the second day a conference of Potato cultivators and others will be held, which, if well carried out, is likely to prove of an instructive and interesting character. It is hoped that collections of Potatos for comparison, if not for actual competition, will be forthcoming from Ireland, Scotland, the United States of America, France, Germany, and Belgium, as the committee are exerting themselves to give this exhibition a truly international character. The exhibition will take place in the commodious concert-room, which can be shut off from the remainder of the building, and securely locked by night. The comfort and convenience of exhibitors will be studied as much as possible, both by the committee and the managers of the Alexandra Palace Company. Schedules of prizes are now ready, and can be had of the Hon. Sec., Mr. Peter McKinlay, 23, Upper Thames Street, London, E.C.

—— Amongst recent additions to the Kew Museums may be mentioned a fine collection of the Cones or Fruit Heads of Pandanus from Mauritius and Seychelles, gathered and sent home by

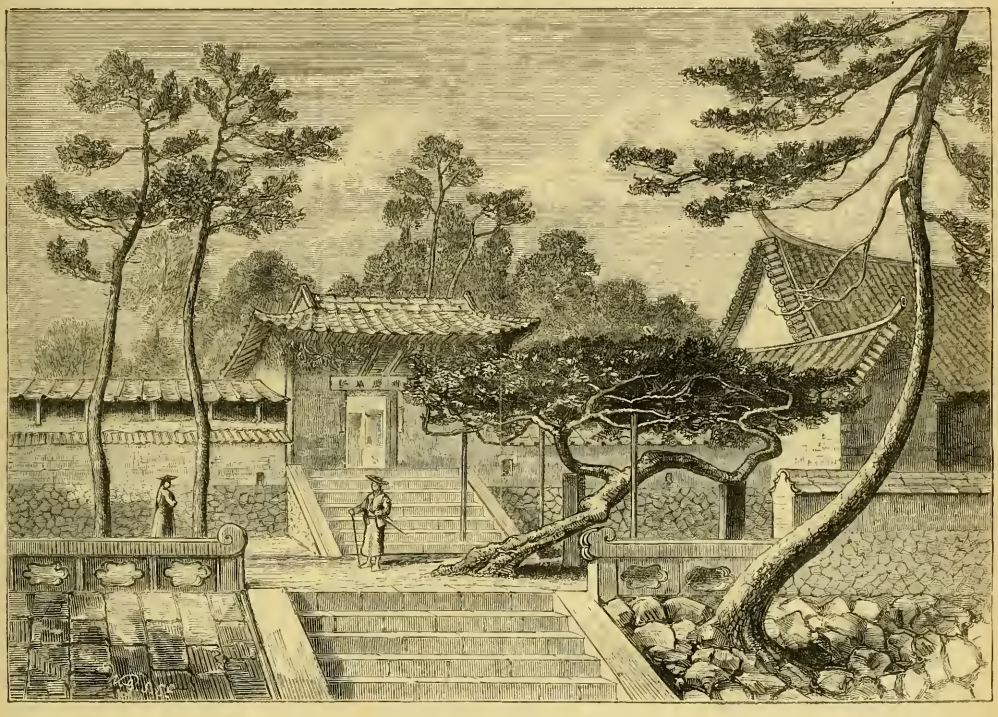


Fig. 113.—View in Nagasaki, Japan.

Mr. Horne. These fruits will prove a very valuable aid in working up the Pandanaceæ for the *Flora of Mauritius*, upon which Mr. J. G. Baker is now engaged. A large series was sent to Kew by Sir Henry Barkly some five years since, but the fruits having apparently been too ripe at the time of gathering, and not having been sufficiently secured before placing in fluid, they fell to pieces before reaching their destination. Mr. Horne seems to have obtained his specimens at the right age, and though they were well secured, each one being sown up separately in canvas before being consigned to its barrel of rum, the separate drupes hold firmly together into a solid compact head. Out of about two dozen of these cones, one alone upon being unpacked showed any tendency to collapse, and this was the largest of the whole series—an immense fellow from the Seychelles—measuring more than a foot through, and weighing some 25 lb. It was, however, speedily enveloped in a net and preserved in its original form. It will probably prove to be a new species.

—— Mr. Mechi sends us the following appeal on behalf of the Royal Agricultural Benevolent Institution :—

"Believing, as I think we must all believe, that the art of producing human food is the first, the most important, and the most imperatively necessary of all the arts, I felt surprised and grieved that for those farmers engaged in that most important business (and they number in Great Britain 560,000, and in Ireland 600,000), there was no charitable institution for the relief of those among them on whom Dame Fortune had not smiled. I therefore, as a labour of love, but, as may be supposed, at considerable personal anxiety and cost, succeeded in 1860 in originating the Royal Agricultural Benevolent Institution, for the relief of decayed farmers, their widows, and orphans. It has pleased God so far to bless my efforts with success, assisted ably, as I have been, by our Council, officers, and honorary secretaries; and we have now several hundred recipients, receiving about £8000 annually. But, large as this sum may appear, it is totally inadequate to supply the rapidly increasing demands for its aid. Nor can we wonder at this, when we consider that the farmed area of the United Kingdom, according to the Board of Trade statistical returns, covers 47,000,000 of acres, farmed, as I have said, by more than a million occupiers, possessing a tenant's capital of £300,000,000 sterling. There can be no doubt that many good men have often and long since desired to promote such an institution, but it was impossible to succeed with the enormous rates of postage formerly existing, when that which now costs only a penny then, in many cases, cost from 5s. to 8s. Thanks to Sir Rowland Hill and railways that impediment to the current of charity has been removed, and I look forward to the time when our present income shall have been many times multiplied. I well know how wide and how bountiful are not only the wealth, but the hospitality and charity of that noble city in which I have passed nearly half a century of my now fast declining years. His Royal Highness the Prince of Wales has kindly consented to preside on Saturday, June 5, at our Fifteenth Anniversary Dinner, and I need hardly say how happy I should feel to hear it announced that many of your readers have contributed to its much required funds. *John Joseph Mechi.*"

—— Mr. Peacock's collection of Cacti and Agaves is the subject of an amusing article, from the pen of Mr. Frank Buckland, in *Land and Water* of the 17th inst. This is what Mr. Buckland has to say of the Agaves :—

"Agaves are generally called American Aloes. They consist of strong-bladed leaves, the tips of which are surmounted with sharp bayonet-like thorns. The sides of the leaves are also armed, and, strange to say, many of them—a fact hitherto unknown to Mr. Peacock—have these side armaments exactly in the shape of sharks' teeth. Thus in the Agave Peacockii, the spines are almost an exact model of the teeth of the 'oak kettle,' a large cod-eating shark, found off the coast of Iceland. In Agave Regeli macrodonta the spines are in the shape of the teeth of the Beaumaris shark (see specimens in my fish museum, South Kensington). For some reason or other Nature seems suddenly to have changed her plan, for in Agave schidigera, the 'needle-and-thread plant," the spines exist no longer, but, on the contrary, are converted into thin silky-like threads. A good name I should propose for this plant would be 'Eve's Huswife.' I wish also to mention Agave Gilbeyi, named after the well-known wine merchant. This specimen is the only plant of the species in England. There is also a curious Agave like the 'horned frog of Mexico,' a curious spine-covered insect-eating lizard. Perhaps this case will do for Mr. Darwin as 'adaptive mimicry.' The Agave ensiforme took my fancy very much; it is just like an angry porcupine. The queen of the collection, however, is Agave acquiedens [?], a magnificent plant, which is throwing up a spike 4 feet long and as thick as a man's wrist, the spike being surmounted with a broom exactly resembling the feather that used to be worn in the bearskin caps of my old regiment, the 2d Life Guards, at about the time of Waterloo. This is the first plant of the kind that has ever flowered in this country."

—— The *Kolnische Zeitung* of March 25 reports that a new glass has been invented by Herren Lubisch and Riederer, in Count Solm's glass-works, Andreashütte, near Bunzlau. This new glass is called Metal Glass, and is so hard that if a pane of it is laid on the ground, and a leaden ball of 40 grammes weight is allowed to fall upon it from a height of 12 feet, it is not the least injured. Nor is it the least affected when dipped whilst red-hot into cold water. It is, therefore, practically unbreakable, and will be very useful for glazing greenhouses, &c., as well as for lamp chimneys and other articles of domestic use.

—— We received lately a large quantity of Tulip Bulbs in a Strange State of Disease. Some were a mass of corruption, never from the first having been able to germinate; others were in every intermediate state, from the first growth to the expansion of the flower, but all in a very weak and wretched condition. Every bulb was carefully dissected, on the possibility of finding the larva of some Diptera like that which attacks bulbs of Narcissus; but there was nothing of the kind, while, on the contrary, in every case there was the peculiar brown tissue, in patches of greater or less extent, which is indicative of the disease which Montagne called Tacon, a translation of whose memoir appeared in the *Journal of the Royal Horticultural Society*. Corms of Crocus and Gladiolus are very subject to the disease, and the intensity is just proportionate to the position which it occupies. If it is situated near the disc from which the roots are given off, the whole mass is sure to perish sooner or later, and the vegetation cannot proceed to perfection. Where the disease was extensive at first the bulbs decayed, but according to its virulence very various degrees of perfection were obtained. Unfortunately no remedy is known, and the existence of disease is seldom ascertained before its effects are too prominent to remain unnoticed. *M. T. B.*

—— Patent Papered Wood Hangings, as they are called in the advertisements, have long been known in America, where they were first introduced, and from whence they have appeared in England, though their use with us at present is, we believe, rare. Since their first introduction in America, some years back, many improvements have been made in them. At first the shavings, for such they are, were thick compared with what we now find them. They were, as now, removed from the trunk, by a kind of gigantic planing machine, in lengths of several feet; these sheets, however, it was found, were very liable to crack in the grain of the wood, and so it became necessary to cover the sheets on one side, or line them with thin but strong paper. By adopting this means of strengthening the sheets the shavings themselves have been reduced very much in thickness, indeed, to quote a brief description of these wood hangings, sent out by a firm in Boston, which deals largely in them, we may have in these wood-shavings "Nature's own production in her most attractive form: a pearl bird's-eye Maple, one two-hundredth of an inch thick." Applied to a plastered wall in the same manner as ordinary paper-hangings, and finished off in oil, wax, or varnish, they not only have an elegant appearance, but are also very durable, as heat and damp are said to have no effect upon them, the colours of the wood being perceptibly improved by age, and moreover the walls can be washed as often as required. The cost is said to be no more than that for good graining, which, however well done, can never equal the real wood. These veneers are also applicable for the larger articles of furniture, such as pianos, organs, &c. Woods of all kinds are treated in this way, amongst them being Walnut in all its varieties, such as plain, curly, blistered, striped, French, &c.; white, brown, Hungarian, and Circassian Ash; bird's-eye, blistered, and curly Maple; red, white, and curly Oak; yellow and silver Birch, plain and figured Cherry, Pine of various kinds, besides Rosewood, Mahogany, Satinwood, Red Cedar, &c. To fix these wood-hangings to the walls it is necessary to damp both the wood and paper sides, allowing the wood sufficient time to swell out evenly and smooth before fixing to the wall, which is done with flour-paste, as in ordinary paper-hangings.

—— The Annual Exhibition of the Central Horticultural Society of France will be held this year in the Orangery at the Tuileries Palace, from May 29 to June 6. All letters should be addressed to the President of the Society, Rue de Grenelle, Saint Germain, 84, Paris.

—— A very old subscriber has kindly shown us an interesting chart of the weather of December, 1829, and January and February, 1830, as noted at Tours. On December 28, 1829, the thermometer was as low as −15° C. = 5° F., and on February 3 it was as low as 6° F. We presume the record is of extreme not mean temperature.

—— From Cologne we learn that great preparations are making in the Flora Garden for the forthcoming International Horticultural Exhibition. In addition to plants there will be exhibitions of implements, buildings, vegetable products, fossil plants, objects of art. Altogether there are 923 classes, arranged in eight divisions.

—— The next meeting of the Institution of Surveyors will be held on Monday evening, April 26, when a paper will be read by Mr. W. L. Huskinson, entitled Large Estates and Large Farms *v.* Peasant Properties. The chair to be taken at 8 o'clock.

VIEW IN NAGASAKI, JAPAN.

Of late years there has been an immense progress in general acquaintance on the part of foreigners with all regions of the country of Japan; and, although the original rule is still in operation by which no foreigners, with the exception of ministers and their suite, are permitted to travel in any part of Japan outside of the treaty limits, yet, owing to a variety of circumstances, foreigners of one or other nationality have, in fact, visited nearly every province of the Mikado's dominions. Among others, Sir Rutherford Alcock, Sir Henry Parkes, Mr. De Long, and Dr. Willis, are among the modern explorers of an empire which so recent an author as Dean Swift coupled with the visionary regions of Lilliput and Brobdingnag. But of all the travellers who have visited Japan none have contributed more to the advantage of the European horticulturist than the late Dr. Siebold and the well-known Robert Fortune, who published a charming narrative in 1863, and who first transferred from the Japanese islands so numerous examples of those trees and shrubs which produce such charming sylvan effects in the distant Oriental landscape.

Thanks to the Wardian cases, our parks and gardens have been enriched with many beautiful exotics, which, but for this admirable invention, would never have been seen beyond those countries in which they are indigenous. Among Conifers we may mention the beautiful Parasol Fir (Sciadopitys verticillata), Thujopsis dolabrata, Retinospora obtusa, and R. pisifera, Nageia ovata, and several new Pines, Cypresses, and varieties of almost all these species having variegated leaves. Amongst shrubs are the charming Eurya, with its broad Camellia-looking leaves, variegated Daphnes, Privets, Yews, Hollies, Box, and Ferns, sweet-scented Skimmia, Weigelas, and Chrysanthemums, &c.; nor should we omit the Aucubas and the Osmanthus aquifolius, and many others, all either "pleasant to the eye" or "good for food."

The engraving on the previous page (fig. 113) represents a portion of one of the numerous temples which are scattered on the hillsides in and about Nagasaki, which are much in the same condition in which Kæmpfer found them 200 years ago. Fortune describes his pleasure at finding the names of Kæmpfer and Thunberg carved on a large rough rock in the island of Desima.

Nagasaki is a town containing about 70,000 inhabitants, and situate at the head of a long picturesque harbour surrounded with wooded hills. One marked feature of the people of Nagasaki (indeed throughout Japan) is their enthusiastic love of flowers and trees and ornamental shrubs, and they zealously follow out their favourite pursuits of gardening and floriculture to the extent of their means. The Buddhist temples, of which the engraving is a specimen, are placed in the best situations on the terraced hill-sides behind the town; the view over the town, the bay, and the distant hills is most charming, and well repays the visitor for the toil of the ascent. Camphor trees of great size are common about these temples; some of them are of great age; the Pinus chinensis or P. Massoniana are also common, and attain a good size. Higher up are cemeteries with tombstones of past generations. Observe the supports under the limbs of the Pine tree on the terrace, which tree has been deliberately planted in front of the centre of the steps beyond with a view to its picturesque effect.

An English surveyor, Mr. Macvean, is now employed in making an accurate survey of the Japanese dominions with a qualified staff of assistants, and Capt. Douglas, R.N., has established a hydrographical department under the Japanese Government.

Western civilization is making rapid strides throughout Japan, and it is now almost as unusual to meet in Yedo a Japanese noble wearing the two swords as it is to meet a gentleman in London attired in the Highland costume. Mr. R. G. Watson, late Chargé d'Affaires, read a most interesting paper on the progress of Japan not long since at the Royal Geographical Society in London, and in the *Illustrated London News* lately there was a capital sketch representing the European costume as adopted by the Japanese dandy. Our illustration is from a drawing by Capt. S. P. Oliver, of the Royal Artillery.

Home Correspondence.

The Broomesbarrow Yew.—This magnificent tree, which grows on the site of the old British camp that crowns Coneygre Hill, in the parish of Broomesbarrow, Gloucestershire, and which has suffered terribly by the growth and encroachment of surrounding trees, has now had them cleared away from around it. This clearance, which took place about five years ago by order of Osman Ricardo, Esq., the owner of the property upon which it grows, not only enables the spectator to survey the magnificent proportions of the tree, but will enable itself to recover its pristine health and vigour. A full history with particulars of the Broomesbarrow Yew will be given in the Rector of Pendock's (the Rev. W. Symonds) forthcoming volume, *Records of the Stones of the Valley*, which will contain geological, topographical, historical, and natural history notices of the Worcestershire and adjoining districts of the Severn valley. The approximate girth of the Broomesbarrow Yew is 25 feet, and it is to be hoped proprietors of similar sylvan veterans, whether Yews or other trees, will follow Mr. Ricardo's example, by taking steps for the preservation of natural objects of so great historical and scientific interest. *J. D. H.*

The True Double Daffodil.—The identification of this plant is a matter of some importance, because a quite distinct and much more showy form is usually regarded as the true double Daffodil. I enclose a flower taken from a plant growing wild in a meadow adjoining my garden. You will see that it is the same as you have figured at p. 500 [No], but if you will bestow a little extra care upon it, the manner of the doubling will be apparent, and will perhaps throw a doubt on the accuracy of Mr. Worthington Smith's drawing. To find fault with one so much accustomed to the observation of the niceties of plant structure, is, of course, not agreeable, but it will not harm his reputation much if I point out the deficiencies of his figure. Emerson says that an artist cannot draw a tree until he becomes a tree, and Mr. Smith may justly plead that he has not yet become a perfect Daffodil. The doubling process is variously accomplished in different kinds of flowers. In the Fuchsia the petals are multiplied, and petaloid stamens appear to augment the massiveness of the flower. The doubling of the Composites is pretty well understood, for the nature of the process is plainly illustrated by the comparison of a single with a double flower. Now I wish to point out that the doubling of a Narciss is not by the multiplication or interchange of the several parts of a flower, but by the endeavour of the plant to develope a number of flowers within one spathe; and if an artist has not noticed this, he is not likely to make an accurate drawing of a double flower. In the sample sent with this the tube or crown contains a complete flower, and you may discern the outer segments as distinct from the tube or crown though these several parts are compressed within the tube to a mere bunch of wrinkled and, to casual observation, quite indistinguishable segments. As the words "true" and "false" afford but little help in discussing a matter of this kind, I propose to speak of the true double Daffodil as the double Daffodil of the fields. The distinctive character of this form is that the tube or crown is intact, the doubling taking place within it. But a better known plant is the double Daffodil of the gardens; there are, indeed, many such, but the prevailing kind is well known, and as it is now in perfection, it may be examined to advantage. Here instead of a distinct tube containing a second imperfect flower, we have a large, closely-packed rosette, and this rosette consists, precisely as in the former case, of a number of flowers within one spathe, but the tube is gone; each of the several centres has a tube and perianth of its own, and the brevity and compressing make a confused mass of a number of parts that have a certain symmetry of arrangement, and strictly agree in plan with a single flower of, say, Narcissus major. I have had many flowers drawn by men of ability and experience, and have frequently observed that primary elements of structure were neglected by them for the sake of general effect. As they had not become Daffodils, they could not draw Daffodils; and the common bunchy rosette flower is undoubtedly a difficult thing to make out, apart altogether from the reproduction of its form in black and white. Having a collection of about 130 kinds of Narciss, that have, for the most part, been established some years, I have ample opportunity of observing them critically, and I never fail to make out the structure of the rosette or bunchy kinds, which, as remarked above, consists in the production of a number of short, imperfectly developed flowers within one spathe. It is a matter of interest that the stems on which these multiple flowers are borne show no signs of fasciation. It is not the less interesting that the flowers do not produce seed. And it would be very interesting were they some day to begin to produce bulbils, as I feel confident they will—a stride forward I fear I shall not live to see. But I have seen the promise, and perhaps the beginning of this, in the form of minute scales at the base of the multitude of pieces of which a rosette Narciss consists; and were their flower stems leafy as those of Lilies are, and an approximation made thereby to articulations, I feel confident that they would produce bulbils, as many of the Lilies do, not within the spathe, but on the stem. But should they ever attain to the capability of reproduction in the way of the Garlic or Tree Onion, we must expect the bulbils to be formed within the spathe, so as to take the place of seed. That this will happen I have no doubt whatever. *Shirley Hibberd, Stoke Newington.* [The specimen sent was not, in our opinion, the true wild double Daffodil, but a folio edition of it which is not N. major flore-pleno, but very close to it. Eds.]

—— I fear that the habitat of my double Daffodils is by no means "unexceptionable." They grow at the end of a copse close to the garden of an old building, which for two centuries was the manor house of the Bettesworths, and there is no doubt that it either was, or stands upon the site of, an ecclesiastical edifice prior to the Reformation; the garden has, therefore, existed from time immemorial. For years past I have known of a patch of the same kind in a hedgerow at some distance from any house; but now that the others have come to light, it seems probable that they may have been carried there with manure. *H. K.*

Double Daffodils.—I enclose two double Daffodils, the larger from a field, the site of an old garden, near Cumbolow Green, in this county, where it grows in the greatest profusion. This does not seem to be exactly the same as the ordinary form of N. major—at least, as it occurs in the same neighbourhood in gardens, or as an escape. The smaller flower was taken from a cottage garden at Hitchin. Both were strikingly beautiful when fresh. *R. A. Pryor, April 21.* [The large flower we believe to be the *cultivated* form of the double wild Daffodil, which runs so closely into the double form of N. major that no arbitrary line can be drawn between them. N. major we believe to be to the same species as our wild English Daffodil, but larger and more luxuriant, owing to the more propitious climate of the South of Europe, where it is a native. The small flowers sent by you are those of N. incomparabilis flore-pleno. Eds.]

Nemophila insignis and Cats.—I should feel much obliged if any fellow-sufferer could tell me a good working method of preserving Nemophila insignis from cats. Till this spring I have never noticed that they had any peculiar taste for this plant, but being partial to it myself, I have sown a good many patches, and every one of these is successively rolled flat, so effectually that, at first, I thought that for some reason or other the gardener had beaten the plants down into the ground with his spade. The performance seems to be simply rolling, presumably to enjoy the smell of the bruised plants, and no other of the annuals are meddled with, and the aggressor is certainly a cat, as it has left plenty of tabby hair on the scene of action. No common preservative measures are of any avail: the stout garden pegs seem only (like the nails in the telegraph posts to the buffalos) to add to the pleasures of the operation; and a moderate supply of prickly shoots, stuck in above the young plants, hardly answer better. If any of your correspondents could tell me of some powder which I could scatter to keep these most objectionable garden-rollers away, I should feel greatly obliged. *A Suburban Resident.* [Try pepper, or Pooley's tobacco powder. Eds.]

Natural Phenomenon.—A somewhat unusual phenomenon was observed here on the morning of the 13th inst. The previous night had been clear, and in the early morning there was a sharp white frost; later on a mist arose and the frost went off; shortly after 9 A.M. the sun gradually broke through the mist, and immediately the earth began to give evidence of the sun's presence by emitting vapour in all directions: gradually this increased in volume, and in a short time as far as the eye could see, over pasture, arable, and market garden, nothing was to be seen within a few feet of the earth but a complete shroud of white vapour. This, however, soon passed away, and the earth regained its ordinary appearance. I have not seen the exact resemblance of this phenomenon since the break up of the memorable severe weather in the winter of 1860-61. I well remember that the change took place during a Saturday night in January, and on the Sunday morning the temperature had risen so high that on going into the open air from that of the cold house it seemed like entering another climate—the snow was rapidly disappearing and all Nature was involved in a steamy vapour. I have noticed but few thaws since so rapid as that one. *Alex. Dean, Bedfont.*

Double Cinerarias.—Having read glowing reports of a new double Cineraria, which had been introduced by a German house, I obtained seed which produced me eighty plants; these, however, I may mention, were of inferior habit, but I looked forward to being compensated for this in a brilliant show of fine double flowers: the result is as follows—out of eighty plants there was only one that produced blooms having any claim to be called double; the remainder are in flower, and I forward you a few average specimens of the blooms, which I think you will admit are perfect rubbish. [Yes. Eds.] I should be glad to know if any of your correspondents have been more successful than myself. *William Chester, Abbots' Wood, Furness Abbey.* [We have not heard of any one having been more successful than yourself. We do not know that it is necessary to defend the "glowing reports," but we may say that the plants shown at South Kensington, and last year at Florence, by the German house in question, were perfectly double, and the strain worth having, with a view to improving. We can only speak of what we see. Messrs. E. G. Henderson & Son exhibited some of these double Cinerarias at South Kensington on Wednesday last, and some few of these were as double as those originally sent from Erfurt. Eds.]

Araucaria imbricata.—We have some fine specimens of Araucaria growing here, two of which look in bad health and bleed in different places up the stem, and some of the under branches are turning brown. The soil is a good deep loam free of lime or chalk; the trees have not been wounded. I should like to know what is the cause. *The Gardener, Greenfields.* [When the Araucaria imbricata bleeds much and exudes what forms small masses of a white resinous substance on its main stem, it indicates something seriously wrong; the cause is not always easy to discover, often very difficult. Low temperatures, such as we have had during the past winter, often cause this, and it is to be observed most frequently on those trees which grow in low situations. Uncongeniality of soil has often to do with it, as also a damp retentive subsoil. I have often seen this effect produced when the Araucaria had been planted in made earth, standing on a wet subsoil, so soon as the roots fairly penetrated the subsoil. I have also observed it on a plant which was growing in a poor thin soil on a gravelly subsoil abounding with oxide of iron. Unless the bleeding has been caused by the severity of the winter, carefully examine the roots, tracing them into the soil and subsoil; if the conditions are not favourable they too will show an unhealthy appearance: if so, renew with light rather than heavy loam—if the trees are large, lifting only about one-third of the roots now, or if moderate sized plants one-half, and the remainder in one or two more years, putting in at least 3 feet deep of fresh soil. If the subsoil is wet drain thoroughly, as the Araucaria, although at certain seasons it rejoices in a great deal of moisture, cannot endure stagnant water. *A. Fowler.*]

The Prince of Wales Plum.—I have read with intense interest Mr. Barron's article on the death of the Prince of Wales Plum trees. My old Orleans Plum tree, of the same race, has just died. It appeared to be well when I pruned it, but as soon as the east wind and hot sun set in it died. I have had it for many years. It died, no doubt, from the effect of the severe winter frosts. The other four trees next it, on a west wall, ascanted by the north, appear to be well. They are Diamond, Dove Bank, Belle de Septembre, and Mitchelson. They all cropped last season wonderfully—quite a sight—insomuch that I took people who came to see the Roses, and Peaches and Nectarines—my two hobbies—to see them. Mr. Barron and Mr. Dancer combinedly, I think, touch the causes of the death of the trees. Mr. Barron says it may be from "constitutional defect, or with a constitution such as renders it peculiarly liable to certain exigencies." No doubt the great annual crops tend to weaken the trees. Mr. Dancer attributes it to the spring frosts, which I know are very severe in the flat country near London. I used in my Harrow days to stop at Hounslow, where I arrived at half-past 4 A.M., and I recollect the fog from the hoar frost. The death takes place by injury to the skin or rind, which in some trees is tenderer than in others; and probably the cells and sap-vessels suffer also. When the sun comes out powerfully the skin and sap-vessels dry up, and the tree goes out like the snuff of a candle. This last winter was extra severe, but I have observed always that the old Orleans had more dead wood than the other trees. Diamond is a wonderful cropper, and a noble Plum. I recommend it to Mr. Dancer, if he has not got it; it is of good constitution, and crops well annually. The four trees were Mr. Rivers' selection. Mitchelson is an admirable cropper, but a smaller Plum. Mr. Francis Rivers, some time back, spoke in his letter to me highly of Prince Englebert, which I have not got. The Cherry trees (pyramids on the Mahaleb stock) give wonderful promise, but I do not think the Plum crop will be great. At one time I thought some of the other named Plum trees would die, but at present they look well. Frosts, either in winter or spring, are the main causes of the disaster, together with the

weakening of the constitution of the trees by inordinate annual cropping. The skin or rind is important. The leaves are the first lung, and the skin or rind is the second lung, and both have stomata. It is plain, therefore, if the stomata in the rind—through which the tree breathes till the second lung (or leaf) is developed—are injured, the leaf, or first lung (first, not in time), must in due time suffer; and by these two injuries the tree must die. The tree may live on for some little time, but ultimately dies from an inadequate supply of sap. I have only five other Plum trees, all the gift of Mr. Rivers. They are pyramids, 6 feet in advance of my south Peach wall. Their names are—Rivers' No. 4 Seedling, Reine Claude Rouge, delicious; Royale de Branau; Violette de Galopin, most delicious; and the Late Black Orleans, a most valuable October Plum, either for dessert or culinary purposes. I specially recommend this last Plum to Mr. Dancer. Of all the Plum trees, culinary or dessert, here, the Late Black Orleans has stood the winter best, and looks best now. *W. F. Radclyffe, Okeford-Fitzpaine, April* 17.

—— The destruction of the leaves and young shoots of the staple market Plum, Prince of Wales, mentioned at p. 494, seems to me to be due to the night frosts of May, rather than to any of the other causes assigned. That the older wood should equally suffer argues a tender habit, which does not appear to have been before noticed. If no retarding stock or more sheltered position be possible for the Plum orchards (and these would detract from the precocity of the produce) recourse must be had to some kind of protecting material. The large scale needed makes this very difficult to effect, and I am disposed to suggest a trial of newspapers, with light pliant rods pasted into them at intervals, and twine, as needed also, and that only the upper portions of the trees should be covered with these, as sky radiation would thus be arrested. Nets or tiffany would be dear, and as difficult to apply, besides being far more so to extricate, while newspapers would perfectly defend the leaves and fruit for the short time needed, and be cheap to buy and easy to place. A trial of these "paper protectors" for early Potatos has perfectly succeeded in the Channel Islands during the severe winter, and their use is likely to be general: why, then, should not a portion of the trees be equally and similarly defended? If even a few trees here and there were so treated, some insight into the real nature of the injury would be gained should these be safe and their neighbours ruined. *T. C. Bréhaut.* [Has the protection of the main stems and branches by hay-bands, or any similar covering, been tried? Eds.]

Terrestrial Orchids and their Odours.—Some time since Orchis mascula was somewhat strongly recommended for pot and bed culture, and for room decoration; but many of the readers of the *Gardeners' Chronicle* must at the time have well known of the insuperable objection generally taken to this plant, on account of its potent scent of the cat; this scent is intermittent, generally given out at dusk, and often so powerful as to be quite insufferable in a living-room. It does not appear to be generally known that Orchis tephrosanthos and O. pallens are both possessed of a similar odour, and one more powerful of the quintessence of the tom-cat than O. mascula itself. For six days I have had flowering plants of the two former ornamenting my work-room, and during the first five of these days the plants were quite passive, but on the evening of the sixth day they were both suddenly taken with ecstatic fits, and discharged such a volley of otto of tom-cat that the room became simply unbearable, and the plants had to be removed. This odour, it will be observed, also resembles the habit of the cat in being more active at dusk. The cultivation of O. coriophora is proscribed, owing to its smell of bugs. I have seen O. hircina grown in pots, but its fœtor of the he-goat is so horrible that it is insufferable in a living-room; Dr. Hooker tersely says of it (*Students' Flora*, p. 354), "scent detestable, hircine." The same odour pertains to Odontoglossum Lindleyanum, but in a less degree. *W. G. S.*

Leek Bulbs.—A year ago I made a note on Leek bulbs. Now is the time for those who want a supply to take measures to secure them. Leeks that remain in the ground are now of little use, and will soon throw up flower-spikes, and run to seed if allowed. The rule is to pull them up and destroy them, as from this time worthless, unless seed is required, in which case, of course, it is a very simple matter to allow them to produce seed, as they will do in great plenty, It is, however, a fact of some importance that these worthless plants that are usually destroyed will, if allowed, produce a crop of elegant and delicious underground bulbs, and those who wish to obtain such bulbs have but to do as will be advised to ensure complete gratification. In the first place, clean the ground and hoe the surface to admit the showers to the roots, and cut the tops of the flags, but not severely. In the course of a short time the pointed scapes or flower-heads will appear. Pinch them out the instant they can be got at, for not one must be allowed to rise. This pinching out will have to be done again and again, for scapes will show themselves to the last. When the flags begin to wither lift the roots, and you will find that the old bulb (or Leek proper) has perished, and in its place are two or three silvery bulbs of the size and shape of the largest Tulips, attached to the shrivelled stem. These underground bulbs may be kept some time, and may be useful in the place of Onions. But the way to understand their real value is to stew them in gravy, and eat them hot with butter and pepper. *S. H., in Gardeners' Magazine.*

Aerides cylindricum.—With the accompanying illustration (fig. 115) of a two-flowered spike of the singular Aerides cylindricum, which flowered lately in Lord Londesborough's rich collection, at Norbiton, we give the following remarks on the plant, from the pen of Mr. Denning:—"This plant would not, at first sight, be taken for an Aerides, but would appear to belong to that section of Orchids which includes the great Vanda teres; indeed the plant in question, in both growth and form of flower, bears great resemblance to the above-named species. The flowers of A. cylindricum are pure white, and last a long time in full beauty, but, unfortunately, owing to its slow growth and apparent scarceness, we are not likely to soon see a large mass of it in bloom. From the comparatively large size of the individual flower, and its very striking form, with its purity of colour, it is a plant that would become a general favourite if it could be procured in any abundance. This plant requires to be grown in the East Indian-house, and prefers a long slender block, on which to attach its roots; the block should be bare, as the roots perish quickly if covered with any moss or other substance. Unless the atmosphere is very moist the syringe should be plied daily."

A Spring Barrow.—From the *Bulletin d'Arboriculture* we extract a notice of a newly invented spring barrow (fig. 114), which seems likely to be useful in

Fig. 114.—A NEW SPRING BARROW.

saving fatigue. The application of springs to the barrow is described as an important invention both for the gardener, the objects that he moves, and for the barrow itself. The common barrow has not only a more or less injurious effect on the spinal column, but the continual shocks to the arms, shoulders, and head considerably increase the fatigue of the workman. The spring barrow saves much of this inconvenience, and enables objects to be transported with comparative ease over roughly paved streets, at the same time that the barrow itself is more durable than the ordinary vehicles. The barrow is made in five sizes, and has been patented. The cost is from £1 to £1 5s. It may be obtained of H. Renette, of Louvain.

Reports of Societies.

Royal Horticultural: *April* 21.—W. Burnley Hume, Esq., in the chair. In the absence through illness of the Rev. M. J. Berkeley [Of whom we are glad to have subsequently heard better reports. Eds.], Professor Dyer announced the awards made by the committee, and briefly commented upon several subjects alluded to in our reports below.

Scientific Committee.—Andrew Murray, Esq., in the chair.

Colorado Beetle.—Mr. Smee again raised the question of the Colorado Potato beetle, and elicited from the Chairman a renewal of his assertion that he had seen thousands upon thousands of the beetle, full grown insect and larva, on the haulm of the Potato and of the Tomato in Canada West (London, Ontario) The question was raised owing to statements that had been made that the insect would not live in the climate of Canada.

Peziza lanuginosa.—Mr. Edmonds, the Gardens, Chiswick House, sent a basket of Peziza lanuginosa from this locality, one of the very few where this handsome fungus is known to grow. The peculiar bird's-nest-like appearance of the fungus attracted great attention.

Seed of Encephalartos Attacked by an Insect.—This was referred to M. Murray, who will report further on another occasion.

Female Flowers of Yew Destroyed by an Acarus.—Prof. Dyer showed specimens of the female flower entirely destroyed by a mite. Dr. Masters suggested that it might have been destroyed by the same insect that produces the peculiar tufted growth on the ends of the shoots of the Yew.

Primroses, Oxlips, &c.—The Hon. and Rev. J. T. Boscawen showed flowers of many-coloured varieties of Primrose, together with the Oxlip, &c., gathered in plantations and woods in Cornwall, which raised an interesting discussion among the members as to the varieties of Primrose, Oxlip, &c. Dr. Hogg was of opinion that there were at least three so-called Oxlips —one a hybrid between the Primrose and Cowslip, one the umbellate Primrose, and one the Bardfield Oxlip.

Diseased Peach Shoots.—Dr. Masters showed shoots of Peach trees received from a gardener who, to remove scale from them, had thickly painted them with colza oil, and allowed it to remain while the shoots were exposed to the sun under glass. The result was that the plant was suffocated, and the shoots died.

Elm Buds.—Dr. Masters brought specimens of Elm buds, and elicited a discussion on the cause of the peculiar downward curvature of the young shoots in this tree, as also in the Hazel and Lime. Dr. Masters stated that while the outermost scales were arranged on the $\frac{2}{5}$ plan, the succeeding ones were arranged on the $\frac{1}{2}$, or distichous plan, the lowermost leaves had but a single stipule, while the succeeding ones had two oblique stipules, one of which in the very early stage was much larger than the other. It was suggested that possibly the change in leaf-arrangement, and the organic obliquity of growth, might account for the downward tendency. The similar downward tendency of coniferous leaders and other plants was alluded to by various members, and the suggestion broached that it might be a provision for throwing off rain-drops, or melting hoar-frost, so as to prevent injury to the young bud.

Early St. John's Cabbage.—Mr. W. W. Saunders communicated the following note on this Cabbage:—

"Among the seeds distributed by the Royal Horticultural Society in the spring of last year was a Cabbage called Early St. John's. I sowed the seed the latter end of April; it vegetated freely, and when the young plants were sufficiently strong they were placed at once from the seed bed into an open plot in the garden, where by the end of August, notwithstanding the dry summer, the plants formed heads very regularly, and a series of white, solid Cabbages, not very large (the largest not exceeding 6 inches diameter), was the result. A more uniform bed of Cabbages it would be difficult to conceive, and the regularity with which the plants all came to perfection at the same time was much admired by those interested in such matters. The Cabbage proved excellent when cooked. There is nothing, perhaps, very unusual in this little history so far, but a change soon took place, and in this manner. When the bed of Cabbages was about at its best, a long, warm, very dry period was succeeded by much rain and a very growing state of the atmosphere. The sudden impulse given to vegetation by this state of things soon caused the solid heads of the Cabbage to burst, and in a few days a series of smaller, well-shaped, rounded, compact heads were formed from the central axis of growth, closely touching each other, and backed up by the leaves of the original head, which remained green and full of sap. The number of these smaller heads varied from three to six in each Cabbage, and proved equally excellent when cooked as the original heads. In the drawings, carefully made from nature, one shows a head of the Early St. John's Cabbage before bursting; another a cluster of smaller heads originating from a very well-formed head before it burst open during the damp weather. There were six well-formed, small, rounded heads, but only five are shown, the other being hidden by the head. These details of the history of a Cabbage may be of some interest, as showing the effect of atmospheric changes on plants. I am aware that Cabbages often burst in wet weather and spoil, but here the bursting was rather to the advantage of the grower, I think, than otherwise, and the regularity of the process was remarkable. *W. W. S.*"

Grafted Potatos.—Prof. Dyer read a communication transmitted by Mr. Darwin, being an abstract from the *Sitzungsbericht der Gesellschaft Naturforschender Freunde zu Berlin* for Nov. 17, 1874, in which an account was given by Magnus of the production of graft hybrids in the Potato by Reuter, the chief gardener at Potsdam, in 1874. He used the white long Mexican and the dark grey black kidney, both of which sorts had been introduced from America by the Novara Expedition. A wedge-shaped piece of the former, bearing an eye, was grafted upon the latter. The graft hybrids exhibited an intermediate character in form between the parents. They were broader and thicker than the long thin Mexican, longer than the black kidney. One of the Potatos also exhibited a blending of the colours. The two ends were red, and the middle zone a greyish yellow. The dark grey colour of the black kidney is produced by the intense red sap in a layer of cells covered by the corky rind. In a subsequent communication Magnus mentioned similar experiments which had been made by Dr. Max Heimann, and communicated to the botanical section of the *Schlesischen Gesellschaft* in the *Sitzungsbericht* for Nov. 19, 1872. Magnus described similar results obtained by Dr.

Neubert, of Stuttgart, by herbaceous grafts of the stems.

In the discussion which followed doubts were expressed as to the possibility of Potato grafting, whereupon Dr. Masters stated that in his opinion it was not creditable to the Society that so simple a matter as this should not be set at rest by being subjected to the test of experiment under proper supervision at Chiswick, and suggested that the committee should make a representation to this effect to the Council, which was adopted.

Seedling Hellebores.—Dr. Masters called attention to some varieties of seedling Hellebores, received from M. Heinemann, of Erfurt, and first brought to his notice by Professor Karl Koch. These are elsewhere alluded to.

Seville Long-pod Bean.—In allusion to this Bean, which was stated by some not to produce seed freely at Chiswick, Dr. Hogg reported that a whole quarter had been sown at Chiswick with seed gathered in the previous season in that garden.—The meeting then adjourned.

Early Rhododendron Show.—We quote the official title for our heading to this paragraph, though almost anything else would be quite as appropriate. We are sorry to have to say it, but the fact cannot be disguised, that this was, as regards extent, the poorest show that has been seen at Kensington for some considerable time, and had not Mr. Barron promptly come to the rescue with a large collection of excellent decorative stuff from Chiswick, the result would have been even more deplorable. The schedule consisted of twenty-three classes, and the sum total of the money prizes offered was £75 7*s.*, or, deducting 50 per cent., £37 13*s.* 6*d.* The subjects of seven classes only were represented, and ten was the total number of exhibitors. The prizes awarded amounted to £8 7*s.* 6*d.*; and, allowing £5 odd for the miscellaneous class, shows a clear saving of about £60; but at what a sacrifice!

Messrs. Lane & Son's twelve forced Rhododendrons—the only group exhibited—were admirable in every respect. The plants were well-furnished with foliage, from 3 to 4 feet through, and splendidly bloomed. Amongst the varieties represented were Blandyanum, bright rose; Limbatum, white, edged with crimson; Nero, dark crimson, maroon spots; Queen of the West, shaded rose, chocolate spots; Auguste Van Geert, dark purple, nicely spotted; Etendard de Flandre, white, edged with rose; Towardianum, rose, with carmine spots; fastuosum flore-pleno, double, pale lavender, and chocolate spots; Minnie, white, with brown spots; Impératrice, rose, with chocolate spots; and Sir Isaac Newton, rosy carmine, with dark spots. The 1st prize was awarded. The six Orchids shown by Mr. B. S. Williams, which were awarded the 1st prize, consisted of Masdevallia Lindeni, with fifteen flowers; Odontoglossum luteo-purpureum, with two spikes, and twenty-five flowers in the aggregate; Dendrobium nobile, 2 feet through, well-flowered and very fresh; Odontoglossum Phalænopsis—a well-marked variety, with four flowers; Cypripedium villosum, with about sixteen flowers; and Camarotis purpurea, a pretty diminutive Orchid, seldom seen at exhibitions. The present specimen had a dozen spikes of its pretty little lilac, rosy-tipped, wax-like flowers. A group of nine Cinerarias, the only one shown, calls for no special comment; but the hardy spring flowers shown by Mr. Parker, of Tooting, and Mr. R. Dean, of Ealing, were particularly attractive. The former was 1st with beautiful examples, amongst others, of Doronicum austriacum, yellow; Triteleia uniflora, white, and its lilac flowered variety; Scilla italica, lilac, a fine mass; Primula elatior, Early Admirable, deep purple velvet, yellow centre; Cardamine trifolia, white, and very dwarf; Iberis linifolia, white; Muscari racemosa pallens, violet-blue; Ranunculus amplexicaulis, white; Orobus cyaneus, rosy lilac; Dielytra spectabilis. In the collection from Mr. Dean, the most conspicuous were Myosotis dissitiflora; bedding Violas Royal Blue and White Swan, both fine in form and very free; Primula cortusoides amœna, and its variety grandiflora; Aubrietia purpurea, well flowered; Lithospermum prostratum, a lovely blue; the new white quilled Daisy, White Globe; crimson-flowered Bellis aucubæfolia, Polyanthus Black Knight, very dark crimson, &c.

In the miscellaneous class the pride of place must be given to three boxes, each containing thirty-six magnificent blooms of the Maréchal Niel Rose, shown by Mr. J. Walker, nurseryman, of Thame, Oxon. In a small group of plants from Mr. B. S. Williams we noticed a good specimen of the South African Toxicophlæa spectabilis, showing numerous clusters of its white flowers in the axils of its leaves; a small specimen of Dendrobium pulchellum nicely flowered; a plant with one fine flower of the white variety of Odontoglossum Roezlii; the pretty Warscewiczella discolor; and of Palms nice young specimens of Plectocoma Andersoni, Cocos Weddelliana, Calamus montana, Areca Verschaffeltii, &c. Messrs. E. G. Henderson & Son showed a selection of plants of their strain of double Cinerarias, many of them poor, as might be expected for the first break, but affording good evidence that double Cinerarias are not a myth, but a thing of substantial reality, and which must become popular where cut flowers are always in demand. Experience this season of German seeds of double Cinerarias leads one to doubt the advisability of trusting to that method of raising a stock, and common prudence recommends one to get hold of the plants and propagate them by division. None of the double varieties we have seen have been remarkable for the abundance of their foliage, but that is not an object of much consideration where flowers for cutting only are wanted.

The large contribution to the show from the Society's garden at Chiswick consisted of Azaleas, Palms, Ferns, Acacias, a few Orchids, Clematis, Cytisus, Richardias, alpine Auriculas, Narcissus, Solomon's Seal, and Spiræa japonica, and it was fortunate that so many plants in flower were at hand for the purpose.

There were only two competitors in the class for Black Grapes, and the 1st prize went to Mr. Bones, gr. to D. McIntosh, Esq., Havering Park, Romford, who showed nice bunches of new Black Hamburghs, good in berry, and well coloured for the season. Mr. J. Ridout, gr. to W. S. Brown, Esq., Woodhatch Lodge, Reigate, took the 2d prize with Alicante, fine in bunch, berry, and colour, and admirably preserved. Of two brace of Cucumbers, the best was of Tender and True, shown by Mr. J. Lane, gr. to Major-General Fytche, Pyrgo Park, near Romford. The nicest brace of Marquis of Lorne we have seen were staged by Mr. W. Rapley, gr. to R. Hudson, Esq., Clapham Common.

Floral Committee.—R. B. Postans, Esq., in the chair. First-class Certificates were voted to Messrs. Veitch & Sons for Dracæna hybrida, a broad-leaved type, the older leaves of which are of a dull green, margined with crimson of various degrees of intensity, and younger or crown leaves, greenish white on the upper side, and pale rose beneath; to Mr. H. Bennett, Stapleford, Salisbury, for Hybrid Perpetual Rose Captain Christy, a large full flower, with pale pink outer petals and flesh-pink centre—in the way of Duchess of Edinburgh, but lacking the fine perfume of that flower; and to Mr. R. Dean, Ealing, for his new double quilled white Daisy, White Globe, which produces large and perfectly quilled flowers—a welcome companion to the double quilled red form. The thanks of the committee were awarded to Mr. R. P. Barr, Tooting, for a large and fine collection of cut blooms of Narcissi; and to Mr. Stevens, gr. to the Duke of Sutherland, Trentham, for a large specimen with about three dozen spikes of flowers of the variety of Cœlogyne cristata known as Lemoniana, which has longer and narrower bulbs, longer leaves, and comes into flower from three weeks to a month later than the typical form. From Messrs. Veitch & Sons also came a small group of Orchids and other plants, including Masdevallia Veitchii, Phalænopsis grandiflora with seven very fine flowers; several varieties of Odontoglossum Alexandræ, Dendrobium Bensonæ, Phalænopsis Lüddemanniana and its variety, ochracea, in which the petals and sepals are shaded with soft yellow ochre; Odontoglossum prænitens (see p. 524), with medium sized flowers, of a greenish yellow ground colour, heavily spotted and barred with chocolate; and Saccolabium ampullaceum, with eight spikes, a very

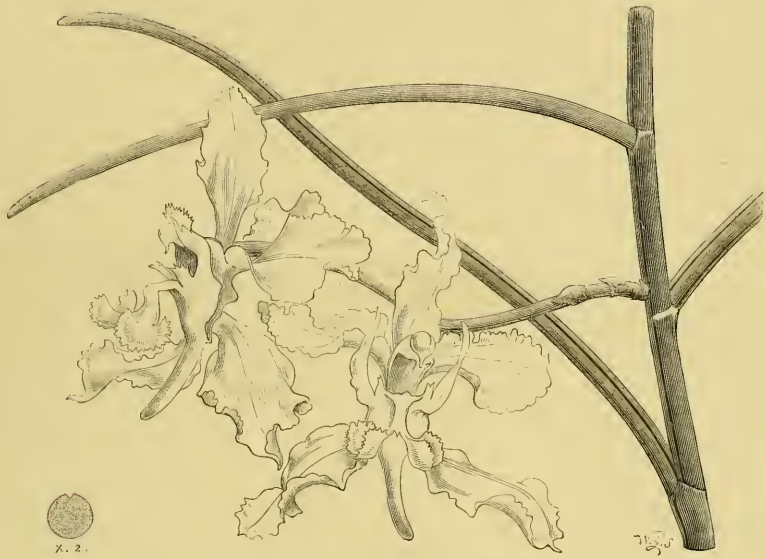


Fig. 115.—Aerides cylindricum.

pretty specimen, &c. Mr. Kinghorn, Sheen Nursery, Richmond, again sent a flowering specimen of the interesting Fuchsia procumbens; and Mr. B. S. Williams showed Franciscea magnifica, with large lavender-blue flowers. From Mr. H. Bennett, Stapleford, came a large box of very fine cut blooms of his new pink H.P. Rose Duchess of Edinburgh; and Mr. Bull had flowering specimens of Tillandsia musaica, and Anguloa Turneri. From Mr. T. W. Bond, gr. to G. A. Smith, Esq., The Beeches, Weybridge, came nice specimens of Brassia maculata, and Oncidium altissimum; and from Mr. William Paul two new H.P. Roses named Villaret de Joyeuse and Amelia Hoste.

Fruit Committee.—H. Webb, Esq., in the chair. A Cultural Commendation was awarded to Mr. J. W. Bond, gr. to G. A. Smith, Esq., for two plants, fifteen months old, of Foster's Seedling Grape, carrying about 4 lb. each of ripe fruit; and the thanks of the committee were voted to W. Terry, Esq., Peterborough House, Fulham, for eleven fine pods of Vanilla aromatica, ripened in his garden; to Mr. Sydney Ford, gr., Leonardslee, Horsham, for a small collection of well preserved Apples and Pears, including, of the former, Dumelow's Seedling, Royal Russet, Norfolk Paradise, Spanish Pippin [?], and Alfriston; and to Mr. John Munro, Potter's Bar, for Keens' Seedling Strawberries, Cucumbers, and early Grapes.

Amsterdam Horticultural Exhibition.—This exhibition is held annually in a fine building called the Grand Palace of Industry, and which is well adapted for the purpose, being of large size and well lighted. Adjoining are two or three smaller halls, which are very useful for arranging collections of various kinds which would not make so good an appearance in the large building. The exhibition was opened by the Queen of the Netherlands, who was conducted round by the committee, amongst whom were some of the principal gentlemen of the country who take delight in horticulture—Mr. J. A. Willinck, Mr. C. A. Dudok de Wit, and several others. The *tout ensemble* had a very pretty effect, as the arrangements of the different collection of plants were good: they were arranged in the form of beds on which was placed soil for the pots to stand on and a deep edging of turf round them, giving the plants the appearance of growing in a garden. This was all completed after the judging was over, by the Messrs. Groenewegen and Mr. J. C. Krook, with a staff of men under their supervision. I must give these gentlemen great credit for the taste displayed: I never saw a show better arranged, or the plants made more of than they were here, especially as the season was cold and late, and consequently the plants could not expand their beauties to the full extent. The Azaleas, Roses, and hard-wooded plants were well backed with foliage plants: the building is large and the effect produced, viewed from the galleries, by the blending of the various flowering plants with the Tree Ferns, Palms, &c., was grand. The sides and centre of the Palace were well arranged: in the latter was a large bed, in which was a collection of ten Tree Ferns from Mr. C. A. Dudok de Wit, consisting of Dicksonia antarctica, C. fibrosa, Alsophila australis; some good heads of Cibotium princeps, with their graceful fronds; those of the rare Angiopteris Willinckii, and Alsophila contaminens.

In front of these were some fine collections of Azaleas, greenhouse plants, Roses, &c. In the four corners were some fine standard Bay trees. In the next bed was a collection of Rhododendrons in full bloom, exhibited by Mr. Groot, of Utrecht. These always make a good display. In the two following beds were fine collections of Palms, Cycads, &c. I also noticed some fine plants of Chamærops, Arecas, Seaforthias, and other fine Palms. Then came a collection of Camellias and standard Roses: arranged in beds, these produced a good effect. The Cinerarias formed a nice feature arranged in clumps at the sides of the building. There were some very fine Acacias, such as A. Drummondii, a large specimen; also A. ovata, A. pulchella, with its showy flowers; and A. grandis, &c. At each end of the building were grand clumps of Dracænas, Palms, Rhododendrons, Azaleas, Epacris, Camellias, and that charming old plant we seldom see—Metrodsideros—commonly called the Bottle-brush plant, with its showy scarlet flowers. At the sides were fine collections of Agaves, Coniferæ, Orange trees, and a host of other showy plants, all tending to make a good display. Mr. Krelage, of, Haarlem, exhibited a fine collection of Phormiums, which were very attractive. Leaving the grand hall a large room was entered, in which were arranged many fine collections of plants that require a warmer temperature. Some of the pots were hidden with moss, and the tables were covered with green moss: the effect produced by this was very pleasing, and showed great taste, for which thanks are due to Messrs. Groenewegen and Krook. One may learn a great deal as regards arrangement and taste in decoration by visiting these shows. The first object that attracted my notice was a well arranged basket of Lycopodium, from Mr. J. A. Willinck. In it the different species were so well grown, and such taste displayed in putting them together, that no one could pass them unobserved. Near this, from the same exhibitor, was a kind of cushion formed of Lycopodium, in which were placed different kinds of cut Orchid blooms, amongst which were Cypripedium villosum, many flowers of the beautiful Cattleya Skinneri, with its dark mauve flowers; near these the fine Dendrobium fimbriatum, then rows of the flowers of Vanda suavis. At the outside edge of this floral cushion were flowers of Anguloa Clowesiana and Lycaste Skinneri; near this was a good specimen of Anthurium Scherzerianum, also belonging to Mr. Willinck, with about twenty of its bright orange-scarlet flowers of a large size. There was also another grand plant of the same shown by Mr. J. J. Kluppel, with about the same number of blossoms. The collections of Dracænas were very good, especially those exhibited by Mr. C. A. Dudok de Wit. Dracæna magnifica was a grand showy plant, D. Baptistii a fine variety, and D. striata, which is one of the best coloured kinds; D. amabilis formed a good contrast, with its light foliage. The next best collection of Dracænas was from J. Van Leuwen, of Leyden. The D. amabilis was very fine, also limbatum, Guilfoylei, and D. striata were of a good colour. The Echeverias were shown well by Mr. J. C. Krook: amongst them were fine specimens of E. metallica, E. pulverulenta, with its white powdery leaves; E. globosa, E. de Smetiana, a new and distinct kind; and E. agavioides, a splendid plant. Besides this collection there was also another very good one shown. The collection of Lycopodiums made a good feature. Mr. J. Van Leuwen, of Leyden, exhibited a grand collection of twenty-five variegated plants in fine condition, consisting of Ficus Parcellii, the new Aphelandra fascinator, with finely variegated foliage; also well coloured Pandanus Veitchii, &c. Messrs. Groenewegen also exhibited a good case of variegated plants, consisting of Crotons, Pandanus, Cyanophyllums, Tillandsias, &c. Twelve Crotons were also shown in a glass case by Mr. C. A. Dudok de Wit; they were fine healthy, well coloured plants, consisting of C. majesticum, C. spirale, C. volutum: these three are new and very distinct; also C. Youngii and multicaule were well grown. Messrs. Groenewegen also exhibited Crotons, but the plants were small; a collection of tropical plants of great interest, and many other good collections of plants. I also noticed some fine Pelargoniums, and a stand of cut Liliums, very good for so early in the season. Spiræas also formed a part; Todea superba, and many other plants, which gave great credit to their owners. I hope in a year or two hence to see a grand international show in Amsterdam; the present committee have all the tact and energy required for carrying such an exhibition into good effect. Many of your readers can bear witness to this from their success on a former occasion. (*From a Correspondent.*)

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
For the Week ending Wednesday, April 21, 1875.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 Years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for the Week.	Temperature of the Air. Departure of Mean from Average of 60 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
	In.	In.	°	°	°	°	°	°			In.
April 15	30.21	+0.46	52.1	38.0	14.1	42.0	− 3.5	42.0	97	NNE: E.N.E.	0.00
16	30.16	+0.41	57.4	35.0	22.4	44.5	− 2.1	42.8	94	E.: ESE	0.00
17	30.03	+0.28	62.0	34.8	27.2	47.9	+ 1.1	46.0	91	E.S.E.: E.	0.00
18	29.94	+0.19	63.2	35.1	28.1	48.0	+ 1.0	44.0	90	E.N.E.	0.00
19	29.97	+0.22	68.0	39.6	28.4	51.9	+ 4.7	47.6	85	ENE: E.	0.00
20	29.95	+0.20	72.0	40.0	32.0	54.2	+ 6.8	39.0	57	ENE.: E.	0.00
21	29.68	−0.08	65.8	40.6	25.2	53.5	+ 5.9	45.2	73	E.: E.N.E.	0.21
Mean	29.29	+0.24	62.9	37.6	25.3	49.0	+ 2.0	43.9	84	E.: E.N.E.	sum 0.21

April 15.—Fine, bright, partially cloudy, and mild throughout.
— 16.—Fine, mild, bright, and light clouds prevailed throughout.
— 17.—Fine, mild, and nearly cloudless throughout. Slight fog in early morning.
— 18.—A fine, mild, cloudless day.
— 19.—A very fine, warm, cloudless day.
— 20.—Fine, bright, mild, and cloudless throughout. Fog in early morning.
— 21.—Overcast, dull, and gloomy, though fine at intervals. Heavy rain after 7 P.M.

—— In the suburbs of London the reading of the barometer at the level of the sea decreased from 30.15 inches at the beginning of the week to 30.13 inches by about mid-day on the 11th; it then turned to increase, and by noon on the 15th the reading was 30.42 inches, it then decreased to 30.16 inches by the end of the week. The mean reading for the week was 30.27 inches, being 0.61 inch higher than that of the preceding week. The highest temperatures of the air at 4 feet above the ground ranged from 46° on the 12th to 62° on the 17th, the mean for the week being 53⅔°. The lowest temperatures of the air varied between 42° on the 11th and 34½° on the 14th, with a mean for the week of 37°. The mean daily range of temperature in the week was 16⅔°, varying from 8° on the 12th to 27½° on the 17th. The mean daily temperature of the air, and the departures from their respective averages were as follows: —11th, 44°, —1°.8; 12th, 40°.5, —5°.4; 13th, 43°.4, —2°.6; 14th, 42°.8, —3°.4; 15th, 42°.9, —3°.5; 16th, 44°.5, —2°.1; 17th, 47°.9, +1°.1. The mean temperature of the week was 43°.9, being 2½° below the average, as deduced from observations extending over a period of sixty years.

The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in sun's rays, were 118½° on the 14th and 117⅔° on the 17th, but on the 12th it did not rise higher than 53½°. The lowest readings of a thermometer placed on grass, with its bulb fully exposed to the sky, were 30° and 32° on the 14th and 17th, but on the 11th 40½° was the lowest reading. The mean for the several low readings was 33¾°.

The direction of the wind was E.N.E., and its strength gentle.

The weather during the week was fine, mild, and cloudy; dense fog prevailed in the early morning of the 14th.

No rain fell during the week.

In England the extreme high temperatures observed by day ranged from 66½° at Leicester to 52° at Newcastle-on-Tyne, with a general average all over the country of 61°. The extreme low temperatures observed by night varied between 35° at Newcastle-on-Tyne and 26° at Hull, with a general average of 30½°. The mean of the extreme ranges of temperature in the week was 30¾°, the greatest range being at Leicester and Eccles, both 37½°, and the least at Newcastle-on-Tyne, 17°. The mean high day temperatures varied from 58° at Eccles to 48½° at Newcastle-on-Tyne, the general average being 54°. The mean low night temperatures ranged between 39½° at Liverpool and 33° at Hull, with an average value of 36½°. The mean daily range of temperature in the week was 17½°, varying from 22½° at Eccles to 11¾° at Newcastle-on-Tyne. The mean temperature for the week was 43¾°, being 1¾° lower than the value for the corresponding week in 1874; the highest were at Liverpool and Manchester, both 45¾°, and the lowest at Newcastle-on-Tyne, 40¾°.

The weather during the week was fine, cloudy, the days mild, but the nights cold; scarcely any rain fell over the country: at Bristol 0.01 inch was measured, at Newcastle-on-Tyne 0.09 inch, and at Truro 0.02 inch were recorded; no rain fell at any other station.

In Scotland the highest temperatures ranged from 66° at Dundee to 62½° at Glasgow; the lowest temperatures varied between 36½° at Greenock and 31° at Perth; their respective averages being 64½° and 33½°. The mean range of temperature in the week was 31°. The mean temperature of the air for the week was 47¾, being 4° higher than that of England, and 3¾° higher than the value for the corresponding week in 1874; the highest occurred at Greenock, 49½°, and the lowest at Leith, 46°. No rain fell over the country with the exception of 0.01 inch at Aberdeen.

At Dublin, the highest temperature was 67½°, the lowest 24½°, the mean 44½°; no rain fell.

JAMES GLAISHER.

Garden Operations.

(For the Ensuing Fortnight.)

PLANT HOUSES.

Plant Stove.—In addition to the greenhouse subjects that have been previously advised for table, hall, and room decoration, the following stove plants should now be propagated, and grown on in such quantities as are required. In the case of these, especially if used for table decoration, it is necessary to propagate every year, as, when the plants get too large, they are objectionable. *Dracænas* are particularly adapted for this purpose, especially some of comparatively recent introduction, that possess narrower leaves than the older varieties, and are consequently more light and airy in their appearance. Amongst them are *D. nigro-rubra*, *D. albicans*, *D. angusta*, *D. Guilfoylei*, and the old *D. terminalis*. Any plants of these that have got too tall, or leafless and naked in the stem, may have the tops taken off, and these will quickly root in a brisk heat, if placed singly in 48-sized pots, forming in a short time nice plants. The harder parts of the old stems may be cut into lengths an inch long, denuded of any leaves they possess, and inserted thickly in pots, and kept close and warm. When rooted pot singly, and encourage them to make all the

growth possible through the season by keeping them in a warm stove and syringing daily. As soon as the stools have broke turn them out of the pots, shake all the soil from them, remove the bottom portion of the main root, which, if turned the opposite end up to that in which it has grown naturally, and potted, will soon make a plant. Place the stools in pots no larger than just sufficient to admit the roots.

Crotons.—Cuttings of these, in a much larger state than would succeed with most plants, will strike freely without losing their leaves if kept close and hot until they have a good amount of roots. Shoots 9 or 10 inches long of the varieties *angustifolia*, *variegatum*, *pictum*, *undulatum*, and the newer kinds, such as *Weismanni*, *majesticum*, and *spirale* (the latter three sorts from their elegant habit are well adapted for the purposes under consideration), when rooted and encouraged to push growth, in a few months make beautiful small decorative plants. The elegant Fern-like *Cupania filicifolia* is one of the most beautiful table subjects. A strong plant that has become bare of leaves at the bottom and requires heading down, will break up a number of shoots; when these are 4 or 5 inches long, if taken off with a heel they will strike in a moderately close place in a brisk heat, after which gradually inure them to bear more air: but with these care must be taken that the leaves which the young plants already possess do not get injured, as the loss would spoil their appearance. The tops of *Aralia reticulata* and *Veitchii* (the last named variety is one of the most elegant small decorative plants grown), if taken off 10 inches in length will root, if they are placed in a brisk heat and moist atmosphere. When struck inure them gradually to more air. The stems of the plants lower down, so far as they are not too hard, will make cuttings, a couple of eyes to each; the harder bottoms of the stems will break, which shoots take off with a heel, placing them singly in small pots, in sand. When all the cuttings that can be got are taken off, the stools may be turned out of the pots; some of the roots if made into cuttings an inch long, inserted in sand, and kept warm, will make plants. These partially disrooted plants should then have most of the old soil removed, and be replaced in smaller pots. *Terminalia elegans* is a good companion for *Aralia Veitchii*, with narrow lanceolate leaves, beautifully marked. It requires similar treatment in every way to the Aralias above named. *Asparagus decumbens* is a good plant for this kind of decoration, with finely-divided leaves. As that most elegant of Palms, *Cocos Weddelliana*, gets more plentiful, it cannot fail to be in general request for table and room embellishment. There are few plants equal to Palms, when small, for table decoration, and it is surprising how some of naturally large growth can, by suitable treatment, be kept for a very considerable time in a small state, and yet quite fresh and healthy in appearance. The following may be kept in 6 or 7-inch pots for a couple of years, making so little growth as not to get over large, by keeping them during the summer, when not doing duty in the dwelling, in a temperature not higher than an ordinary greenhouse, and in the winter at about 48°; but as they are moisture-loving plants, the soil must never be allowed to get quite dry:—*Latania rubra*, *Hyophorbe indica*, *Kentia australis*, *K. Canterburyana*, *K. sapida*, *Livistonia australis*, *Areca Verschaffeltii*, *Dæmonorops fissus*, *Thrinax elegans*, *Areca rubra*, *A. lutescens*, *Chamærops excelsa*, and *C. humilis*. As these get too large for table decoration they come in for halls and similar places.

Camellias.—Few growers of these plants like potting them in the spring, on account of their not liking their roots disturbed, even in the least, at a time when growth is about to commence. When in good healthy condition the roots of Camellias always begin to grow before the buds swell—a natural provision, doubtlessly made to have in readiness the supply of nutriment required in the formation of their large quick-growing leaves. Any disturbance of the roots in the spring generally interferes with the setting of their flower-buds, except in the case of plants in a more than ordinarily vigorous state; consequently it is better with those of considerable size to defer their potting until the flower-buds are just formed, but with small growing stock that are suffering for want of root-room, and which would be still further cramped if not moved until the end of the growing season, it is better to pot them now, not disturbing the roots any more than just removing the crocks from the bottom. Good fibrous loam imparts a greater disposition to flower, but they grow much faster in peat, and always have deeper green colour in the leaves; pot quite firm, and give plenty of moisture over-head as well as at the roots whilst the growth is being made. *T. Baines.*

FLOWER GARDEN, &c.

Parterre and Mixed Garden.—The planting of all kinds of evergreens should now be pushed on, so as to bring this work to completion before the young shoots advance sufficiently to suffer injury. The late severe winter will have proved fatal to many evergreens that were transplanted in the autumn, and has shown the necessity of deferring such work till this season of the year, when root-action is encouraged by the daily increasing warmth and genial showers, which to newly planted shrubs are very beneficial. Unless large plants are required for immediate effect or other special purpose, it will be found more satisfactory to plant such as are of medium size, as they are sure to succeed. If large plants are to be operated on, the holes for their reception should be dug of sufficient size and depth to take the respective plants previous to their removal, so that they are not kept out of the ground longer than is absolutely necessary for their transit from place to place. After planting, see that all are securely staked, to prevent them from blowing to and fro, or the roots will be strained. Give a good heavy mulching of half rotten litter, and the plants will require but little after-attention. The hardy fernery is perhaps the most interesting department of a garden during the months of May and June, as at that season the young fronds vie with each other in the display of their lovely rich tints of delicate green. No place of any pretensions can be considered complete without an appendage of this kind, as here may be associated a very interesting class of plants, that cannot be cultivated so well, or look so much at home in any other portion of the grounds. Such things as Daphne Cneorum, Aubrietias, the lovely Lithospermum prostratum, Omphalodes verna, hardy Geraniums and Anemones, and a whole host of beautiful and interesting subjects, may here find a suitable home; while the margins of walks should be crammed with the different wild flowers, such as Orchis, Bluebells, Primroses, Anemones, and such like shade-loving plants.

The old fronds of *Ferns* should now be cleared away, as the young growth will soon be protruding, and, as they spring up quickly, they may suffer injury. The plants will be greatly benefited by a top-dressing of fresh peat and loam, or, failing the former, some thoroughly decomposed leaf-mould in lieu of it. Woodwardia radicans and Cyrtomium falcatum make grand plants in the hardy fernery, and only require a slight protection during the winter. The latter stands out as distinct among hardy Ferns as the Holly among evergreens, and those who are not cultivating these striking species should add them to their collection. Struthiopteris germanica and Onoclea sensibilis are equally desirable, and should be in every fernery.

Herbaceous Plants may still be divided, and any half hardy varieties wintered under protection should now be planted out. *Lobelias* of the fulgens type, are a very interesting class of plants that have long been esteemed for their brilliant flowers. To grow these to perfection they should be potted on till the middle of May, and be then planted out where they can obtain plenty of moisture at the root.

Most of the annuals are too weedy and ephemeral in their character to render their use at all desirable in the modern flower garden, but there are some that are very showy and durable, which should have a place somewhere in the grounds. The double *Zinnias*, *Asters*, *Stocks*, and *Phlox Drummondi*, stand foremost among these, and are almost indispensable. Zinnias, on account of their somewhat tender nature, should be sown in gentle heat, and kept under glass till the middle of May, or later, according to the state of the weather. The following may be named as showy varieties, deserving cultivation:—*Dianthus Heddewigii*, and its many varieties, both double and single, are very beautiful and lasting. *Godetia Whitneyi*, with its vivid-coloured, crimson-spotted flowers, is very striking and showy. The *Helichrysums*, *Nemophilas*, *Collinsias*, *Clarkias*, *Marigolds*, and *Rhodanthes* should all be grown; and for hot, sunny places *Portulacas*, both single and double, are just the thing. The whole of the above, except Portulaca, should now be sown thinly, under the protection of hand-lights or old frames, in fine sifted leaf-soil and loam. *J. Sheppard, Woolverstone Park.*

FRUIT HOUSES.

Pines.—Promptitude in ventilating Pine-houses, particularly those in which high temperatures are maintained, at this season is indispensably necessary; the cold nature of the nights renders a liberal supply of fire-heat absolutely necessary in certain houses, as in the case where fruit is progressing towards maturity. Although the circulation through the hot-water pipes may be stopped, still there is a considerable radiation of heat going on from them which, with sudden outbursts of powerful sunshine (such, for instance, as we have experienced during the present week), would render matters in this department very precarious, if ventilation were at all neglected. In those houses where large planes of glass are employed, and the pants are in close contiguity to them, a slight shading should be applied under these circumstances during the hottest part of the day; but in such as are glazed in the old-fashioned way, with small squares of glass, it will scarcely be required in the ordinary way, as the laps provide a circulation sufficient to prevent the sun's rays from scorching the plants. For summer use the old-fashioned sashes are admirably adapted to swell Pine-apples off well, but the reverse is the case during winter. Attend to ordinary requirements in regard to management as before indicated in the Calendar. Scarcely too much moisture can be employed about the houses in which fruit is swelling off. As the fruits get ripe, if they be in pots, remove both plant and fruit to a cooler place. They will keep sound for a longer period at this season than at any other, which is an advantage when other kinds of fruit are scarce. As the suckers of fruiting plants become large enough to handle, screw out the hearts of those which will not be required for stock; one sucker, or two at most, is ample to retain, unless the stock is to be largely increased. *G. T. Miles, Wycombe Abbey Gardens.*

Vines.—A very desirable change in the weather took place on the 14th, since which date there has been sunshine in abundance; consequently Vines have made rapid progress, and for a time it will be difficult to keep pace with thinning, pinching, tying, and regulating the shoots; but as it is important that all such work should be done at the proper time, a push should be made to accomplish it. Thinning ought always to be done in the evening or early morning, both for the greater comfort of the operator, and as a safeguard against rust, which is sure to take place if the berries are handled or rubbed with a sweating hand. Take off or pinch out the points of all lateral growths regularly. It is bad management to let them get so long that they have to be cut off wholesale, which gives a severe check to the Vines. Where Grapes are ripe, and the foliage is good, the lateral growths should also be kept pinched quite close, and the house kept at as equable a temperature as possible, with just sufficient moisture to keep the foliage healthy. If spider makes its appearance, sponge both the under and upper sides of the leaves with clear water; there is no other remedy half so effective. Inside borders of Vines that are swelling their fruit or near the colouring process should be examined, and if at all dry give a thorough drenching of manure-water, and as this watering will be a final one till after the Grapes are cut, give a surface mulching of either soil or dung to prevent evaporation. Air should be freely given in suitable weather; a "crack" left on all night is a beneficial aid in the laying on off beautiful bloom and colour, the two great characteristics of high finish. Late Vines are now breaking freely, and should be encouraged in every possible way to make rapid growth. Our seasons are too short for the thorough maturation of late kinds of Grapes. In insufficiently heated or unheated houses—and in such structures they should never be planted—Barbarossa, Gros Colman, West's St. Peter, Trebbiano, and Lady Downe's all require plenty of fire-heat in September and October to fully ripen them. No matter how elaborate the preparations for keeping them may be, they will not keep if unripe: ripeness alone ensures success. We have a quantity of Lady Downe's that were ripe in September, and cut from the Vines on January 12, and at the present date (April 19) they are as plump as on the day they were cut—a circumstance attributable to perfect maturation. Young Vines intended for next year's planting or fruiting in pots should be shifted on as soon as their roots have well filled the small pots they are now in. As a rule, 10-inch pots are quite large enough, both for those intended for planting out and fruiters, as generally the latter are placed on a bed of mould, into which the roots find their way out of the bottom of the pot, and are allowed to ramble at will. They should be carefully tended in the matter of watering and syringing. *W. Wildsmith, Heckfield.*

Melons.—The last few sunny days have wrought wonders in the progress of Melons, and the first batch are now nicely swelling off. Every ray of sun that shines must for the present be secured to them. While observing a drier condition of both the roots and atmosphere during the setting period, do not omit to dust a modicum of flowers of sulphur amongst the foliage and on the side walls, as an antidote to red-spider. Water liberally at the root in hot weather plants not yet in flower, as well as those which have set their fruit, and provide plenty of atmospheric moisture. In regard to plants growing in pots or boxes, it is not improbable they may require to be watered twice a-day this weather Attend regularly to the setting of the female blossoms, and cease to use the knife during the setting period; afterwards use both the knife and the finger and thumb freely, to remove all superfluous growths. Fairly strong plants shoul carry at least six fruits each: remember that large size is not a desideratum. Use but a small amount of stimulants to plants before they have set their fruit; afterwards feed them liberally till almost ripe. Maintain a night temperature of 72°, day ditto, 85° to 90°, with sun. The cultivator must exercise both skill and ingenuity to provide a continuous supply, and to make the best use of the structures at his command. We have many times grown very good summer crops in houses wherein were forced the earliest pot Vines; Strawberry houses and general purposes forcing houses may be

turned to account in like manner, the arrangements for the preparation of which are of course subservient to the requirements and means of the individual establishment. For pits and frames carry ont previous suggestions, and see this week's Cucumber Calendar. *Thos. Simpson.*

CUCUMBERS.—We have been troubled a good deal lately with wireworm and woodlice, and the best method I know of extirpating these pests is to catch them. The method we are adopting, with success, is to cut thick slices of Turnip and Potato, and press them gently into the surface of the bed, and these the wireworms seek greedily. These baits are examined every other day, and the enemy disposed of. For woodlice we fill a quantity of 48-sized pots three-parts full of hay, and place them about the house in such manner as to allow their ingress through the bottom hole, through which they enter readily. These we examine every day, and have destroyed hundreds. Both these pests are terrible enemies to the young rootlets. The progress of Cucumbers during the past sunny week has been great, and plenty of energy and attention is required to train and tie out the growths, or they will so interlace each other as to render the operation a most tedious and difficult task. We have not yet had recourse to shading; still the blinds are in readiness to be rolled down for an hour if the sun should prove overpowering. The sun-resisting power of the Cucumber depends wholly upon the circumstance of the roots; if these be healthy and abundant, very little shading is necessary. Do not permit flagging, at the same time shade as little as possible. Maintain the same temperatures as advised for Melons. Water abundantly in houses, and keep plenty of moisture in the atmosphere all day long. Syringe the foliage gently about 3.30 P.M., at the same time close the ventilators. Whilst the days are very warm, the nights are very cold and frosty; be careful, therefore, in pits and frames, that the foliage becomes dry before night. Husband a good sun-heat by closing the lights early, and still employ a good thick night covering. A good bottom-heat must also still be maintained. Keep young seedlings near to the glass, and gradually harden off ridge varieties. *Thomas Simpson, Chelmsford.*

Enquiries.

He that questioneth much shall learn much.—BACON.

47. HOYA PAXTONI FRUITING.—Can any of your readers inform me if Hoya Paxtoni has hitherto borne fruit in this country? I have succeeded in fruiting a plant this season, which, I believe, is of rare occurrence, and shall be obliged if any of your correspondents can enlighten me on the point. *Charles Turner, gr. to R. C. Lindley, Esq., Eastwood Hall, Notts.*

48. MULBERRIES FOR AUSTRALIA.—*T. F. R.* would be greatly obliged to any correspondent for information as to the best way of exporting the Mulberry tree to Australia. Whether it would be best to send young trees, or by cuttings; and, in either case, how should they be packed, to make the experiment successful?

49. AUCUBAS: BUDDING OF THE MALE PLANT.—May I ask "J. H. N.," of Tenterden, in reference to his remarks at p. 504, what season he chooses for budding the male plant on to the common Aucuba? *J. F. M.*

Answers to Correspondents.

AMERICAN ALOE: *T. Dobson.* The plan you propose would answer very well. The plants grow from 12 feet to 20 or 25 feet high, according to their bulk and vigour, and the inflorescence generally attains 4 feet to 6 feet in width. The space you propose to provide, therefore, would be ample; and possibly the lights, removed in the first instance, if they gave height enough, would, with canvas on the other side and at top, provide sufficient protection. The growth is very rapid when it sets in.

APPLE: *An Old Subscriber.* Rhode Island Greening.

BLUE POLYANTHUS: *J. M.* Yes. It is the plant that was known many years ago as the Blue Polyanthus, but, as you say, there is more lavender than blue in it.

COUCH GRASS: *H. N.* It is simply a case of perseverance. There is no other way of getting rid of it than by frequent forking, and picking out the roots.

DAFFODILS: *F. G. L.* The flowers you send are not those of the true double wild Daffodil, although we believe they may have originated from it, and have become enlarged by cultivation. Your Anemone is probably A. apennina.

DAHLIAS: *J. B. Tibbits.* Twenty-four good show Dahlias:—Acme of Perfection, Alexander Cramond, Arbitrator, Charles Backhouse, Cremorne, Edward Purchase, Flag of Truce, Herbert Turner, Her Majesty, James Service, John Standish, J. H. Keynes, King of Primroses, Lady Gladys Herbert, Leah, Memorial, Mrs. Stancomb, Ovid, Princess, Queen's Messenger, Sir G. Smythe, Toison d'Or, Vice-President, and Willie Eckford. Twelve good fancy Dahlias:—Butterfly, Carnation, Egyptian Prince, Fanny Sturt, Flora Wyatt, Harlequin (Keynes), Letty Coles, Monarch, Mrs. Saunders, Parrot, Prospero, and Richard Dean.

DOUBLE CINERARIA: *J. W.* Your seedling double Cineraria "Gaiety" is a good one, and almost identical with one shown by Messrs. E. G. Henderson & Son at Sout 1 Kensington on Wednesday last.

GERMANDER: *R. P. O.* This name is applied to a species of Teucrium, T. chamædrys. The Water-Germander is T. Scordium; and the Wood-Germander, T. Scorodonia. Which of these do you mean? They are all British plants.

HEDAROMA: *H.* Only one crop of flowers is developed in a year, but they last a long time in bloom, and produce the buds for the following year before the old flowers are all gone.

MESEMBRYANTHEMUMS: *W. B. Paxton's Botanical Dictionary* enumerates over four hundred species or varieties, but how many of these are now in cultivation we are unable to say.

INSECTIVOROUS PLANTS: *A. Ramsay.* These may be obtained from any of the large nursery establishments.

NAMES OF PLANTS: *C. Rye.* 2, N. Pseudo-Narcissus (the true wild double Daffodil); 3, N. Jonquilla; 5, Muscari racemosum; 6, Tulipa silvestris. The other two numbers were misplaced. One (single) is a large form of Narcissus Pseudo-Narcissus; the other (double) is N. incomparabilis, double var.—*J. Webster.* Muscari comosum, var. monstrosum, a very old plant.—*T. T.* We cannot tell what your plant is from the leaves only. It is probably of South American origin.—*P. W. J.* Narcissus Pseudo-Narcissus var. passing into the form called major.—*W. M.* Crinum ornatum.—*R. T. C.* Freesia Leichtlinianoa.—*Scott.* Helleborus fœtidus.—*B. T. W.* Aerides crispum.—*J. B. E.* Epimedium macraothum.—*Rhoderick Dhu.* Tillandsia stricta.—*P. H. G.* Dendrobium cumulatum, Lindl.—*A. D.* Rhododendron barbatum, Wall. (leaves with hairs at their base); R. arboreum, sm. var. (leaves without hairs). The Oak we cannot determine without the acorn.—*C. G. H.* 1, Enkianthus quinqueflorus; 2, Primula erosa; 3, Sparmannia africana.—*W. Marshall.* The mosses sent are:—A, Hypnum fluitans; B, H. filicinum.

PEACH SHOOTS KILLED: *J. W.* Your Peach shoots are evidently killed by the colza oil. Prior to the development of the leaves the tree has no means of breathing except through the rind of the young shoots. It has not then indeed much need to breathe, but if you prevent that little, the result, as in your case, is sure to be fatal.

PEACHES: *C. W.* The leaves of your Peach trees are being eaten and destroyed by the larvæ of the Peach saw-fly, Tenthredo populi. Look over your trees carefully, and you will see the leaves before they are fully expanded fastened together; open them carefully, and you will catch the little grub at its work, or destroy the eggs, which usually lie together on the point or edge of the leaf, and so prevent the leaves from being consumed.

PEACHES, DISBUDDING: *H.* The knife ought not to be used at all. Pinch the young points out with your thumb and forefinger.

PEAR SHOOTS BORED: *M. Sullivan.* The caterpillar in your Pear shoot was that of the Wood Leopard moth, Zeuzera æsculi.

WEEPING DECIDUOUS TREE: *J. G. B.* Populus tremula pendula is an elegant and rapid-growing weeping tree. Weeping Ash and Weeping Beech are both bolder in character, but somewhat slower in growth.

☞ FOREIGN SUBSCRIBERS.—We are requested by the Publisher to desire Foreign Subscribers sending Post Office Orders, to be good enough to write to the Publisher at the same time.

CATALOGUES RECEIVED.—Boulton & Paul (Rose Lane Works, Norwich), Catalogue of Greenhouses, Boilers, Hot-water Pipes, &c.

ERRATUM.—At p. 498, for "H.P. Madame Christy," read "H.P. Madame Lacharme."

COMMUNICATIONS RECEIVED:—A. B.—A. F.—H. W. W.—J. Murdock.—W. Tillery.—A. R.—T. T. (thanks for the newspaper cutting).—G. Syme (next week).—J. R. P. (next week).—G. Wallis.—X. Y. Z.—Victor.

Markets.

COVENT GARDEN, April 22.

We have to report a moderate supply, and a slight improvement in the demand. Continental produce is coming very good, comprising Asparagus, French Beans, Peas, young Carrots and Turnips, Artichokes, and the usual varieties of Lettuce and Endive. Natural Rhubarb is now becoming very plentiful, and has diminished the demand for culinary Apples; good dessert sorts are chiefly Reinettes, New Town Pippin, Noupareil, and Golden Knob. *Thos. Taylor, Wholesale Apple Market.*

—— Among the choicest products in the retail market we may note:—Figs, 24s. per doz.; English Grapes, 18s. to 24s. per lb.; and Strawberries, 12s. to 16s. per lb. A few Tomatos and Peaches have also made their appearance.

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Azaleas, p. 12 sprays	0 6-	1 6	Lily-of-the-Valley, 12 sprays ..	1 6-	3 0
Camellias, 12 blooms	2 0-	6 0	Mignonette, 12 bun.	4 0-	6 0
Carnations, 12 blooms	1 6-	3 0	Narcissus, per doz...	0 6-	1 6
Cineraria, p. bunch..	0 9-	1 6	Pelargoniums, 12 spr.	0 9-	1 0
Cyclamen, 12 blooms	0 2-	0 6	— Zonal, do. ..	0 6-	1 0
Deutzia, per bunch..	0 6-	1 0	Primula, dbl., p. bun.	0 9-	1 6
Eucharis, per doz. ..	6 0-	12 0	— single, do. ..	0 4-	0 9
Euphorbia, 12 sprays	1 6-	6 0	Roses, indoor, p. doz.	2 0-	6 0
French Lilac, p. bun.	3 6-	9 0	— French, do. ..	1 0-	2 6
Heliotropes, 12 sprays	0 6-	1 0	Spiræa, 12 sprays ..	2 0-	4 0
Hyacinths, per bunch	0 9-	1 6	Stephanotis, 12 sprays	0 9-	15 0
— Roman, per 12 spikes ..	..	1 0-	2 0	Violets, per 12 bun...	0 6-	3 0

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Azaleas, per dozen..	24 0-	60 0	Hyacinths, per doz.	6 0-	18 0
Begonias, do. ..	6 0-	12 0	Lily of the Valley, 12 sprays, about ..	1 6-	3 0
Bouvardias, do. ..	9 0-	18 0	Mignonette, do. ..	6 0-	9 0
Cineraria, do. ..	6 0-	15 0	Myrtles .. do.	3 0-	9 0
Cyperus, do... ..	6 0-	12 0	Pelargoniums, dble., per doz. ..	6 0-	12 0
Deutzias, do. ..	8 0-	18 0	— Scarlet, do. ..	6 0-	9 0
Dracæna terminalis	30 0-	60 0	Primula sinensis, do.	4 0-	8 0
— viridis, per doz.	12 0-	24 0	Solanums, do. ..	6 0-	18 0
Ficus elastica ..	1 6-	7 6			
Fuchsia, per doz. ..	9 0-	18 0			
Heaths, in var., doz.	12 0-	30 0			

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, per ½-sieve	3 0-	4 0	Oranges, Malta, per dozen ..	2 0-	3 0
Grapes, English, per lb. ..	10 0-	20 0	Pears, p. doz. ..	4 0-	12 0
— foreign, do. ..	1 6-	4 0	Pine-apples, p. lb. ..	3 0-	6 0
Lemons, per 100 ..	8 0-	12 0	Pomeloes, each ..	0 6-	1 0
Nuts, Cob, p. lb. ..	2 0-	.0	Shaddocks, each ..	2 0-	3 0
Oranges, p. 100 ..	8 0-	12 0	Strawberries, per oz.	1 0-	2 0
— Tangierine, doz.	1 6-	2 6	Walnuts, p. bush. ..	16 0-	..

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, Fr., doz.	4 0-	..	Leeks, per bunch ..	0 2-	0 4
Asparagus, English, per bundle ..	5 0-	6 0	Lettuces, per doz. ..	1 6-	..
— French, p. bund.	20 0-	..	Mint, per bundle ..	1 6-	..
Beans, French, p. 100	4 0-	..	Mushrooms, per pott.	1 0-	2 0
Beet, per doz. ..	1 0-	2 0	Onions, young, bun.	0 4-	0 6
Cabbages, per doz. ..	1 0-	2 0	Parsley, per bunch..	0 9-	1 0
Carrots, p. bundle ..	0 6-	0 9	Parsnips, p. doz. ..	0 9-	1 0
— French, do. ..	2 0-	..	Peas, per quart ..	8 0-	..
Cauliflowers, per doz.	2 0-	6 0	Radishes, per bunch.	0 2-	0 4
Celery, per bundle ..	1 6-	2 0	Seakale, per bundle	1 0-	1 6
Cucumbers, each ..	1 0-	2 6	Shallots, per lb. ..	0 3-	..
Endive, per doz. ..	1 0-	2 0	Salsify, per bundle ..	1 6-	..
Herbs, per bunch ..	0 2-	0 4	Sprue, French, bund.	1 6-	..
Horse Radish, p. bun.	3 0-	5 0	Turnips, per bundle.	0 6-	..
			— French, p. bund.	2 0-	..

Potatos:—Early Shaws, 110s.; Regents (early), 120s.; best, 160s.; Early Dons, 120s.; and Victorias, 160s. per ton.

SEEDS.

LONDON: *April* 21.—A fair seasonable demand still prevails for agricultural seeds. For red Clovers the orders which come to hand are executed at full rates, notwithstanding the season being rather advanced. Stocks remaining unsold in London are, in fact, too light to permit of a reduction in value. Of choice American red the supply appears quite exhausted. For Alsike, white Clover, and Trefoil seeds, there is a steady sale. Rye-grasses and foreign Italian are also in good request. Some arrivals of Sainfoin have just taken place from France. Quite a strong inquiry has continued for spring Tares; for the very few now left in London an advance of 2s. to 3s. per qr. is easily obtained. A good amount of business is passing in sowing Mustard and Rape seed, fine samples of both kinds being exceedingly scarce; Mustard must be noted 6d. to 9d. per bushel dearer, and Rape seed 2s. to 3s. per qr. An attempt has been made to still further raise the price of Canary seed. Hemp and Linseed keep firm. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C.*

CORN.

At Mark Lane on Monday the market was dull, and prices were generally heavy. English Wheat was from 1s. to 2s. per qr. cheaper than on Monday se'nnight; the decline in the value of foreign Wheat exceeded 1s. per qr. Barley met with little inquiry, and receded in prices to some extent. Malt was lower when pressed for sale. The supply of Oats was not of very good condition, so that prices became irregular. Sound corn was purchased at 6d. reduction. Maize was a trifle lower. Beans and Peas had a slight downward tendency. Flour was in limited request, and prices gave way occasionally.—Dulness characterised the trade on Wednesday, and prices remained weak. Wheat was in good supply, and factors made a further slight concession in some instances. Barley was cheaper when pressed for sale, and scarcely any inquiry prevailed for malt. Oats were rather heavy in price. Maize was not so firmly held, and the value of Beans, Peas, and flour had a downward tendency.—Average prices of corn for the week ending April 17:—Wheat, 43s. 4d.; Barley, 40s. 6d.; Oats, 30s. For the correspondiog week last year:—Wheat, 60s. 6d.; Barley, 48s. 5d.; Oats, 28s. 7d.

HAY.

At Whitechapel there has been a good supply, but trade was steady, and sales were slightly higher, prime Clover making 100s. to 130s.; inferior ditto, 85s. to 95s.; prime meadow hay, 90s. to 124s.; inferior ditto, 55s. to 75s.; and straw, 35s. to 40s. per load. Cumberland Market quotations: — Superior meadow hay, 126s. to 132s.; inferior, 90s. to 110s.; superior Clover, 126s. to 134s.; inferior, 105s. to 112s.; and straw, 40s. to 46s. per load.

POTATOS.

From the Borough and Spitalfields markets we learn that supplies on sale have been moderate, and the trade slow, at the subjoined currency:—Regents, 80s. to 125s.; Rocks, 65s. to 75s.; Flukes, 115s. to 145s.; Victorias, 105s. to 135s. per ton.—Last week's imports into London consisted of 2618 bags and 902 tons from Dunkirk, 13,647 bags from Antwerp, 90 pkgs. from Lisbon, 20 barrels Malta, 102 bags Ghent, 709 bags from Boulogne.

COALS.

The market was firm on Monday, and house coals advanced 1s. per ton. There was a steady business on Wednesday, but no further advance was recorded.

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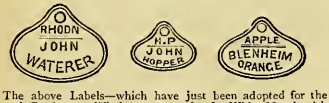

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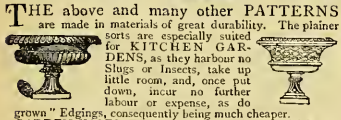

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Messrs. BROWN & CO. would suggest that, before ordering quantities, one roll of their Wire Netting should be ordered and one roll of that advertised at reduced prices. The size and shape of the mesh may then be examined, the thickness or strength of wire, the weight of the rolls and the exact measurements, the general finish of the manufacture, and the quality of the galvanising.
This examination will prove the respective qualities of the Netting.
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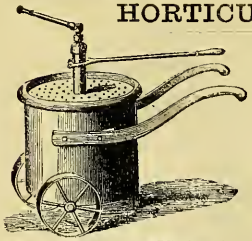

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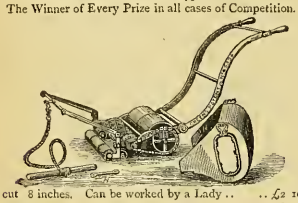
GREEN'S PATENT "SILENS MESSOR" or NOISELESS LAWN MOWING, ROLLING, and COLLECTING MACHINES for 1875.

The Winner of Every Prize in all cases of Competition.



To cut 8 inches.	Can be worked by a Lady ..	.. £2	10 0
" 10 "	" " " ..	.. 3	10 0
" 12 "	Can be worked by One Person ..	4	15 0
" 14 "	" " " ..	.. 5	16 0
" 16 "	This can be be worked by One Man on an even lawn ..	6	17 0
" 18 "	Can be worked by a Man and Boy	8	0 0
" 20 "	" " " " "	8	10 0
" 22 "	" " " " "	9	0 0
" 24 "	" " " " "	9	10 0

Prices of Horse, Pony, and Donkey Machines on application.

Carriage Paid to all the principal Railway Stations in the United Kingdom.

The "SILENS MESSOR" Machines have a world-wide reputation for their superiority and excellence, and the improvements which have been made in them from time to time still keep this Machine the best and most approved one in the Market.

They will cut either SHORT or LONG GRASS, BENTS, &c., and wet as well as dry, advantages which no other Lawn Mowers possess. They are the only Lawn Mowers in constant and daily use in the Royal Gardens, and in most of the principal Gardens and Parks throughout the Kingdom.

A stock of 500 Mowers is kept at our London Establishment, including all sizes, from which purchasers can make their selection and have prompt delivery.

GREEN'S PATENT "ROYAL" LAWN MOWER is a far superior Machine of its kind to any Lawn Mower extant, and it will cut either short or long grass, bents, &c., and wet as well as dry.

Prices of the "Royal" Machines. To cut—					
6 inches	8 inches	10 inches	12 inches	14 inches	16 inches
25s.	35s.	50s.	65s.	80s.	100s.

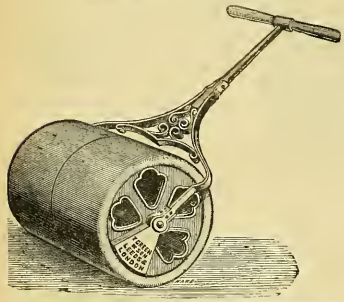
Delivered carriage free at all the principal Railway Stations and Shipping Ports in England, Ireland, and Scotland. Every Machine is warranted to give entire satisfaction, and if not approved of, may be returned at once unconditionally, without any expense to the purchaser.

Our reason for bringing out the "Royal" Mower is to meet a want which has been repeatedly expressed by the purchasing public, to have a good, useful, and efficient Machine, CHEAP.

N.B.—Those who have Lawn Mowers to repair will do well to send them either to our Leeds or London Establishments, where they will have prompt attention, as an efficient staff of workmen is kept at both places.

GREEN'S PATENT ROLLERS for LAWNS, DRIVES, BOWLING GREENS, CRICKET FIELDS, and GRAVEL PATHS.

Suitable for Hand or Horse Power.



The above can be had from all respectable Ironmongers and Seedsmen in the United Kingdom; or from the Manufacturers,

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SMITHFIELD IRONWORKS, LEEDS;

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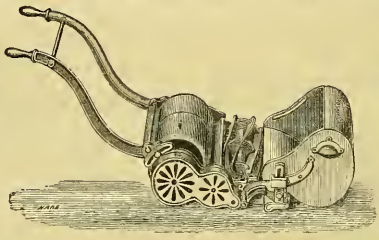
Have the largest and most complete Stock in the Trade; upwards of Twenty Thousand Pounds' worth to choose from.

PRIZE MEDAL AWARDED at the NATIONAL CONTEST, BIRMINGHAM, 1874.

HOT-WATER BOILERS,

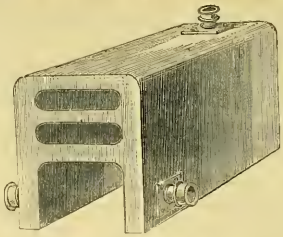


PIPES, CONNECTIONS.

NEW PATENT "CLIMAX" BOILER (1874). See p. 666, 1874, *Gardeners' Chronicle.*

"GOLD MEDAL" BOILER (Birmingham, 1872).

PATENT "EXCELSIOR" BOILER (1871).



("WITLEY COURT" BOILER.)

"WITLEY COURT" BOILER (Silver Medal, 1872).

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"TUBULAR," and every other Boiler of known merit or excellence.

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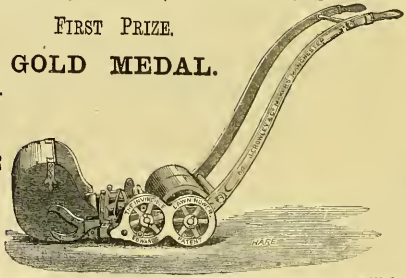
LAWN MOWER (S. EDWARDS' PATENT).

WINNER OF THE **GOLD MEDAL** AT THE NATIONAL **LAWN MOWER CONTEST,** BIRMINGHAM, **July 8, 1874.**

FIRST PRIZE. **GOLD MEDAL.**



WINNER OF **SEVEN** First Prize Medals, FROM **Sept. 17, 1873,** TO **Sept. 24, 1874.**

The Wood Rollers can be used either at the Front or at the Back of the Cutters. It will do all that any other Lawn Mower can do, of whatsoever make or description.

6 in.	8 in.	10 in.	12 in.	14 in.	16 in.	18 in.	20 in.
Prices, 25s.	**50s.**	**70s.**	**£4 10s.**	**£5 10s.**	**£6 5s.**	**£7**	**£8 10s., Carriage Paid.**

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WANTED, a sober and industrious MAN, to Grow Greenhouse and Bedding Plants and General Nursery Stock. — Apply, stating age, wages required, and references as to character, to EDWARD THOMAS, Harold Nursery, Sittingbourne, Kent.

WANTED, TWO or THREE good NURSERY HANDS—such as can use the knife well, and make themselves useful. Permanent situation. State wages and reference to R. AND F. ALLUM, Nurserymen, &c., Tamworth.

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WANTED, as SECOND WAREHOUSEMAN, an active, industrious Man, who is thoroughly master of the work, in a Seed Warehouse to Superintend Pickers, Straggle Pea Crop, &c. Wages, 30s. per week.—HENRY CLARKE AND SONS, 39, King Street, Covent Garden, London, W.C.

WANTED, as HEAD SHOPMAN, a Man of experience—preference given to one having a knowledge of Plants.—Applications by letter, stating age, experience and salary, BARR AND SUGDEN, 12, King Street, Covent Garden, W.C.

WANTED, in an old-established Seed and Nursery Business, a competent SHOPMAN, SALESMAN, and CLERK; he would be required to Wait on Customers, Keep the Books, and make himself useful; must be well up in the Seed Trade, and have a Knowledge of Plants and their Value. The situation will be permanent and comfortable.—THOMAS BUNYARD AND SONS, Maidstone, Kent.

WANTED IMMEDIATELY, a steady young MAN for the Jobbing Trade in a small Nursery: one who would not object to make himself generally useful.—J. FOZARD, 18, Maida Vale, W.

WANTED, an intelligent YOUTH, or a young MAN who has had one or two years' experience, to Assist in the Houses.—C. FARRINGTON, 4, Elm Tree Road, St. John's Wood, London, N.W.

WANTED, a respectable young MAN, for the House; one from a Nursery preferred. Permanent situation.—JAMES WALTON, Horn Park Nursery, Lee Green, S.E.

WANTED, a strong Youth as an APPRENTICE in a Gentleman's large Garden, where he can learn the profession in all its branches. A Small Premium required.—J. S., The Gardens, Highnam Court, Gloucester.

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WANTED, a MAN, to attend to Cows and other Farm-work. Three small rooms and firing will be provided, consequently a Man and Wife can be accommodated, but no children.—Apply, by letter, giving full particulars of previous occupation, age, why leaving, and wages required, to G. B., Stone Hall, Oxted, Surrey.

WANT PLACES.

To Gardeners in Want of Situations,

WHOSE CHARACTERS WILL BEAR STRICT INVESTIGATION.

THE PINE-APPLE NURSERY COMPANY devote special attention to this important matter—proper Men to suitable Situations. For a GARDENER, or for a SITUATION, please send full particulars to Mr. JOHN BESTER, the Pine-Apple Nursery Company, Maida Vale, London, W.

B. S. WILLIAMS, having at the present time several very excellent GARDENERS upon his Register, is desirous of placing them in Situations where great experience and trust are required. B. S. W. would at the same time beg to intimate that when a Gardener is applied for that the filling of the situation should be left with him, as that would prevent unnecessary correspondence and delay.—Victoria and Paradise Nurseries, Upper Holloway, London, N.

Head Gardeners.

JOHN LAING can at present recommend with every confidence several energetic and practical Men, of tested ability and first-rate character. Ladies and Gentlemen in WANT of GARDENERS and BAILIFFS, or GARDENERS for First-rate Establishments, or Single-hand situations, can be suited, and have full particulars by applying at Stanstead Park and Rutland Park Nurseries, Forest Hill, London, S.E.

Gardeners and Under Gardeners.

WM. CUTBUSH AND SON beg to state that they have at all times on their Books MEN of VARIOUS QUALIFICATIONS, whose characters will bear the strictest inquiry. Any Gentleman making application would save time by clearly stating the duties to be undertaken, wages offered, &c., so that suitable Men may be selected.—Highgate Nurseries, London, N.

GARDENER (Head), where not less than four are kept.—Age 27; thoroughly experienced. Good references.—W. POPE, Holmbush, Horsham, Sussex.

GARDENER (Head), where two or more are kept.—Age 29, married, two children; twelve years' experience in Forcing all kinds of Fruit, Flowers, and Vegetables, also good Kitchen and Flower Gardener. Good reference to late employers.—Y. Z., Cookbridge Nursery, near Lewes, Sussex.

GARDENER (Head), where two or more are kept.—Age 25; understands the Management of Stove and Greenhouse Plants, Vines, Melons, Cucumbers, and Kitchen and Flower Gardening. A good character can be had.—R. C., Mr. Lev's Royal Nursery, London Road, Croydon.

GARDENER (Head), to any one requiring a trustworthy competent Man, where several others are kept.—Age 40, married. Nine and a-half years' first-class character, and highest testimonials from former and present employers.—A. B., Broom Hall, Oswestry, Salop.

GARDENER (Head).—J. MASON, fifteen years Head Gardener to the late Jesse Watts Russell, Esq., Ham Hall, Staffordshire, is at liberty to engage with any Nobleman or Gentleman requiring a practical and persevering Man.—Ham, Ashbourne, Derbyshire.

GARDENER (Head), age 25.—A GENTLEMAN seeks a Situation for a Man, as above, who understands Vines, Greenhouses, Stove Plants, &c. Ten years' experience. Excellent character. Leaving only because about to marry.—T. K., Sim's Nursery, Foot's Cray, near Sidcup, Kent.

GARDENER (Head), married.—JOHN DERRICUTT, over nine years Gardener to the late Robert Hannay, Esq., is now open to an engagement in a first-class Establishment. Reference to late employer's brother, also to previous employers, if required.—The Gardens, Springfield, Ulverstone, Lancashire.

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GARDENER (Head, Working).—Age 26, married, no family; understands Early and Late Forcing, Stove and Greenhouse Plants, also good Flower and Kitchen Gardener.—E. GEEVES, 3, Albert Road, Belvedere, S.E.

GARDENER (Head, Working).—Age 30, married, two children; thoroughly understands the profession in all its branches. Three years' good character. Y. Z., Mr. Broomfield, Roehampton, Surrey.

GARDENER (Head, Working).—Age 33, married, one child; thoroughly understands all branches of the profession. Has first-class characters.—H H., Post Office, Henley-on-Thames.

GARDENER (Head, Working).—Age 36, married; has a thorough practical knowledge of the profession. Will be shortly disengaged.—THE GARDENER, The Lodge, Sompting, Worthing, Sussex.

GARDENER (Head, Working).—Age 37, married; has a thorough practical knowledge of the profession in all its branches, and Land and Stock. Three years' good character. M. W., Mr. Wood, Heaver, near Edenbridge, Kent.

GARDENER and BAILIFF.—Age 40, married; has had twenty-three years' experience in the cultivation of Pines, Vines, Peaches, Melons, Mushrooms, Stove and Greenhouse Plants, and Flower and Kitchen Gardening. Has also a thorough practical knowledge of Farming, the Management of Stock, and Buying and Selling. Wife can superintend Dairy, and thoroughly understands Poultry.—J. B., Messrs. Cripps & Son, Nurserymen, Tunbridge Wells, Kent.

GARDENER. — Age 36, married, three children; experienced in Kitchen and Flower Gardening; no objection to small quantity of Glass, or Pony and Trap. Good reference.—J. G., 3, Wandle Terrace, Merton, Surrey.

GARDENER (good SINGLE-HANDED or otherwise).—Married, respectable; understands the profession, Management of Stock, or Nursery Work, and Jobbing Out. Good reference. — FOSTER, Gardener, Essendon, Hatfield, Herts.

FOREMAN in a large Establishment, or HEAD GARDENER where three or more are kept.—Age 26, married. Nine years in first-class places. Highest references.—W. E., 26, Derby Street, Burton-on-Trent.

FOREMAN, in a good Establishment.—Age 26. Eight years' experience in good Establishments. Good references.—H. B., 20, Vorley Road, Upper Holloway, London, N.

FOREMAN, in a good Place, or SECOND in the Houses in a large Establishment.—Age 24. Two years' good character.—E. W., The Gardens, St. Audries' Court, near Bridgewater.

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GARDENER (Second), in a Nobleman's or Gentleman's Garden.—Age 21. Highly respectable. Two years' good character.—B. G., Mrs. Bluck, East Acton, London, W.

GARDENER (Under), or PLANTSMAN, in a first-class Garden.—Age 25; ten year's practical experience. Good testimonials or reference.—A. F., Post Office, West Dulwich, Surrey.

GARDENER (Under).—Age 20, active and obliging. Wages £1 weekly. Eighteen months' good character.—A. F., Mr. Green, Bookseller, North Finchley.

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IMPROVER, under a Nobleman's or Gentleman's Gardener.—Age 20; has been brought up to Gardening. A Premium will be given.—H. S., Mr. Surman, Florist, High Street, Witney, Oxon.

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TO HORTICULTURISTS and FLORISTS.—The Friends of a respectable Youth wish to place him in the above Trade, to reside with the Principal. He is nearly 16 years old, willing and industrious.—B., 519, Cambridge Road, London, E.

TRAVELLER and CORRESPONDENT.—Thoroughly acquainted with the Wholesale Seed Trade, and many years' experience on the Road, with good connection.—S., 44, Devonshire Road, Holloway, N.

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SHOPMAN (Junior).—Young. Has had considerable experience at Counter and Warehouse-work; also fair knowledge of Plants.—A. Z., 12, Elsworth Street, York Street, Cheetham, Manchester.

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THE

GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

No. 70.—Vol. III. { New Series. } SATURDAY, MAY 1, 1875. { Registered at the General Post Office as a Newspaper. } Price 5d. Post Free, 5½d.

CONTENTS.

Important Notice to Foreign Subscribers.

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W. RICHARDS, Publisher.

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SALES BY AUCTION.

Preliminary Notice of

FORTHCOMING SALES, by PROTHEROE AND MORRIS.

MAY 15.—WOOD GREEN, N. The Vineries, Nightingale Road. Important Sale of 30,000 Bedding Plants, &c.

MAY 19.—SYDENHAM, KENT. Kirkdale Nursery. Clearance Sale of the whole of the Greenhouse and Bedding Plants.

MAY 20 and 21.—WEST DULWICH, S.E. An important Sale of Greenhouse and Bedding Plants; also some choice Camellias, Azaleas, &c.

MAY.—TOOTING, S.W. By Order of Mr. R. Parker. Choice Stove and Greenhouse Plants.

Offices, 98, Gracechurch Street, City, E.C.; and Leytonstone, E.

WARWICKSHIRE (2017).—In a first-class locality, a genuine and thriving NURSERYMAN and SEEDSMAN'S BUSINESS, to be Disposed of, under advantageous circumstances. Comprises a comfortable Dwelling-house, spacious Premises and Shop for doing an extensive Seed Trade; 66 acres of Land (22 of which are under stock, the remainder Arable and Pasture), Glass limited. Probable amount of capital required for Stock and Utensils-in-Trade, £2,500.

SOMERSETSHIRE (2006).—An Old-Established NURSERYMAN and SEEDSMAN'S BUSINESS to be Sold; about 12 acres in extent, not fully stocked; excellent deep soil; Cottage, six Greenhouses, ample Outbuildings; newly-built Shop and large Ornamental Conservatory in the Town. Aggregate rental £200 per annum, on a long lease. Stock-in-Trade at a Valuation.

MIDDLESEX (2018).—In a rapidly rising neighbourhood, close to a Railway Station, and twenty minutes' ride by train to the City, a flourishing FLORIST'S BUSINESS. Comprises an Eight-roomed Residence, nine newly-built Greenhouses (heated on modern principles). Lease sixteen years. Rental £45 per annum. Price for Tenant's Fixtures on application. Stock optional.

SURREY (2005).—In a high-class neighbourhood, three minutes' walk from a Railway Station, and twenty-five minutes' ride from Waterloo, a capital FLORIST and MARKET GROWER'S BUSINESS. Comprises a Brick-built Detached House, 3 acres of Land, Eight Greenhouses. There are two leases, thirty-nine and six years unexpired, rental £62 per annum. Interest in Lease, Glass, Sheds, and Nursery Stock by valuation. Capital required about £600. Indoor stock optional.

More detailed particulars of the above Nurseries will be found in PROTHEROE AND MORRIS' HORTICULTURAL REGISTER, to be obtained, gratis, at 98, Gracechurch Street, City, E.C.

Specimen Plants—Important Sale.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, May 3, at half-past 12 o'Clock precisely, a Collection of Specimen PALMS, FERNS, ALOES, AGAVES, and other Plants, being duplicates from a well-known old Collection, and comprising many very rare sorts; an importation of 200 lb. of SEED of CEDRUS DEODARA, several small Collections of Established ORCHIDS, and an importation of Dendrobium Falconeri, D. crassimode, D. formosum, Saccolabium curvifolium, S. giganteum and many other choice sorts.

On view the morning of Sale, and Catalogues had.

Periodical Sale of Poultry and Pigeons.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, May 4, at half-past 12 o'Clock precisely, 300 Pens of choice POULTRY and PIGEONS, from the yards and lofts of well-known breeders and exhibitors.

On view the morning of Sale, and Catalogues had.

Established Orchide.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, May 5, at half-past 12 o'Clock precisely, a Collection of ESTABLISHED ORCHIDS, including, amongst many others, the following:—Phalænopsis, several plants supposed to be Pontei; Cattleya exoniensis, Dendrobium biglandulosum, D. teronianum, Oncidium leopardinum, Zygopetalum rostratum, Cypripedium Parishii, C. Harrisianum, Masdevallia Harryana, M. Lindeni, Odontoglossum Bluntii, O. trimmphans, O. Pescatorei, O. Alexandræ, Angræcum caudatum, &c. To be Sold in consequence of the owner going abroad.

On view the morning of Sale, and Catalogues had.

Established and Imported Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, May 6, at half-past 12 n'Clock precisely, by order of Messrs. Rollisson & Son, Tooting, an Importation of ORCHIDS just arrived from Moulmein, comprising fine masses of Dendrobium formosum gigantum, D. Pychianum, D. thyrsiflorum, D. Farmeri, Aerides affine; a small Collection of Established Orchids, and a Consignment from M. Roezl of Oncidium tigrinum, Epidendrum nonchanense, Cattleya citrina, Odontoglossum Insleayi var. leopardinum, Oncidium Cavendishii, O. Barkeri, Lælia autumnalis, Odontoglossum tubulosum, &c., and 5000 BULBS of LILIUM AURATUM, just arrived from Japan, many of them in good condition.

On view the morning of Sale, and Catalogues had.

Important Sale of Specimen Stove and Greenhouse PLANTS, removed from Albury Park, Guildford.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on FRIDAY, May 7, at half-past 12 o'Clock precisely, SPECIMEN STOVE and GREENHOUSE PLANTS, British and Exotic FERNS, formed for Exhibition purposes by William Kemp, Gardener to His Grace the Duke of Northumberland, at Albury Park, Guildford, who is giving up exhibiting plants. They consist of well-grown specimens of Azalea indica, Cape Ericas, Epacris, Genetyllis, Aphelexis, Phœnocomas, Chorozemas, Dracophyllums, Boronias, Adenandras, Acrophyllum venosum, Polygalas, Hibbertias, Stephanotis, Allamandas, Clerodendrons, Franciseeas, Rondeletias, Combretums, Pandanus, &c. This well-known Collection has taken numerous Prizes at the London and Provincial Shows—viz., Regent's Park, South Kensington, Crystal Palace, Reading, Guildford, Tunbridge Wells, Godalming, &c. Also two EXHIBITION VANS, with good springs and patent axles. The whole for Sale without reserve.

On view the morning of Sale, and Catalogues had.

Imported Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, May 6, a very large portion of RARE and FINE ORCHIDS collected by Mr. R. Roezl, in Western Mexico, just arrived in excellent condition, amongst which will be found the beautiful Oncidium tigrinum, Oncidium Barkeri, Odontoglossum nehulosum, Odontoglossum Insleayi leopardinum, &c., nearly all of them adapted for growing in cool houses.

On view the morning of Sale, and Catalogues had.

Lilium auratum.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, May 6, 5000 BULBS of LILIUM AURATUM, just arrived from Japan, many of them in very good condition.

On view the morning of Sale, and Catalogues had.

To Gentlemen, Nurserymen, Florists, Builders, PROPRIETORS of PUBLIC GARDENS, and OTHERS.

PRELIMINARY.—COMPLETE CLEARANCE SALE, Lee's Nursery, Albion Gardens, Hammersmith, W., near Shaftesbury Road Station.

MR. J. A. SMITH is instructed by Mr. W. Lee (in consequence of his relinquishing his London Nursery to clear the Ground for Building purposes) to SELL by AUCTION, at his early terms and MAY NEXT and following days, at 1 o'Clock each day, on the Premises as above, in suitable lots, twenty-one well-built span-roof PROPAGATING and GREENHOUSES, from 80 feet in length; RANGES of PITS (all heated with improved apparatus and pipes above and below), SADDLE and other BOILERS, PATENT VALVES, SPRING VAN and COVER, HAND and other BARROWS, WATERING POTS, SYRINGES, TOOLS, and various IMPLEMENTS in TRADE; upwards of 200,000 PLANTS, all well grown and intended for market, suitable for bedding-out, and including among other fine varieties, Lee's reputed fine selection, Scarlet and Fancy Geraniums, Pelargoniums, Lobelia (various), Begonia, Coleus, Heliotrope, Fuchsias, Fairy Roses, splendid Balsams, &c.

May be viewed, and Catalogues, when ready, to be obtained on the Ground, and of the Auctioneer, 58, King Street, East Hammersmith, W.

*** The LAND to BE LET on Building Leases.

Specimen Stove and Greenhouse Plants, Ferns, PALMS, FRUITING PINES, VINES, &c., mostly the Property of a Nobleman, removed for convenience of sale.

MESSRS. OLIVER, NEWBOLD, AND OLIVER, have received instruction to SELL by AUCTION, as above, at the Mile Ash Nurseries, Duffield Road, Derby, on WEDNESDAY, May 5, at 11 o'Clock. The Collection comprises, in part, seven handsome specimen Crotons, 2 to 4 feet; Dracænas, Marantas, and other fine Stove Plants; thirty splendid specimen Azaleas, 3 to 5 feet, beautifully trained and full of flower-buds; 100 Camellias, including some fine specimens, 6 to 10 feet high; magnificent specimen Palm (Latania borbonica), 6 by 12 feet; large Orange and Lemon trees; specimen Rhynchospermum, Musa Cavendishii, 6 feet; Pandanus utilis, 5 feet; Davallia elegans, 4 feet through; thirty-eight Fruiting Pine Plants, Fruiting Vines, and a large quantity of Standard Camellias, Azaleas, and general Greenhouse Plants, all of the choicest varieties, and in the finest possible condition.

Descriptive Catalogues may be obtained of the Auctioneers, and of Mr. E. COOLING, Mile Ash Nurseries, Derby.

Bexley Heath.—Freehold Farm, consisting of about 23 acres.

To MARKET GARDENERS and OTHERS.

MR. E. BENTLEY HAYNES is favoured with instructions (by Order of the Executrix of Mr. William Smith, deceased) to SELL by AUCTION, at the Mart, Tokenhouse Yard, E.C., on THURSDAY, May 6, the highly cultivated MARKET GARDEN FARM, known as Woodlands, for very many years in the occupation of the owner, now deceased. The Farm is situate near the main Dover Road, and is well placed for conveying produce to the London markets. The premises comprise a capital Dwelling-house, Stables, Sheds, Piggeries, Farm Yards, &c. The property is situate in Church Road, Bexley Heath, about 1¼ mile from Bexley Station, and 2 miles from Abbey Wood Station on the South-Eastern Railway. The tenant will show the property.

Particulars and Conditions of Sale can be obtained at the principal Inns in the neighbourhood; of W. VANT, Esq., Solicitor, 27, Leadenhall Street, E.C.; and of E. BENTLEY HAYNES, Auctioneer, 183, Cannon Street, E.C.

In Liquidation.—Guilford Nursery, Whitfield, near DOVER.

CLEARANCE SALE of the entire FLORIST'S STOCK, GREENHOUSES, PLANT FRAMES, HORSE and VAN, &c.

MR. HENRY HAYWARD has received instructions from the Trustee of the Estate of Mr. C. H. Burbridge (in liquidation by arrangement), to SELL by AUCTION, at the Nursery, on TUESDAY, May 11, commencing punctually at 11 o'Clock, the whole of the choice FLORIST'S STOCK, including several thousand plants, now in or just coming into bloom, viz., Azaleas, 100 choice Azaleas, two magnificent White Camellias, about fifty other Camellias, fifty pots of Lilium auratum and lancifolium, Creepers for baskets, Alpine Plants, 500 choice Exotic and British Ferns, five large and valuable specimen Ferns, several Palms, two large Stephanotis and other Stove Plants, 100 dozen Pelargonium Geraniums, thirty choice Exhibition Tricolor Geraniums, and twenty Zonal ditto, 10,000 healthy Bedding Plants, 1500 Roses and Shrubs in pots, five large Greenhouses, ten Plant Frames of various sizes, Horse and light Spring Van, Water Barrel on Wheels, Garden Engine, Wheelbarrows, and Tools, 10,000 Flower Pots, &c.

On view the day previous to and morning of Sale, and Catalogues to be had on the Premises; or of Messrs. WORSFOLD AND HAYWARD, Auctioneers and Surveyors, New Bridge, Dover, and 12, Queen Victoria St., London, E.C.

The NURSERY to BE LET, inquire of the Auctioneer.

Cairnforth House, Moorgate, Rotherham.

TWO DAYS' SALE—WEDNESDAY and THURSDAY, May 12 and 13, commencing each day at 11 A.M.

MR. ROWLARD WARD, of the Central Repository, Sheffield, is favoured with instructions from George Brown, Esq., to announce that a SALE by PUBLIC COMPETITION will take place, as above, of very choice PALMS, CROTONS, TREE FERNS, Specimen ALLAMANDAS, CLERODENDRONS, DIPLADENIAS, BOUGAINVILLEAS, TODEAS, PHORMIUMS; also a variety of choice ORNAMENTAL PLANTS.

For days to view, prior to Sale, see Catalogues (6d. each), to be had of Mr. H. ALBITSON, Gardener, Cairnforth Lodge, Moorgate, Rotherham; and of the Auctioneer, Central Repository, Castle Hill, Sheffield.—April.

TO BE LET, a NURSERY, FLORIST, and SEED BUSINESS—about 10 acres of Garden in capital cultivation (various Soils), Greenhouse, Pits, and Side Lights; the Residence if required. Stock comprises Roses, Fruit Trees, Forest Stuff, Evergreens, Flowers and Plants of descriptions. A few minutes' walk from a railway station (Mid-Sussex).

Apply to CHALLEN AND SON, Stowington, Pullborough.

Victoria Estate, Kansas, U.S.—To Farmers and OTHERS.

FINE STOCK FARMS of 640 Acres and upwards, to be SOLD, Freehold, from 12s. to 50s. per acre. Grass in its natural condition unsurpassed for feeding Sheep and Cattle. For PAMPHLET containing full particulars respecting this Property, apply to

ROBERT W. EDIS, Esq., F.S.A., 14, Fitzroy Square, London, W., Architect to the Estate.

To Nurserymen and Others.

TO BE SOLD, by Private Contract, with immediate possession, on the South Coast and near to the fashionable and rapidly rising town of Worthing, the unexpired LEASE, for fourteen years from September 29, 1872, of the SALVINGTON NURSERIES, where a good trade has been carried on for many years, the whole containing 1 a. 3 r. 2 p., a great portion of which is in cultivation as a Nursery and Market Garden. The Land is well sheltered by intersecting hedges of Beech, Laurel, and Hornbean. A good roomy House is attached, with Seedshop, Barn, Stables, Cart-sheds, Piggeries, three convenient Glass structures, and Propagating Houses, all thoroughly heated by hot water, with Pits, Frames, and Hand-lights. Annual rent £83, together with all the Stock-in-Trade, Horse, Carts, and Effects in and about the said Premises. Incoming about £600.

For further particulars, and for Cards to view, apply to Mr. RICHARD HOLMES, Solicitor, Arundel; or Mr. CHEALE, on the Premises.—April 28.

To Practical Men with a little Capital.

TO BE DISPOSED OF, a FIELD of excellent MARKET-GARDEN LAND, capitally situated midway between the two important towns of Ramsgate and Margate, and about a quarter of an hour's drive from each. These two towns and adjacent coast contain a resident population of 40,000, increased during four months of the year to more than double, so that the Market for Garden Produce is very large, and a Man who understands his Business could not fail of success. About 1¼ acre of the Land has been planted with Apple and Bush Fruit, and a handsome eight-roomed Villa has been erected, but the house need not be taken unless wished. The price of the Freehold altogether is £1080, or without House and Grounds (about 100 perches) £440. Two-thirds of either of these sums may remain, if wished, at 4½ per cent. Apply to

Mr. R. ALLSOP, Manston, near Ramsgate.

GRANTHAM and SOUTH LINCOLNSHIRE HORTICULTURAL SOCIETY.

President: The Right Hon. EARL BROWNLOW, Lord-Lieutenant of the County.

The next EXHIBITION will be at Grantham, JULY 7 and 8. Schedules of Prizes (£200—two Silver Cups) are now ready, and may be had of Mr. LYNE, Bookseller, Grantham.

NOTTINGHAM and MIDLAND COUNTIES GRAND ROSE SHOW and HORTICULTURAL EXHIBITION (open to all England) will be held at the ARBORETUM, Nottingham, on THURSDAY, FRIDAY, and SATURDAY, July 8, 9, and 10. The Mayor of Nottingham President; the Town Clerk Honorary Secretary. Schedules in the course of preparation, and may be obtained on application to

ALFRED KIRK, Municipal Offices, Nottingham.

THE READING HORTICULTURAL SOCIETY will hold their SHOWS on THURSDAY, May 27, and on THURSDAY, August 19, when Prizes to the value of TWO HUNDRED and THIRTY POUNDS will be offered for competition. Prizes for eight Stove and Greenhouse Plants—1st, £8; 2d, £6; 3d, £4.

Schedules may be obtained of the Hon. Secretary.

10, Forbury, Reading. FRANK PETTY.

THE INTERNATIONAL POTATO EXHIBITION will be held at the ALEXANDRA PALACE, Muswell Hill, on WEDNESDAY and THURSDAY, September 29 and 30, 1875, under the Presidency of Mr. Alderman and Sheriff Ellis, when Prizes exceeding ONE HUNDRED POUNDS in value will be awarded.

The SCHEDULE is now ready, and may be had on application to Mr. P. McKINLAY, Hon. Sec.

23, Upper Thames Street, London, E.C.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION, for the relief of decayed Farmers, their Widows and Orphans.

Patron—HER MAJESTY THE QUEEN.

President—HIS GRACE THE DUKE OF RICHMOND.

Allowances to Pensioners.

Married	£40 per annum.
Male	£26 "
Widow and unmarried Orphan Daughters	£20 "

Every information to be had of the Secretary, by whom Subscriptions and Donations will be thankfully received.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.—THE FIFTEENTH ANNIVERSARY FESTIVAL, in aid of the Funds of the Institution, will take place at Willis's Rooms on SATURDAY, June 5, at 6 o'Clock.

H.R.H. The PRINCE OF WALES, K.G., in the Chair.

Dinner tickets, 21s., application for which should be made to the Secretary not later than May 22.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.—The ANNUAL GENERAL MEETING will be held at Willis's Rooms, St. James's, on WEDNESDAY, June 16, at 11 o'Clock precisely, and the ELECTION of PENSIONERS will take place on the same day, at half-past 11 o'Clock.

All Subscriptions shall be deemed payable on January 1 in each year; and no Contributor shall vote in respect of an Annual Subscription while the same is in arrear.

Offices of the Institution—

No. 26, Charles Street, St. James's, London, S.W.

STELLARIA GRAMINEA AUREA—100 cuttings sent post free for 2s. 6d. This is quite distinct from Golden Feather, and certainly the best yellow carpet-bedding plant ever introduced; quite hardy.

S H. CANNELL, New Florists' Flowers and Florist Flower eed Merchant, Woolwich, S.E.

NEW CLEMATIS, to be sent out by JOHN STANDISH AND CO. on May 10:—

ASCOTIENSIS.—The flowers are considerably larger than Jackmanii, and are well shaped, containing six petals each; colour, a fine azure-blue; it throws a profusion of flowers the whole summer long, and is of a very vigorous habit. 10*s.* 6*d.* each.

MRS. QUILTER.—A magnificent white flower, containing eight petals; it is the largest, smoothest, and purest of all the whites, and a very free bloomer, with strong habit. 10*s.* 6*d.* each.

The above are decided acquisitions, and should be in every collection. Orders are now being booked for them.

Royal Nurseries, Ascot, Berks.

NEW PELARGONIUM, "DUCHESS of EDINBURGH."—This splendid new Pelargonium received First-class Certificates at the Royal Horticultural Society, May 23, and at the Royal Botanic Society, May 20, 1874. It is of dwarf compact habit, and a most profuse bloomer; we have it at the present time (April 12) in 48-pots, with forty trusses of bloom averaging from six to fifteen flowers in each truss. The flowers, which are crinkled-edged and of good form, are delicate white blotched with purple. It is without doubt the best decorative variety ever offered. See the Opinions of the Press in the *Gardeners' Chronicle*, the *Garden*, and the *Gardeners' Magazine* of May 16, 1874.

To be sent out May 1. Price One Guinea each.

A remittance or reference to accompany all orders from unknown correspondents.

G. BRAID, Nurseryman, Winchmore Hill, Middlesex.

E. G. HENDERSON AND SON'S SEED CATALOGUE for 1875, containing over 200 Illustrations of Flowers, will be posted, free, on application, and from which the following can be supplied, of first-class quality:—

CALCEOLARIA, in mixed colours, 1*s.*, 2*s.* 6*d.*, and 5*s.* per pkt.
CINERARIA, 1*s.*, 2*s.* 6*d.*, and 5*s.* per packet.
PRIMULA SINENSIS, fine strain, 2*s.* 6*d.* and 5*s.* per packet.
,, ,, RUBRA FLORE-PLENA, 2*s.* 6*d.* and 5*s.* per packet.
,, ,, ALBA FLORE-PLENA, 2*s.* 6*d.* and 5*s.* per packet.
AURICULA, 1*s.* and 2*s.* 6*d.* per packet.
CARNATION, 2*s.* 6*d.* and 5*s.* per packet.
CYCLAMEN PERSICUM, 1*s.* and 2*s.* 6*d.* per packet.
HOLLYHOCK, 1*s.* and 2*s.* 6*d.* per packet.
PINKS, 1*s.* and 2*s.* 6*d.* per packet.
MIMULUS, 1*s.* per packet. | PETUNIAS, 6*d.* and 1*s.* p. pkt.
PANSIES, 6*d.* & 1*s.* 6*d.* pkt. | VERBENA, 1*s.* & 2*s.* 6*d.* p. pkt.
SWEET WILLIAM, Perfection, 1*s.* per packet.
,, from named flowers, 1*s.* and 2*s.* 6*d.* per packet.
AMERICAN TUBEROSE, double flowered, large roots, 20*s.* per 100.
LILIUM AURATUM, 12*s.* per dozen, good flowering size; extra size, of full growth, at higher prices.

The Wellington Nursery, St. John's Wood, London, N.W.

Pelargoniums, Fuchsias, Bedding and other Plants, all Established in Single Pots. Wholesale Prices.

WOOD AND INGRAM beg to offer:—

PELARGONIUMS, Show, Spotted, and Fancy, fine flowering plants, in 5-inch pots, good named sorts, 50*s.* per 100, 8*s.* per dozen.
CALCEOLARIA, Herbaceous, Nell's superb strain, extra fine plants, in 5-inch pots, 9*s.* per dozen, 12. each.
FUCHSIAS, named, in 5-inch pots, 40*s.* per 100, 5*s.* per dozen.
PELARGONIUM, double white, Aline Sisley, 4*s.* per dozen.
,, single Zonal, Huntingdonian, the finest white, 6*s.* per doz.
,, ,, Harry King, 30*s.* per 100, 4*s.* per dozen.
,, ,, Master Christine, 25*s.* per 100, 3*s.* 6*d.* per dozen.
,, ,, Salmon Clipper, the freest flowerer of its colour, 9*s.* per dozen.
,, Golden Tricolor, Miss Batters, 9*s.* per dozen.
,, ,, J. D. Bassett, 9*s.* per dozen.
,, ,, Peter Grieve, 15*s.* per dozen.
,, ,, Mrs. Dunnett (Carter), 6*s.* per dozen.
,, Silver Tricolor, Lass o' Gowrie, 9*s.* per dozen.
VERBENAS, Scarlet, Purple, and Crimson, 14*s.* per 100, 2*s.* per dozen.
ADIANTUM CAPILLUS-VENERIS, in 4½-inch pots, 9*s.* per dozen.
ECHEVERIA SECUNDA, 18*s.* per 100.
,, ,, GLAUCA, 20*s.* per 100.
SEMPERVIVUM CALIFORNICUM, 10*s.* to 16*s.* per 100.
AGERATUM, Imperial Dwarf, 12*s.* per 100.
IRESINE HERBSTII, 14*s.* per 100.
,, LINDENI, 14*s.* per 100.
HELIOTROPES, to name, 16*s.* per 100.
NIEREMBERGIA GRACILIS, 14*s.* per 100.
LEUCOPHYTON, Brownii, 16*s.* per 100.
PENTSTEMONS, to name, 20*s.* per 100, 3*s.* per dozen.
STELLARIA GRAMINEA AUREA, 12*s.* per 100.

The Nurseries, Huntingdon.

Cinerarias, Cinerarias, Cinerarias.

F. AND A. SMITH'S unrivalled Collection of the above is NOW in BLOOM, and will continue so for some time. Inspection is respectfully solicited, or flowers will be sent on receipt of two stamps. New Seed, in 1*s.*, 2*s.* 6*d.* and 5*s.* packets.

The Nurseries, West Dulwich, S.E.

Exhibition of Azaleas.

F. AND A. SMITH'S splendid Collection of the above is NOW in BLOOM, which consists of the well known superb varieties raised at their Nurseries, and also of newer kinds introduced by Continental Growers. Inspection invited. The Nurseries, West Dulwich, S.E.

Lobelia Blue Stone.

F. AND A. SMITH offer the above, from cuttings off the original stock raised in their Nurseries, and which variety was planted last year in Hyde Park, being the finest dark blue in commerce.

The Nurseries, West Dulwich, S.E.

Bedding and Other Plants.

F. AND A. SMITH can supply large quantities of the undernamed, in well-established plants, at moderate prices:—

AJUGA, repians rubra | COLEUS
AGERATUM, of sorts | DAHLIAS
CENTAUREAS | HELIOTROPES
FUCHSIAS | PETUNIAS, Single and Double
GERANIUM, Zonal, the best of each colour for bedding | PHLOXES [plenum
,, Zonal, the best for conservatory, in all shades of colour | PYRETHRUM, imbricatum
STELLARIA, graminea aurea
VERBENAS.

Also a fine stock of full-grown PALMS and DRACÆNAS, in great variety, very suitable for decorative purposes.

The Nurseries, West Dulwich, S.E.

BROMPTON STOCK.—SMITH'S SCARLET KING is the finest in cultivation, with magnificent spikes of blossom, 18 to 20 inches in length. This will prove a gem to admirers of this good old-fashioned flower. Packets, post free, 1*s.* and 6*d.* each.

THOS. SMITH, Seedsman, Long Wittenham, Abingdon.

LAXTON'S NEW PEAS.—Each of the following 5*s.* per quart:—

WILLIAM THE FIRST. | SUPERLATIVE.
OMEGA. | LAXTON'S No. 1.
| POPULAR.

DANIELS BROS., Seed Growers, Norwich.

Pelargoniums for the Million.

JAMES HOLDER'S unrivalled COLLECTION of Show, French, and Fancy Varieties, strong Plants, distinct sorts, at 40*s.* per 100; 25*s.* for 50; or 15*s.* for 25. Hamper and packing included. Extra strong plants at 9*s.* and 12*s.* per dozen. Cash. CATALOGUES free on application.

Crown Nursery, Reading.

Cinerarias, Cinerarias.

MESSRS. JOHN STANDISH AND CO. have to offer SEED saved from their celebrated strain of CINERARIAS, 2*s.* 6*d.* and 3*s.* 6*d.* per packet. Also, PRIMULA SEED, 2*s.* 6*d.* and 3*s.* 6*d.* per packet. Post free on receipt of Stamps or Post Office Orders.

Royal Nurseries, Ascot, Berks.

PYRUS, or CYDONIA MAULEI.—Plants of this hardy ornamental and useful new Japan Fruit, now sending out, price 21*s.* each, usual discount to the Trade.

Illustration sent on application. See *Gardeners' Chronicle*, 1874, i. 757, ii. 740; and the *Florist and Pomologist* for March.

WM. MAULE AND SONS, The Nurseries, Bristol.

Unrivalled Verbenas, Fuchsias, &c.

GEORGE SMITH, 61, Penrose Street, Walworth, S.E., begs to intimate that his VERBENAS, &c., are very strong; in single pots from 2*s.* per doz. GOLDEN FEATHER GEM, double white-flowered, 2*s.* per dozen. PETUNIA, Crystal Palace, striped, extra fine, 2*s.* per dozen.

LISTS free.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS: also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.

Mr. WEBB, Calcot, Reading.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

Spring Planting.

FOREST TREES, ORNAMENTAL TREES, and SHRUBS, a large stock at moderate prices. CATALOGUES free on application.

THE LAWSON SEED AND NURSERY COMPANY (Limited), 106, Southwark Street, London, S.E., and at Edinburgh.

Lawn Grass Seeds.

FRANCIS & ARTHUR DICKSON & SONS' Mixture of LAWN SEEDS is composed only of the FINEST AND DWARFEST EVERGREEN GRASSES, and is very superior to mixtures generally offered, quickly forming a close velvety turf. For New Lawns sow 60 lb. to 80 lb. per acre. To Renovate Old Lawns sow 10 lb. to 20 lb. per acre. Price 12*s.* per lb. Orders over 20*s.* Carriage Free.

The Old-Established Seed Warehouse, 106, Eastgate Street, Chester.

CUTTINGS of GERANIUMS, &c.—100 Geraniums, in forty choice varieties, including Tricolor, Gold and Bronze, Variegated, Zonal, Nosegay, and Ivy-leaf, for 10*s.*, 50*s.* 6*d.*, 25*s.*; 24 Fancy Pelargoniums, 3*s.* 6*d.*, 12, 2*s.*; 24 Chrysanthemums, 2*s.* 6*d.*, 12, 1*s.* 6*d.*; 24 Pompons, 2*s.* 6*d.*, 12, 1*s.* 6*d.*; 24 Fuchsias, 2*s.* 6*d.*, 12, 1*s.* 6*d.* All post free.

CATALOGUES one stamp.

J. COOMBS, The Ferns, Enfield.

VINES, extra strong leading sorts, close-jointed and well ripened; SEAKALE, ASPARAGUS, and RHUBARB, extra strong, for forcing; ROSES, FRUIT, FOREST, and ORNAMENTAL TREES, STOVE and GREENHOUSE PLANTS, &c.

Priced Descriptive CATALOGUE, post-free.

DICKSON AND ROBINSON, 23, Market Place, Manchester.

Choice Tricolor and Bronze Geraniums.

THOMAS PESTRIDGE can supply, at per dozen:—Acme, 5*s.*; Florence, 4*s.*; Howarth Ashton, 6*s.*; Lady Cullum, 3*s.*; Mrs. Dunnett, 5*s.*; Mrs. Rutter, 6*s.*; Prince of Wales, 9*s.*; Peter Grieve, 9*s.*; Sophia Cusack, 3*s.*; Salamander, 9*s.*; Lass o' Gowrie, 6*s.*; Mrs. Colonel Wilkinson, 7*s.*; Miss Pond, 12*s.*; Black Douglas, 3*s.*; Earl of Rosslyn, 4*s.*; Rev. C. P. Peach, 5*s.*; Reine Victoria, 4*s.* Terms cash. A LIST of other varieties, post free.

Boston Park Road Nurseries, Brentford, Middlesex, W.

New Pink Geranium "Mrs. Haliburton."

FRANCIS R. KINGHORN has much pleasure in again offering this favourite variety, sent out by him last season, and which gave such general satisfaction. On three occasions it has received the highest commendation from the Floral Committee at Chiswick, associated with all the best varieties grown there for trial. Good plants 9*s.* per dozen, 50 for 33*s.*, 100 for 58*s.* Extra-sized cut-down plants, 2*s.* each.

Sheen Nursery, Richmond, Surrey.

GIANT ASPARAGUS PLANTS, the best that money can procure, all certain to grow, 2*s.* 6*d.* per 100. This delicious vegetable does not require half the expense usually incurred in planting it. See RICHARD SMITH'S SEED LIST for 1875.

Extra strong SEAKALE, 2*s.* per dozen.

RICHARD SMITH, Nurseryman, Worcester.

Bedding Roses.

CRANSTON'S CRIMSON BEDDER: strong plants, in 5-inch pots, 30*s.* per dozen.

TEA-SCENTED, CHINA, NOISETTE, and HYBRID-PERPETUAL ROSES, in 4 and 5-inch pots, 9*s.* to 15*s.* per dozen.

Now is the best time for bedding-out the Tea-scented and China Roses, and Hybrid Perpetuals, on their own roots.

Address, CRANSTON AND MAYOS, King's Acre Nurseries, Hereford.

LOBELIA "LADY MACDONALD."—Pure white, deeply edged with ultramarine-blue, in the way of "Paxtonii," with flowers four times the size; unrivalled as a bedding or pot plant; one of the greatest novelties introduced for years. This beautiful variety was twice submitted for the opinion of the judges at two of the Exhibitions of the Royal Caledonian Horticultural Society, Edinburgh, last summer, and on both occasions was unanimously awarded a First-class Certificate.

Plants first week in May, 2*s.* 6*d.* each.

DOWNIE AND LAIRD, 17, South Frederick Street, Edinburgh.

Vines.—To the Trade.

S. BIDE can still supply good strong PLANTING VINES, in Pots, of the undermentioned varieties, at 30*s.* per dozen (a special price for a large quantity will be given on application):—Tynningham Muscat, Madresfield Court, Black Hamburgh, Mrs. Pince's Black Muscat, Lady Downe's Seedling, Burchard's Prince, Seacliffe Black, Frankenthal Hamburgh, Ferdinand de Lesseps, Black Morocco, Primarai's Frontignan, Black Barbarossa, Sweetwater, Troveren Muscat, Bowood Muscat, Muscat of Alexandria, White Nice, Duchess of Buccleuch, Rasin de Calabre.

S. BIDE, Alma Nursery, Farnham, Surrey.

Carnations, Picotees, and Pinks.

ISAAC BRUNNING AND CO. beg to announce that they have this Season a very fine and extensive Collection of the above to offer, strong plants of which are now ready for sending out. LIST of Varieties and Prices, together with Illustrated SEED CATALOGUE, on application.

Our ONE GUINEA COLLECTION of CARNATIONS, &c., contains six pairs of choice Show Carnations, six pairs of choice Show Picotees, twelve pairs of Show Pinks, and twelve choice mixed Carnations and Picotees for borders.

Carriage and packages free on receipt of Post Office Order. Half of the above quantities, 11*s.*

"Belgrove, Queenstown, County Cork, Ireland.

" February 15, 1875.

"Mr. W. E. Gumbleton has this day received the Carnation and Picotee Plants, which he is much pleased, and would like another dozen of either the same or other varieties."

ISAAC BRUNNING AND CO., Great Varmouth Nurseries.

Variegated Bedding Geraniums.

ALFRED FRYER offers the following GERANIUMS at per dozen for cash:—Golden Tricolors: Mrs. Dunnett, 3*s.* 6*d.*; Louisa Smith, 3*s.* 6*d.*; Mrs. Pollock, 3*s.* 6*d.*; Sir Robert Napier, 3*s.* 6*d.*; Sophia Dumaresque, 3*s.* Silver Tricolors: Miss Burdett Coutts, 3*s.* 6*d.*; Mrs. John Clutton, 3*s.* Golden Bronze: Aurie, 3*s.* 6*d.*; Bronze Beauty, 2*s.* 6*d.*; Keetish Hero, 2*s.* 6*d.*; Roi de Siam, 3*s.* 6*d.*; Waltham Bronze, 3*s.* 6*d.* Baskets and packing, 6*d.* per dozen, or 3*s.* 6*d.* per 100 extra.

PRICED LISTS post free.

ALFRED FRYER, The Nurseries, Chatteris, Cambridgeshire.

To Planters and the Trade.

MESSRS. MASTERS AND KINMONT beg to call the attention of Planters and the Trade to their stock of the following trees, which can be furnished at low prices:—

LIMES, 7 to 9 feet, clean grown.
THORNS, of sorts, Standard and Pyramid, including Paul's new Double Scarlet.
ASH, Weeping, 6 to 20 feet stems, good heads. [nock.
WILLOWS, Weeping American, Babylonian, and Kilmar-
ELMS, of sorts, grafted, 5 to 7 feet, including Huntingdon, fastigiated, and cork-barked.
BIRCH, 8 to 10 feet.
PHILADELPHUS, of sorts.
VIBURNUM, of sorts.
LILAC, of sorts.
OAK, Scarlet, 6 to 8 feet.
YUCCA RECURVA, very fine.
ROSES, Standard and Half-Standard.
,, Dwarf, on Manetti.
CURRANTS, Black.
GOOSEBERRIES, of sorts.
ABIES CANADENSIS, 3 to 5 feet.
AUCUBA JAPONICA, 1 to 2 feet.
CUPRESSUS SEMPERVIRENS, 2½ to 4 feet.

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AGERATUM, Imperial Dwarf, blue, makes a fine bed, 1*s.* per dozen, 5*s.* per 100, 40*s.* per 1000.
IRESINE, Lindeni, crimson leaf, fine, 1*s.* per dozen, 6*s.* per 100.
COLEUS, Verschaffeltii, 1*s.* per dozen, 6*s.* per 100.
STELLARIA, aurea, new golden edging plant, 1*s.* per dozen, 4*s.* per 100, 30*s.* per 1000.
PELARGONIUMS, Silver edge—May Queen and Flower of Spring, 2*s.* per dozen, 15*s.* per 100.
,, Gold leaf—Crystal Palace Gem, 2*s.* per doz., 15*s.* per 100.
,, Tricolor—Mrs. Pollock, 2*s.* 6*d.* per dozen, 18*s.* per 100.

Terms cash, package included.

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Verbenas for Sale.

S. BIDE can now supply, for cash, Verbenas, spring-struck, strong, and free from disease of any kind, including Purple King, Scarlet, White, Pink, and many other varieties (of which a list may be had on application), at 8*s.* per 100, package free. PELARGONIUMS, show and fancy, of the best varieties, 40*s.* per 100. GERANIUMS, plain-leaved and zonal, strong autumn-struck plants, 10*s.* per 100; Mrs. Pollock, in single pots, 20*s.* per 100; Crystal Palace Gem, in single pots, 20*s.* per 100. COLEUS VERSCHAFFELTII, 12*s.* per 100. IRESINE LINDENI, 10*s.* per 100; IRESINE HERBSTII, 10*s.* per 100. CENTAUREA CANDIDISSIMA, struck last autumn, and well established, in large 60-pots, 40*s.* per 100. AUREA FLORIBUNDA and other CALCEOLARIAS, 8*s.* per 100. HELIOTROPES, light and dark, 8*s.* per 100.

S. B. would particularly wish to draw the attention of his numerous customers to his fine stock of VERBENAS for this season, which are the admiration of all who see them; and would request that all orders should be sent to him as early as convenient, as he was unable to supply many who applied late last season—general satisfaction being expressed by all those who favoured him with their orders.

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NEW PLANTS.—The three best new plants recently sent out are :—
CROTON MAJESTICUM,
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CROTON SPIRALE.
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SEEDS of TIMBER TREES, PALMS, SHRUBS, &c. Plants indigenous to Australia, New Zealand, and Fiji, including ARAUCARIAS, TREE FERNS, variegated FLAX, &c. Orders may be left with our London Agents, Messrs. C. J. BLACKITH AND CO., Cox's Quay, Lower Thames Street, London, E.C., for transmission.
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FRANCIS R. KINGHORN has much pleasure in offering this superior variety, being a strong grower, with very large trusses of pale scarlet flowers, freely produced. Suitable for centres of beds and back rows in borders. Received the highest commendation (a First-class Certificate) from the Floral Committee at Chiswick in 1873, which was again confirmed in 1874. Plants 5s. each, seven for 30s.
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Carpet Bedding, Carpet Bedding.

ALTERNANTHERAS.—30,000, all good, strong, bushy plants, pricked off in store pots, in four varieties, at 8s. per 100—amabilis, paronychioides, paronychioides major, magnifica tricolor.
GOLDEN THYME, 5s. per 100; ECHEVERIA CALIFORNICA, 6s. per 100. Package and packing free. Terms cash.
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Adiantum Farleyense.

MESSRS. JOHN STANDISH AND CO. have a number of magnificent specimens of the above splendid FERN, fit for immediate exhibition. They are in 16 and 22-inch pots, and of perfect form. Also a few well-grown specimens of ADIANTUM GRACILLIMUM, fine plants, 18 inches through, in 8-inch pots.
Further particulars and price on application.
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WM. POTTEN has now to offer strong healthy plants, in single pots, of GERANIUMS, VERBENAS, Imperial Dwarf AGERATUM, IRESINES, ALTERNANTHERAS, MESEMBRYANTHEMUM cord. var., Double and Single PETUNIAS, HELIOTROPES, LOBELIAS, COLEUS, ECHEVERIAS, &c. Price LIST on application.
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ANTHONY WATERER respectfully invites the attention of Holly buyers to the very fine Stock to be seen growing at Knap Hill. It comprises upwards of Thirty Thousand Plants, from 3 to 10 and 12 feet high, of the finer Gold, Silver, and Green-leaved kinds, affording a choice in size and variety such as can be met with in no other Nursery in Europe. Every Plant has been recently removed, and will be guaranteed.
The Stock of Common Green Hollies alone occupies 5 acres of land, and Purchasers will find them in large numbers of all heights up to 15 feet.
Knap Hill Nursery, Woking, Surrey.

Fuchsia procumbens (true).

FRANCIS R. KINGHORN is now sending out the above novelty in Fuchsias, which obtained a Botanical Certificate, and was named and figured in the *Botanical Magazine* of December last, where Dr. Hooker states that Mr. Blackett's plant is not the same as above; but after my freely publishing the stock by plates, circulars, and advertisements, I find, at the eleventh hour, a neighbouring firm announcing Mr. Blackett's plant as Fuchsia procumbens, thereby endeavouring to reap a benefit at my expense. I am convinced the Public and Trade generally will believe that I have the certified stock, and all orders entrusted to me shall have my prompt and careful attention—thanking those friends who have already favoured me with their orders, which I hope to merit a continuance of.
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NITRATE of SODA, SULPHATE of AMMONIA, Genuine PERUVIAN GUANO, &c.
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GENUINE TOBACCO PAPER, 1s. 3d. per lb., in not less quantity than 14 lb., 90s. per cwt.; 95s. per cwt. cut in ½ inch strips, in not less quantity that ½ cwt.; for cash only. Apply
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SIMPSON'S RED SPIDER, THRIPS, &c., ANTIDOTE. Testimonials of the highest order on application. Per quart, condensed, 6s. Supplied to Seedsmen and Chemists.
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MADE of PREPARED HAIR and WOOL.
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TIFFANY, 6s. 6d. and 7s. 6d., per piece of 20 yards.
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SATURDAY, MAY 1, 1875.

MAY FLOWERS.

" March winds, April showers,
Bring forth May flowers "

SAYS the old rhyme, which has its exact equivalent in French, German, and Spanish; and, whether the March winds have anything to do with it or not, there can be no doubt that May is *par excellence* the month of flowers. In seasons like the present, indeed, the beginning of the month may be somewhat less flowery than usual; but when a week or two has elapsed the meadows will become "fields of the cloth of gold" in their thick embroidery of Buttercups; the woods will be carpeted with Bluebells; and the hedges white with Hawthorn, the special flower of the season, which in its very name of "May" is so intimately connected with the month. "Welcome as flowers in May" is one of our prettiest proverbial expressions; and many of our wild flowers bear in their popular titles a reference to the season. Thus the Lily of the Valley (Convallaria maialis) not only recalls the month by its Latin specific name, but was formerly called May Lily and May Blossom, just as the Germans now-a-days term it Maiblume. The Marsh Marigold (Caltha palustris) is in many places called May-blob or May-flower, which latter name is frequently applied also to the Lady's Smock (Cardamine pratensis). Maianthemum is a genus which owes its name to the month; the Germans call M. bifolium Maiblume, as they do also the Caltha and the Hepatica.

In North America the Podophyllum is called May-apple, and the fruit of Passiflora incarnata May-hops; while in New England the beautiful little Epigæa repens is known as the May-flower. In these columns for May 13, 1871, p. 611, will be found an account of the enthusiasm with which this plant, which is the floral emblem of Nova Scotia, is sought for each year at the beginning of May; and we are reminded in reading it of the old days of England when "going a Maying" was the almost universal occupation of both great and small—when the Eton boys were wont to rise at four o'clock to gather May branches, and when kings and queens — notably Henry VIII. and Queen Catherine—sallied forth with their courtiers to take part in this diversion.

The Hawthorn or Whitethorn (Cratægus Oxyacantha) has been known as the May-bush since the time of Gerarde, and the traditions connecting it with May-day, which, before the adoption of the "new style" was twelve days later than it is at present—are numerous. In Suffolk farmhouses it was customary to give the servant who brought a flowering branch of Hawthorn on May morning, a bowl of cream for breakfast. Scott speaks of the hanging up of Whitethorn gathered on the 1st of May as a protection against witches, and Aubrey mentions a similar custom as occurring in Germany. In some parts of Switzerland it is considered unlucky to bring May-blossoms into the house, and the same superstition obtains in certain parts of England—notably in Essex, as the present writer can testify. Langham tells us in his *Garden of Health* that "the Whitethorne is never stricken with lightening;" and a similar belief is still general in Normandy. It is said by a French writer that tree-worship still retains its hold in a modified form in some parts of France, and that women may be seen praying before a Hawthorn tree.

The abundance of Hawthorn blossoms is said in England to presage a severe winter, just as the Scotch say—

" Mony haws
Mony snaws."

And the French in the Dordogne district—

" Quand le buisson blanc entre en fleurs
Crains toujours quelque fraicheurs."

The popular history of the Hawthorn demands indeed a more lengthy notice than the present, but two or three other May-flowers yet remain to be noticed.

The Whitethorn shares its name of "May with certain other trees. The Lilac is called in Cornwall May-flower, and in Devonshire, May; and the Sycamore-flowers (Acer Pseudo-Platanus) are so called in Cornwall—indeed, in that region the natives appear to apply the term in a very wide sense. The following extract from *Once a Week* for 1870 relates to the use of the Elm on May Day:—" At Looe, in south-east Cornwall, every devout worshipper of Flora goes early into the country on May-day morning, plucks a sprig from a 'narrow-leaf' Elm tree, having the leaves well open, and places it on some conspicuous part of his or her dress, that it may be obvious to the world. This is known as 'May,' and will be of great service to the wearer throughout the day. It is perfectly allowable to perform one's devotions by deputy: in other words, whilst it is indispensable that it be worn by every one, it is not necessary that the wearer should have gathered it. Any one may distribute it to whomsoever and to as many as he pleases. All that is insisted on is, that it was without doubt gathered on May-day, and that it is the narrow-leaf Elm. Should it be known to have been gathered the day before, it is indignantly torn from the wearer, and denounced as 'April-May,' whilst the 'broad-leaf' Elm is simply laughed at as 'horses'-May.' To wear April-May is a sham in the way of religion, and a crime; whilst the exhibition of horses'-May is a display of botanical ignorance and a useless blunder. Even the garlands carried through the streets must have on them a sprig of the narrow-leaf Elm." The object in wearing May is as a protection from the attacks of the town boys, who by long-established custom have obtained the right of "dipping" those who do not possess it. This "dipping" is performed with a "dipping-horn" —the point of a bullock's horn sawn off, with the end of a stout stick, about 4 feet long, inserted into the aperture: this was filled with water, and its contents discharged upon the unlucky being who had no "May."

The Auricula seems to have been a popular May-day flower. The refrain of an old Lancashire May song runs—

" And the Baziers are sweet in the morning of May."

Baziers is a corruption of Bear's Ears, the old name for the Auricula, which was similarly called in Latin Auricula ursi, and in French Oreilles d'ours.

May poles, May songs, and May queens are somewhat beyond our province, but we may just refer to a passage in Hillyard's *Practical Farming and Grazing* in which the phrase "gone a-Maying" is somewhat curiously applied. He says:—"The generality of the crops of Wheat look yellow in the month of May; this is called Maying. If a blade of Wheat be pulled up in April there will be found, at the root, a part of the seed-grain, from which the root is receiving some nourishment. If it is examined in May it will be found that the whole of the seed has been absorbed, and that the root has then the earth only for its nourishment; thus being deprived of its parent support the plant feels its loss for a time, and shows, by the blade looking yellow, that it is not in so vigorous a state as it has been. This is only given as a supposition." This phenomenon was treated

rather more scientifically by Mr. Robert Holland in the *Liverpool Naturalists' Journal* for November, 1867. He there tells us that the Cheshire farmers say of Wheat in this condition that it is "being weaned," and "pining for" or "feeling the loss of its mother." *B. M.*

New Garden Plants.

ODONTOGLOSSUM TETRAPLASIUM, *n. sp.**

This appears to be a new type among Odontoglossa Isanthia, only to be compared to O. Weirii, a species lately described (p. 461). The panicle is widely diffuse, and the flowers are equal to those of a very good O. odoratum. I guess they were white and blue. It was discovered in Peru by Mr. Davis, and will, no doubt, soon appear in the establishment of Messrs. Veitch. *H. G. Rchb. f.*

STENOSPERMATIUM WALLISII, *Mast., sp. nov.*†

Under the provisional name of Spathiphyllum Wallisii Messrs. Veitch have lately exhibited one of the most remarkable and beautiful stove Aroids known to us, and which was introduced from Columbia by Mr. Wallis. It is, we believe, new alike to science and to gardens, and forms a new member of a genus including only three or four species, from Peru, Columbia, and the Amazon district. As a decorative plant (fig 117) its points are, its Cordyline-like habit, thick rich green leaves, and more especially its slender, whip-like, erect peduncles, bent over at the top, and bearing a nodding spathe of ivory-white colour, like an open shell, and with an oblong spadix, which bears the same relation to the spathe that the clapper does to a bell.

This very beautiful and novel Aroid may be thus more fully described. Stem ascending, 2—3 feet high, terete, glabrous, of the thickness of the thumb, often provided with aërial roots which proceed from the nodes. Leaves crowded, each with a tightly convolute amplexicaul sheath, with membranous edges and about 3½ inches long, surmounted by a petiole of about 1 inch in length, compressed from side to side, and slightly channelled on the upper surface. The blade of the leaf measures about 6½ by 2½ inches, spreads more or less at right angles, is coriaceous, dark shining green above, paler beneath; in form it is obliquely lanceolate, or ovate lanceolate acuminate, with the midrib depressed on the upper surface, prominent beneath, the veins and venules obscure, approximate, arching from the rounded subcordate base of the leaf to the margin. Peduncle slender, erect, somewhat compressed, longer than the leaf, from whose axil it springs, reflexed at the summit. Spathe 4¾ by 2½ inches, widely spreading, slightly coriaceous, ivory-white, boat-shaped, acute, ultimately deciduous. Spadix about 2 inches long, nodding, shortly stalked within the spathe and wholly detached from it, cylindric-oblong, obtuse, densely and wholly covered with hermaphrodite flowers. Perianth absent; stamens 4, filaments flat, ribbon-like, membranous, with a dilated base, connective deltoid; anthers 2-celled, cells widely divergent at the base, and ultimately confluent into a reniform, sub 1-celled anther, opening by a longitudinal chink at the top. Pollen grains whitish, elliptical or sub-spheroid, smooth, large, mixed with prismatic and polyedral crystals. Ovary oblong truncate, 4—6 sided, with a cushion-like stigma in the centre, 2-celled within, at the base (the upper portion of the ovary solid, cellular, and with numerous very large cylindric cells, tapering at the ends, and sometimes more or less branched). Ovules 4—6 in each cell, anatropal, erect, attached to the base of each cell by means of a long slender funiculus. Fruit, probably baccate (not seen).

The crystals mixed with the pollen-grains, and the peculiar "closter"-like cells in the ovary, are worthy of notice; the latter are, however, not uncommon in other Aroids, as in various species of Anthurium. This plant is doubtless fertilised by insects, the large spreading white spathe serving to attract them. The flowers are also protandrous, *i.e.*, the anthers and pollen are mature before the stigma of the same flower, a very common provision for ensuring that the flowers shall not be fertilised by their own pollen, but by that of some other flower. This is a fact that should always be borne in mind by those desirous of obtaining "crosses" by artificial fertilisation. Another point easily seen in this plant, though of course it is no uncommon occurrence, is the fact that the petiolar portion of the leaf lags behind, in its development, both the sheath and the blade.

The details in fig. 116 are:—A, spathe and spadix, natural size, showing the brown stain on former where rubbed by the point of pendulous spadix, and the transparent indentations of spathe caused by the pressure of flowers when in the bud state; B, C, D, top, side, and longitudinal section of flower, enlarged 4 diam.; E, stamen, enlarged 8 diam.; F, pollen, enlarged 160 diam.; G, the cellular tissue, long vessels, and two varieties of raphides found in walls of ovary and elsewhere, enlarged 40 diam. *M. T. M.*

* *Odontoglossum tetraplasium*, Rchb. f.—Panicula ampla diffusa, multiflora, ramis primaris validis; bracteis spathaceis oblongis acutis; ovaria pedicellata dimidia æquantibus; sepalis tepalisque linearibus acuminatis, crispulis, basi cuneatis; labelli carinis basilaribus oblongis acutis serratis; carinulis interjectis geminis, carina mediana prosiliente discum labelli versus; falculis geminis utrinque superadditis; lamina oblonga acuta undulata velutina; columna clavata, labelli tertiam non æquante.

† *Stenospermatium*, Schott, Prod. Syst. Aroid. (1860), p. 346.—*S. Wallisii*, Mast., sp. nov.—Caudice assurgente ad nodos radices emittente; foliis approximatis basi vaginantibus, oblique ovato-lanceolatis; pedunculis folio suffultiente longioribus gracilibus erectis apice recurvis, spatha spadiceque nutantibus albidis.—*Spathiphyllum Wallisii*, Hort. Veitch.—Columbia, Wallis.

SALLET.

FEW branches of kitchen gardening have more curiosities, in proportion to their importance, belonging to them than salads. Their antiquity partly accounts for this. Of all food, uncooked vegetables are the simplest and the most primitive; for however carnivorous or piscivorous may have been the tastes of pre-historic man, necessity, we may believe, would occasionally drive him to a diet of green leaves and uncooked roots, which he would strive to render as palatable as possible by the teachings of traditional or hereditary experience. In pictures of pastoral entertainments, they naturally form part of the bill of fare. Milton must have meant salad at the repast

> "Where Corydon and Thyrsis met,
> Are at their sav'ry dinner set
> Of herbs and other country messes,
> Which the neat-handed Phyllis dresses."

Hermits, too, have been supposed to live on

> "Cresses from the brook and water from the spring;"

the date, however, of those vegetarian habits is conveniently vague. To approach a more determinate epoch, Evelyn's *Acetaria, or Discourse of Sallets*, should be known to most of our readers, at least by repute. A more restricted number would be cognisant of the account of sallet given by Dennis de Coetlogon, in his *Universal History of Arts and Sciences* (1745), which we therefore give for their enlightenment, as the salad season is fast approaching. Here, singularly enough, gardening or horticulture is treated of only as a branch of agriculture.

Sallet, or salad, is a dish of eatable herbs ordinarily accompanying roast meat, composed chiefly of crude fresh herbage, seasoned with salt, oil, and vinegar (Menage derives the word from the Latin, *salata*, or *sal*, salt; others from *saledo*; Du Cange from *salgama*, which is used in Ausonius and Columella in the same sense); some add mustard, hard eggs, and sugar; others, pepper and other spices, with Orange peel, saffron, &c. Some define sallet more generally as a composition of plants and roots of several kinds, to be eaten either raw or green, blanched or candied, by themselves or mixed with others, and even occasionally boiled, pickled, or otherwise prepared and disguised, to render them more grateful to the palate. But this definition includes potherbs, &c., which the generality of authors deny to be any proper salleting.

The principal sallet herbs, and those which ordinarily make the basis of our English sallets, are Lettuce, Celery, Endive, Cresses, Radish, and Rape, &c.; along with which, by way of furniture or additionals, are Purslane, Spinach, Sorrel, Tarragon, Burnet, Corn-sallet, and Chervil.

The different tastes of mankind will not allow any certain mixture of these to be prescribed as most agreeable; but still, in mixing them, the relish of the several herbs is to be considered—those, for instance, which are most hot and biting, as Cresses, Mustard, Celery, Tarragon, Chervil, &c., with those that are more cool and insipid to the taste, as Turnips, Rape, Spinach, Lettuce, Corn-sallet, Purslane, &c. By this means the herbs may be so judiciously mixed that the too strong taste of one kind may not overpower all the rest, and the insipid kinds be directly used to moderate and qualify the heat and pungency of the others, as the season of the year is more hot or cold, so as every sallet may not only be agreeable to the taste, but also physic to the body.

The gardeners call small herbs in sallets those which should always be cut whilst in the seed-leaf, as Cresses, Mustard, Radish, Turnip, Spinach, and Lettuce: all which are raised from seeds sown in drills or lines, from the middle of February to the end of March, under glasses or frames, and thence to the middle of May, upon natural beds warmly exposed, and during the summer heats in more shady places; and afterwards, in September, &c., as in March, &c., and lastly in the rigour of the winter in hotbeds. If they chance to be frozen in very frosty weather putting them in spring water two hours ere they be used recovers them.

In gathering small herbs, the best way is to pull them up by the roots from the hotbed. If the roots be left, and a second crop of salleting sown on the same bed, it will not prosper. In sowing second crops it is to be observed that seeds of the same kind

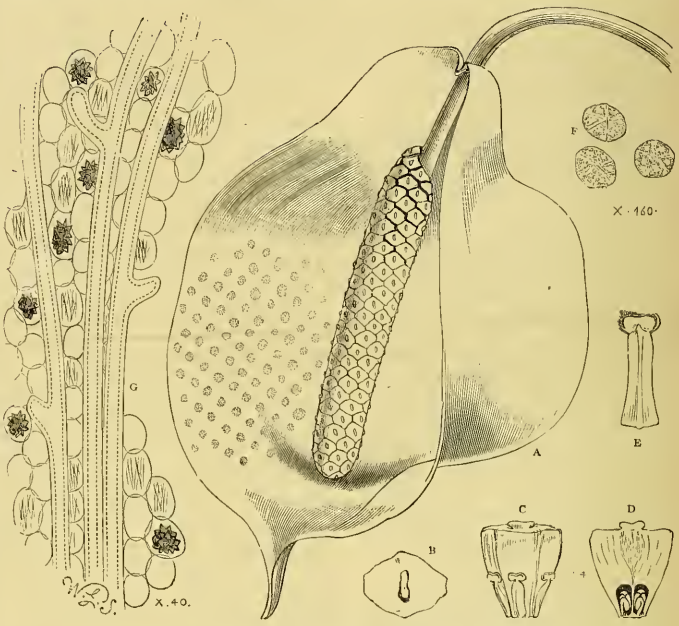

FIG. 116.—SPATHE AND STRUCTURAL DETAILS OF STENOSPERMATIUM WALLISII.

be not sown in the same place; but the ground is to be eased by varying its burden, putting hot seeds where cold ones grew before, &c. Another rule is, that no plant be placed in the same spot where the same kinds have grown before.

Winter sallets are greatly improved by blanched Celery, which is a hot herb of a very rich flavour, raised from seed sown in March and April, in a well-exposed place, and transplanted six weeks after its first appearance into beds, where it remains till the middle of June, and then planted in trenches, 8 or 10 inches wide and as many deep, first pruning off the tops and roots. As they grow large they are to be earthed up, within 4 or 5 inches of the top, which is repeated several times, till they be fit for use. Endive blanched is much used in winter sallets, though it have neither taste nor flavour; it is cultivated much after the manner of Celery. Of Lettuce there are various kinds, the best are the Roman, Dutch Brown, Imperial, and Silesia kinds, all which cabbage well. They are commonly sown with other crops in March for summer sallets, and in August to be transplanted, or September to stand the winter, either to be cut for winter sallets or to cabbage early next spring for seed.

For the additional, or secondary sallet herbs, Burnet is a cool perennial herb, whose tender leaves, mixed with other herbs in the winter, give the agreeable flavour of a Cucumber. It is propagated by seed, sown in March. Corn sallet, raised at the same time and in the same manner, makes a good winter sallet furniture. Purslane, an insipid yet cooling herb, is admired by some in winter sallets; it is raised by seeds, sown in March, in a warm place. Sorrel is chiefly used in the spring, when the young leaves are very agreeable; it is raised from seeds, sown in March, usually in drills or rows. Spinach is a necessary ingredient in raw sallets, to be cut in a young state; but it is better for boiled sallets in the winter or spring; it is sown in March, April, or May, and again in August, in a place well exposed to the sun, that the leaves may be large enough for boiling in winter. Tarragon, of all others, should never be wanting; it is a cordial herb, though not the most agreeably tasted, yet a few leaves, or three or four of the tender tops, give the sallet a good relish; it is propagated from slips, taken from the root, and planted in March. Note, in the spring, Dandelion, blanched, which is gathered in almost every ploughed field, makes an excellent sallet, mixed with other herbs. Some, likewise, gather Violet flowers, Cowslips, and blossoms of Burrage, as part of the sallet furniture: others, Fennel and Parsley.

Dressing of Sallets.—The Celery and Endive are to have their hollow green stem or stalk stripped of all its outside leaves, and sliced in the blanched part, cutting the root into four parts. The other ingredient herbs, being exquisitely culled and cleansed of all faulty leaves, &c., are washed rather by sprinkling than sobbing them in spring water, laid to drain off all superfluous moisture, then shook and squeezed together gently in a coarse cloth, to dispose them to receive the seasonings, viz., the salt, vinegar, oil, &c. The oil not to be yellow or high coloured, but of a pale olive-green, without either taste or smell; the vinegar perfectly clear, neither sour nor pallid; the salt to be the best ordinary bay salt, clean, bright, and dry. Some, indeed, recommend the essential salts and spirits of vegetables, or those of the alcalizate and fixed kind, extracted from the calcination of Balm, Rosemary, Wormwood, &c., and affirm that, without eating the gross sallet herbs themselves, we might have healing, cooling, generous, sallets wholly out of the salt-cellar.

Note, in the proportion of salt, pepper, and vinegar, regard is to be had to the season, constitution, &c.; the two first being best for cold, the second for hot stomachs and seasons. For a moderate sallet vehicle, to three parts of oil put one of vinegar, or lemon, or orange juice, and in the mixture steep slices of Horse-radish, with a little salt; occasionally add a little Guinea pepper and mustard, with the yelks of two eggs boiled, squeezed, and bruised into a mash therein; pour the whole on the herbs, stirring and mingling them till they be thoroughly imbibed. *E. S. D.*]

Fig. 117.—Stenospermatium Wallisii.

PEACHES AND NECTARINES.

I fear we are very ignorant of arboriculture, of the theory of vegetation, and of the phenomena of plant life. We do not study and observe. To see a thing is not necessarily to observe it. "Observation" is intellectual sight. Locke has truly said, "We know a little, suspect more, and jump to a conclusion." People should not only observe but "read, mark, learn, and inwardly digest."

Peaches and Nectarines are my special hobbies, and I have studied them since 1852. I have now twenty of them under glass, and 124 outside of it. They are in fine condition; and though they are so exposed, there is not a single blistered leaf on the trees. Sir W. Marriott and Mr. Mansel Pleydell called on Friday, April 23, and I pointed this out. I have not disbudded the trees at all. Probably this would not be seen in any garden in England. I think, therefore, a few observations, only as far as my experience goes, may be acceptable. I never write what I have not experienced. I look to the trees all the year round. It is impossible for a gentleman's gardener to do the same. He has generally too many things on his hands, too few labourers, and too few pumps: the great deficiency in our English gardens is water-power. One word on the management of the trees. The trees should be kept as far as possible equally balanced. The prosperity of the trees depends in a great measure on the equalisation of the sap throughout all the branches. This would probably be the case if the trees were left to themselves. The rush of sap is to the upright upper branches, next to the upper horizontal branches, so that the lower branches get less sap and move more languidly than those at the summit. If a tree is unbalanced by being strong on one side and weak on the other, the strong side only should be cropped and the weak side should be totally disfruited; in this case the strong branches should be inclined, without twisting the branch, for that would cause gum, and the weak

side branches elevated and allowed to have all their leaves, which will draw the sap, and as many of the leaves on the strong side as could be spared should be taken off or cut in half. Over-fertilisation produces non-fructification. Small well-ripened wood about the size of a slate-pencil is the wood that bears fruit. The slower the circulation of sap the smaller and riper the wood will be, and greater will be the prospect of fruit, as the wood will be smaller and the fruit-buds more numerous. After a frosty night be careful not to remove the shading suddenly; if the sun comes out powerfully it will wither the blossoms before they have time to "set." In choosing Peach and Nectarine trees see that they are good at the point of union between the scion and the stock. This is most important, for if the trees are bad there they never can be good. Short pruning out-of-doors is more likely to produce good crops than long pruning, for they depend greatly on the ripening of the wood; and if you cannot ripen shoots 4 or 6 inches long, how can you ripen shoots 16 or 24 inches long? I am a short pruner for that reason. I disbud but little, and pinch the shoots mainly to two, four, or six full-sized leaves; consequently I have many trees out-of-doors and under glass supplied almost wholly with *bouquets de Mai*. I have one Royal George under glass, well fruited all over, upon *bouquets de Mai*. How pretty such trees look when in flower.

Insects are now very busy, and should be looked after. Methylated spirit is the best remedy for scale. Dip a feather into it and touch them with the spirit: it kills them instantly. Mr. Rivers told me of it.

Syringe the trees for aphis. Stand sideways (not in front) and syringe first one way and then the other. If the edges of the leaves are curled you must pull them off, squeeze, and burn them; syringing will not get them out of the curled leaves. Open the leaves and you will see a colony.

Disbudding.—I disbud but little, and never till the leaves are fully expanded. I can then select, taking off bloated leaves, if there are any. The bloated leaves are the effect of evaporation, cold, cutting winds, and heat. Trees should be supplied with water, which will enable them to keep up a supply of moisture equal to the evaporation.

Leaves and Skin are the first and second lungs, and both must be kept clean. If the foliage is bad or scant, the fruit will not be good. There must be a leaf collateral with the fruit or beyond, or the fruit will be flavourless.

Over-cropping and Over-wooding.—Neither of these should be done. Three fruits in a square foot on a strong tree is as much as it should have. Freshly planted or weak trees should not have more than one fruit in the same space. Probably it would be best to let them have much less. If a sort is good, the bigger the fruit is, the better is the quality and flavour. You had better have one large Peach than two small ones. In this case you have only one stone, and in the latter two. Over-cropping estops flavour, and is injurious to the next year's prospect, because the rush of sap is to the fruit, and the tree cannot form bearing wood for the next season. Disfruit the trees at several times, and also disbud them at several times.

Gum.—This is the worst form of disease of all. It is occasioned by tight ligatures, by straining the branches, and by curbing the shoots all over the tree at one time. Disbud and stop the shoots at several times, or you will disturb the economy of the tree too violently and produce gum. If gum oozes out scrape it off and score the rind with your knife—an "empty house is better than a bad tenant."

Canker.—This is usually attributed to the soil here; but it is a disease externally caused by violations of the skin and rind, the roots have nothing to do with it. The Ribston Pippin and Moorpark Apricot are much given to it. Generally, but not always, it takes place at the knots. I imagine the rains lodge there, and the frost bites sharp where there is most moisture.

Ties and Nails.—I use matting, and not shreds, with cast-iron nails. There is, therefore, no occasion for drawing the nails, which leave holes for vermin. Give the matting a twist, so as not to let the twig touch the nail, and be sure not to tie too tightly or the shoot above the tie will die, and gum will ooze out beneath. Cast-iron nails are only 6*s.* per ¼ cwt. When they are in the way a slight tap with the hammer will break them off and leave the holes stopped up. I usually leave them in their places and simply cut off the matting. Just imagine the havoc long pruners with shreds and nails must make in a wall!

Pointing Walls.—I have just had mine done, and it cost me a great sum, but the winter made it necessary. I used with the mortar Portland cement and blacksmith's ashes, and the work is famous. Our Dorset lime is not strong enough; the best lime is the Bridgewater lime. The winter has, indeed, been severe, but now we have passed the rubicon—

> "For now the sullen winter 's past,
> No more we fear the northern blast:
> Hark! the birds melodious sing,
> And sweetly usher in the spring."

W. F. Radclyffe, Okeford-Fitzpaine, April 26.

A PLEA FOR MOSSES.—II.

The drying winds of March have told on those mosses that grow on trees, walls, or among grass, but our own in the glass dishes look as fresh as ever, and in damp woods and on moors they are still very beautiful. Many species are now in fruit, which renders the distinguishing of them much easier, and as it is always more satisfactory to note from plants growing in their natural positions, I shall try to describe those collected during the last week of March.

Bartramia pomiformis is lovely now, completely dotted over with its bright green erect Apples, and forms a great contrast at present to the other dried-up mosses on the stone dykes, but I observed its tufts were generally close up to the top of the retaining wall, thus getting shade and shelter from the over-hanging dead grasses.

Bryum capillaris (greater matted Thread-moss) is also in beautiful oblong nodding fruit; the capsules are very transparent, and set on reddish orange setæ—all the fresher when growing among the two little wall Ferns, Asplenium Ruta-muraria and A. Trichomanes. A 5-inch saucer with this pair of common mosses in, is at present a most "dainty dish" of fruit.

Little curled up dark green tufts of Orthotrichum crispum (curled Bristle-moss) with its minute terminal capsules, catch the eye on trunks of trees; it is a very distinct moss—the tufts are usually about the size of a halfpenny. On a stone wall, among the bright orange patches of that commonest lichen, Parmelia parietina, was the minute Grimmia Doniana (Donian Grimmia), the whole plant of which does not exceed an eighth of an inch in height, and is of a dark brown ticked with gold capsules; G. pulvinata looks quite a large moss beside it, with its pale yellow seed-vessels safely buried among its leaves (fur would be a fitter word to use, and very like mice are the grey cushions of this moss!) Walking down a burn course (the little streams are nearly dry) one commands both moss-covered banks and the hollows under the roots of trees, where one is sure to find finer specimens of the beautiful Bryum ligulatum than those got in January. It might pass for the favourite Killarney Fern, Trichomanes, or some exotic filmy Fern.

On the stones which water should cover are both the large and small Fontinalis; F. minor (Lightfoot) has its capsules "growing out of the ends of the lateral branches, which is the most material distinction" between the two. It grows three or four inches long, while F. antipyretica (great Water-moss) is in waving dark masses of 8 or 10 inches. Hypnum dendroides (tree-like Feather-moss) is a great beauty; growing among the grass and rushes it catches the eye at once by its thick top of rich velvety green standing erect on a bare stem, tree-like—it seldom fruits: and in complete contrast to this Hypnum is H. undulatum (waved Feather-moss), distinct in its young and full grown state, when the flattened and almost white branches are seen trailing down a damp bank. I did not find it in fruit; it reminded me almost of a Lycopod. In fine fruit on trees and walls was H. rutabulum (common rough-stalked Feather-moss); the little bright brown capsules thickly dotted over the large masses of this most common British moss make it very attractive, and common also is H. prælongum (very long Feather-moss), not in fruit, but, as I found it, distinct from its very fine, almost hairy appearance, and light green, though it is a variable species. One great stumbling-block to the beginner is the very different situations the same moss will be found growing in, and of course its character altered accordingly. On the wet moor just now Polytrichum commune is the most attractive plant, 6 inches high, with clusters of its stalks terminated with a kind of "rosaceous cup" of a bright red colour, and on a dry bank is the same "common Hair-moss," too short to be plucked by the fingers, and requiring to be poked out with the point of the knife; true, its bright red cup and well known capsule are the same. "This cup is looked upon by Linnæus as the female flower of this moss, but Heller is of opinion that it is only the germ or origin of a new stalk, which frequently rises from the centre," and which again becomes sometimes proliferous; and this is the opinion of botanists of the present time.

Then again, in a young state mosses, like Ferns, give little indication of which species they are, and treasures turn out the most common Hypnum or Bryum, or perhaps no moss at all, merely Conferva, like the pale green mould one skims off soil anywhere, everywhere. A lens, possibly, would prove the fact of a seedling moss, but I am sure, for amateurs, learning first without such aid is best: it will be many a year before they exhaust what should be known and seen by the naked eye. Linnæus, we read, to the last seldom used a microscope; possibly this was a little weakness or boast of the great botanist, but there is no doubt the less paraphernalia the young student begins with the better. The want of this and that as excuses for ignorance are far oftener cloaks for laziness and want of application, and we amateurs will learn more by teaching our own eyes to observe and see, than we shall from erratic poring through a lens. The ground in an open wood, principally of Fir trees, is covered with large clumps of the dark green velvet Bryum hornum (Swan's-neck Thyme—Thread-moss), attractive in its young state, fitting tight to the soil, and when the handsome pendulous capsule is, as at present, in perfection, the fruit-stalk, though tall, is so slender that the eye catches the bright green seed-vessel and misses the seta. Polytrichum juniperinum (Juniper-leaved Hair-moss) likes the damp wood also, and is distinct with its arrow-head-shaped capsule standing erect. No bright-coloured gemmæ did I find on this Polytrichum. Close by on the sides of the wide open drains were patches of Hepaticæ. No greenhouse pots can be kept free from the Hepatic moss—Marchantia polymorpha—a real pest, which forms a tight green cake on the surface of the soil, most detrimental to the legitimate plant in the pot; and M. conica is of darker green, and grows in larger patches—a most peculiar-looking plant. Tall transparent foot-stalks (some I measured were above 3 inches long) rising from the flat leaf-like surfaces, some with a black bead-like head (nothing so like them as the horns and eyes, commonly so called, of snails), and others burst with a yellowish four-sided open sort of flower—hardly possible to lift the patches without breaking the pale, clear foot-stalks, so very short-lived are they when taken home. Although not mosses, it was impossible not to be attracted by these Liverworts, nor, spreading out my booty on a felled Birch so as to select the best specimens, could I resist collecting the various lichens on that single trunk—tight-fitting circles of Pertusaria communis, light round the edge, of darker grey in the centre; Parmelia olivacea, greenish in colour, growing the same way, and both requiring a slice of the bark to come off with them; large frizzly tufts of Usnea barbata (Tree Hair), and of Ramalina farinacea, with flat fronds like stag's horns; Cladonia deformis, mealy white horns growing among the others, all so utterly common that thinking of a damp climate and ill-drained land at once brings before one these particular grey lichens. On an Oak stump were layers upon layers of Polyporus versicolor (Cock of the Woods), a very common woody fungus—according to age shaded in half circles of many colours, from pale lilacs, greys, fawns, browns, to almost black; and growing close to it were tufts of the black and grey horned Hypoxylon vulgare (Candlewicks, as they are commonly called). After Mr. Smith's "confession," p. 398, funguses are not likely to be studied by the many; still they will come up among mosses to attract one's attention and interest as well as the lichens; and while passing among trees it is impossible not to know or to escape from the green dust of that invisible fungus, Chlorococcum—that silent witness against tree-climbing, bird-nesting, fruit-stealing boys. *F. J. Hope, Wardie Lodge, April.*

THE CLEMATIS AS AN EXHIBITION PLANT.

That the modern varieties of Clematis admit of being grown into specimens will be readily admitted by those who saw the plants exhibited by Messrs. G. Jackman & Sons, of Woking, at South Kensington last year, or who witness the exhibition which opens to-day in the Regent's Park. Those, indeed, who avail themselves of this latter opportunity of seeing the first Clematis exhibition of any importance which has yet been held in public, will meet with a floral treat of which they can probably form no conception. If, however, the imagination can paint the effect which will be yielded throughout the month of May by upwards of 400 well-grown plants, in splendid condition as to health and vigour, and bearing a crop of over 20,000 flowers, then some idea may be formed of the display which is provided by the Messrs. Jackman in the gardens of the Royal Botanic Society.

To Mr. G. Jackman must certainly be accorded the credit, not only of first directing attention to these plants by raising C. Jackmanni, but also of showing the public how the Clematis ought to be grown in order to take position as an exhibition plant. His first essays were made with the late summer-flowering varieties, which required a totally different treatment to that accorded to those now about to be exhibited; in the former the cultivation proved to be a kind of struggle against the weakening influence of pot or tub culture upon plants which naturally strike their roots deep into the open soil, and ramble far and wide, blossoming as they go. To get plants of this habit to furnish with vigorous blossoms the necessarily ample space over which they had to be trained was a feat requiring considerable knowledge of the wants and habits of the plants, and was thoroughly

well accomplished, as the displays at the London and provincial shows of the last few years have borne full testimony. Last year Mr. Jackman sought for new laurels in another field, and won an easy victory, as many of the plants then shown at the Crystal Palace, at South Kensington, and at the Regent's Park, furnished sufficient evidence. This year the exhibition, being arranged for the month of May, will naturally consist mainly of the spring-flowering and early summer-flowering varieties, but to these, for the sake of the contrast of colour they afford, will be added a selection of the late kinds brought forward by forcing.

the occasion of the visit of His Imperial Majesty the Emperor of Russia, with the Duchess of Edinburgh and suite.

The plants were placed in what is called the Queen's Corridor, right and left of the principal staircase leading to the Royal box, and one of these, leading to the Imperial banqueting-room, in which the specimens of Clematis were shown intermixed with other plants, is represented in fig. 119. Of the plants themselves we need only say that their massive star-shaped blossoms of various hue were most effective in this combination, and elicited marked admiration from the Imperial party. The other and smaller features of the floral decorations. This is sufficiently well shown in the illustration.

No one who cares for flowers, and certainly no one who cares for the Clematis, should fail to see this grand exhibition, upon which no small amount of skill and trouble have been expended by Mr. Jackman and his very efficient staff. It will, as we have already said, remain open nearly throughout the month of May—from May 1 to May 25—and in its successive stages will be well worth visiting as often as opportunity may permit, on account of the succession of varieties which will be brought forward as they come into blossom.

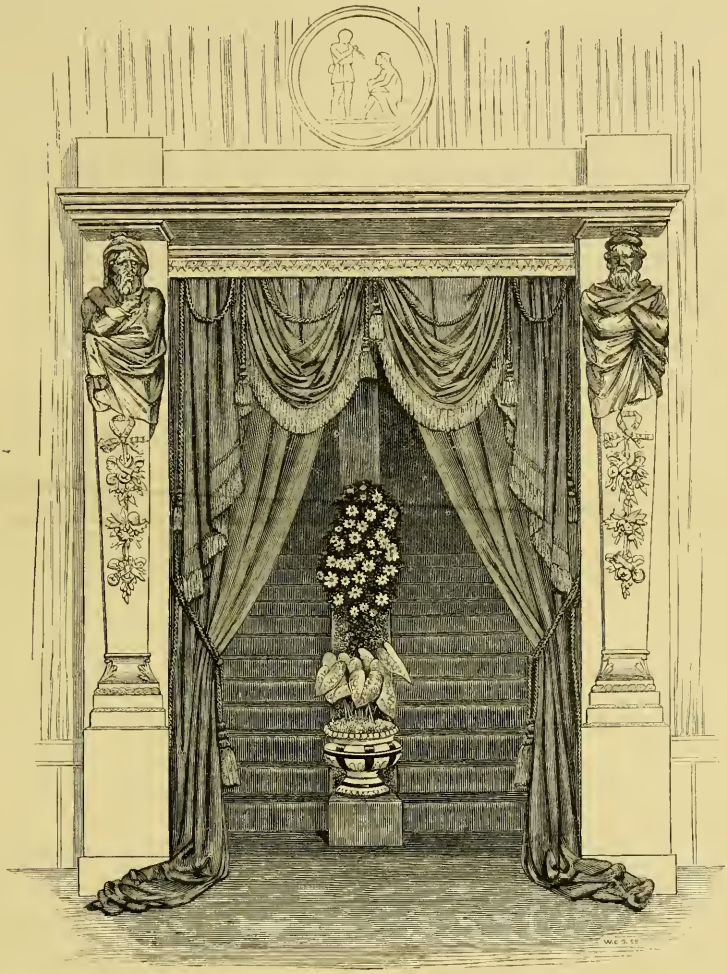

Fig. 118.—Staircase leading to the Royal box, Crystal Palace, decorated with Clematis.

With what success the plants have been treated will be apparent when we state that the larger specimens, which form considerably over half the number of those prepared for the show, cover a balloon-shaped wire trellis, measuring about 2 feet high, and nearly as much across, and that these carry flower-buds which average fully seventy per plant, and which in a large proportion of the plants mount up to upwards of 100 flowers each. Some of the later kinds indeed run up to 140 or 150 blossom-buds. One of these plants fully blown will therefore be, of itself, quite an exhibition.

We are able to give some idea of the effect produced by the Clematis when grown as an exhibition plant, by means of two engravings (figs. 118, 119) from photographs taken at the Crystal Palace last year, on sketch (fig. 118) shows two of the plants which were honoured with a prominent position in the decoration of the staircase above referred to—a point which proved to be very difficult to set off to advantage, but which the happy thought of draping with the bold flowers of the Clematis, hit off exactly; the selected plants had flowers of a pure white and deep mauve colour respectively, and the admixture of these two colours proved exceedingly telling. Our figure represents these plants, after they had been taken off the trellis on which they had been grown, and had been trained around a thick iron column, which is one of the mainstays of the structure at this point, and which when covered with the blossoms of the Clematis in the manner indicated, instead of being an eyesore, was converted into one of the most attractive

Home Correspondence.

The Lambton Castle Vines.—The paper on Vine growing by Mr. Hunter in the *Gardener's Chronicle* at p. 499 is most interesting. Whatever a man writes on the culture of a fruit which he has brought to greater perfection than any man has ever done before, not only deserves but demands attention. The only question of interest to me is, To what part of his treatment is his great success owing? We cannot suppose the situation favourable, at any rate. Land of such a nature that it was necessary to build vineries on piles, is hardly the situation one would choose for a garden. Then, again, though in such a place a hard and impenetrable surface on which to lay a Vine border

might be and probably was a necessity—and granting the necessity, we see the arrangements for drainage were all that could be desired—still few would attribute Mr. Hunter's success to concrete under his Vine border. Many of us would say that though such an arrangement may be necessary in many places, yet it is always to be regretted. An impenetrable subsoil is a thing no one covets when farming, a substratum made artificially so impervious as to cut off all capillary attraction is not what one would choose as the foundation of a Vine border. Then, again, the soil or rather compost prepared for Mr. Hunter's Vines differs little from what is generally recommended. Situation, soil, climate—there is nothing in any of these to prepare us for expecting bunches of Black Hamburgh Grapes more than 20 lb. in weight. To what, then, must we attribute his astounding success? Is it to the fact that he every year disturbs his Vine border with steel forks? I should say his success is a proof how carefully the operation of forking has been performed and how good-natured a plant the Vine is, but I for one cannot look upon this practice as being good in itself. We know that old Vines are greatly benefited, when from improper management their roots have all left the surface of a Vine border, if the soil destitute of roots is carefully removed, and fresh turfy soil placed over the roots to a moderate depth. We also know that Vines may be carefully transplanted into a fresh border and receive little check the first season, and with advantage in future years; but that an annual disturbance of the roots of a Vine would be beneficial is what we should be hardly prepared to expect. If such treatment proves to be beneficial, then we may be glad that Mr. Hunter's groundless fear of wireworm has led him to the discovery—for I am quite sure his fear was groundless. Growing, as I do, thousands of pot Vines in fresh green turf, just cut from the field (full of wireworms, as a matter of course), either my men or myself must have seen a root injured by wireworm before this; but neither have we seen roots of Vines injured, or, indeed, the roots of any tree or shrub, though every gardener knows how injurious those insects are to many plants and vegetables. Mr. Hunter may rest assured the wireworms were feeding on the roots of grasses in his turf soil, though they preferred his rape-cake, and would have been glad of a sweet Apple, a piece of Carrot, or even a Potato. Had they any taste for his Vine roots his Vines would have stood a poor chance indeed. According to my ideas we still have to look for the cause of Mr. Hunter's success; and I should be inclined to think it was chiefly attributable to ventilation and abundant supplies of water and manure-water. The more artificial any culture is the greater necessity there is for close attention; and we all know what a mess some people make of Vine culture in pots, or in heated borders, or planted altogether inside houses, or on beds of concrete. In such cases the requirements of a Vine must be furnished by the cultivator, as little is left to Nature. Mr. Hunter's paper shows his heart is in his Vine culture; the careful ventilation—the record of temperature taken four times a day—proves this. The strong points of his culture seem to me ventilation and watering. Strong, healthy foliage made under the influence of fresh air and a growing temperature would have a very different appearance, and would feel to the touch very different to foliage produced in an atmosphere more fitted for Ferns than Vines. Then, again, he must have the command of plenty of water and the means of readily warming it, seeing that he can put on 5000 gallons of water at a time in a tepid state. When we remember the ample drainage provided below his border, and that fully one-third of the materials of his compost was lime scraps, charcoal, and burnt clay, it is quite clear he could hardly give too much water; and nothing is more certain than that Vines generally get too little. Again, strong, healthy foliage, on which air plays freely, in a warm atmosphere, must take up and give off an enormous quantity of moisture; and when this water has passed through rich soil, or has been charged with guano, it must leave much behind in the wood and foliage of the Vines. When the results are so astonishing we must all be anxious to know to what they are due. There can have been no bad practice: the thing to know is, what there was so much better than that of acknowledged good cultivators as to produce Grapes twice as large as most of the best growers can show us, with all their skill. There are several points not very clear in Mr. Hunter's paper. He says, "After getting a cement and brick bottom to my satisfaction, some 4 feet in depth"—I should suppose he means 4 feet from the surface; if so, what depth of soil is there in the border, and on what principle has he made 4 feet of it below the surface? He can hardly mean he has provided a mass of concrete 4 feet thick. Then, again, the size of the house is not given, or the size of border to which the water was applied. Again, what are we to understand by "I had a small house of Vines planted, void of natural soil, except a small quantity which was used to surround the newly-planted Vines," &c.? The compost used on a large scale by Mr. Hunter can hardly be called a natural soil; what are these growing in? If also the nature of the soil from which the turf was procured had been stated, it would have been more satisfactory. It surely must have been a very heavy soil to bear one cartload of lime scraps, one of charcoal, and one of burnt clay, besides manure and bones, to only six cartloads of turf. *J. R. Pearson, Chilwell.*

—— Mr. Hunter, of Lambton Castle Gardens, has once or twice drawn attention to the light rainfall in his neighbourhood, in connection with his successful Grape growing (see p. 499); but it is perfectly clear, in his case, that the rainfall may mean anything or nothing. Whether the water falls from the skies or from a watering-pot is of no consequence. The question is, How many inches of water did his Vine borders receive from all sources during the season? It is stated that 14,280 gallons have been given to one vinery by the watering-pot, from March till July; but as neither the length nor the breadth of this border is given, these figures give no exact information. Perhaps Mr. Hunter will kindly supply this omission, and then your readers can judge for themselves. *Enquirer.*

Doronicum caucasicum for Ribbon Borders.—This plant helps to form one of the most effective ribbon borders imaginable. We have used it for that purpose for years, as well as for bedding, &c. At this time we have a walk 100 yards in length, with a ribbon border on each side, both being filled alike, and as follows:—The back row Doronicum, then a double row of Anemone coronaria, next a line of variegated Arabis, followed by one of Aubrietia purpurea, and a beading of Golden Pyrethrum about 3 inches wide next the Box, &c. I have not seen anything to surpass the above arrangement. *J. Grey, Normanton, Stamford.*

The True Double English Daffodil.—I am afraid that Mr. Shirley Hibberd's definition of this plant at p. 535 will be rather apt to mislead, and, judging from his remarks, I cannot help thinking that he had never seen the true variety, or he would not have doubted the accuracy of Mr. Worthington Smith's careful engraving at p. 500, which represents one phase of the true double-flowered English Daffodil very correctly. Mr. Hibberd at p. 535 says:—"The distinctive character of this form is that the tube or crown is intact, the doubling taking place within it." But, unfortunately, this definition is insufficient, inasmuch as the corona frequently bursts open or is slit into irregular segments, and then the result is a Rose-shaped flower. On the other hand, the common double Spanish Daffodil frequently has the duplicate segments confined inside the corona, just as shown in Mr. Smith's figure, but then the flower is much deeper coloured and larger. The difference between the true double English Daffodil and the common double of gardens, fields, and orchards is very apparent when both are seen together, but the main distinctions of size and colour are difficult to define by descriptions. The true double English Daffodil is little more than half the size of the common double, the perianth segments being pale sulphur, and the coronal segments clear chrome-yellow. In the common Spanish double, on the other hand, the perianth segments are chrome-yellow, greenish behind, while the coronal segments are of a deep orange-yellow. When Mr. Barr rediscovered the true double English Daffodil last spring (1874), he kindly brought me two flowers to sketch. One of these flowers was rose-shaped, and composed of sulphur-tinted perianth segments, amongst which were dispersed the deeper yellow coronal divisions. The other form had the corona intact, the duplication of coronal and perianth segments being confined within its radius, and six of the perianth segments were quite normal and in their proper position. It is curious to note that the duplication of the true double English Daffodil in Mr. Barr's collection this year is confined to coronal segments only, as shown in Mr. Smith's engraving; but last year they had duplicate perianth segments also developed. I believe Mr. Hibberd is quite right when he refers to some of the monstrous many-centred flowers of N. Pseudo-Narcissus var. grandi-plenus as being in reality fused or coherent umbels on normal scapes, and I can quite understand that in some of the more plethoric flowers there are traces not only of depauperated foliage, but also of incipient bulbs. This state of things, however, is confined to the grandi-plenus form of N. Pseudo-Narcissus v. major, and the double-flowered form of N. (Philogyne) odorus, which also occasionally produces flowers having two or three centres, but then it is conjunctive with the metamorphosis of stamens into coronal segments, and often a multiplication of the perianth divisions. This extreme subumbellate state of duplication is never shown in the true double English Daffodil, or, if so, I have never seen examples. Double Fuchsias are very different to double Daffodils, for in the majority of cases they have eight stamens, and the style quite normal, and often bear perfect seed as freely as the single kinds; indeed, if my memory serves me rightly, I believe one old purple-flowered variety, named Sir Colin Campbell, having duplicate petals, fruits very profusely. This I believe is never the case with double Daffodils, and some of the single flowered species never fruit naturally, and can rarely be made to do so by artificial means. It must not be forgotten that both the plants here alluded to are but double-flowered varieties of N. Pseudo-Narcissus, not separate species; so no one need feel surprised if they are found to slide into each other eventually, just as is now the case with the single forms, from which they have in all probability originated. *F. W. B.*

Hardy Varieties of Broccoli.—In the midland counties Broccoli in general has been severely tested this winter, and some varieties have succumbed to the severe frost in the last week in December. Osborne's Winter White was the tenderest with me, being nearly all killed, but in the same plot Snow's Winter and Backhouse's Early, with Dilcock's Bride, have stood well; but their coming in has been very irregular and much later than usual. In December I had all their heads laid down to the north close to the ground, and a wisp of dry hay put on the head of every plant. This was done before the severe frost occurred, on the last days in December, and it saved them from being much injured. Where dry Fern fronds can be procured, these are still better than hay, as they are not so liable to be blown about by high winds. A nice break of Watt's Excelsior, the Leamington, and Cooling's Matchless Broccolis was done in the same way, and they are now coming in and showing nice white heads, but not so large as last year, and at least two weeks later. All the above varieties are excellent, and may be reckoned on as quite hardy, where a little attention is paid to preserve them in severe winters. The later sorts of Broccoli, such as Carter's Champion and Cattell's Eclipse, have not been laid down nor covered in any way here, and they have stood the winter quite uninjured, and will produce a good supply in May and June. Kenna's Late White and Lauder's Late White Goshen are likewise two very late and hardy Broccolis as grown here this year. *William Tillery.*

The Prince of Wales Plum.—I believe the chief cause of the frequent losses of Prince of Wales Plum trees arises from their having been grafted on an improper stock. The stock best suited to it is the common Plum, which I think is the scarcest of all Plum stocks, and perhaps the most difficult to propagate. Consequently the Mussel, Brussels, or Brompton are used, and these are obtained from suckers taken from old-established trees, and may be of mixed kinds and quite unsuited to the longevity of the Prince of Wales Plum, although it grows more vigorously upon these than on the common Plum. I am inclined to think the very fact of the robust growth tends to shorten its life. The Mussel stock is the least injurious of these improper stocks, but the only safe stock is the true common Plum. I cannot reconcile to my mind any of the causes assigned for its failure in the several letters that have appeared in your columns. Mr. Bréhaut's plan for covering the trees with paper in spring is simply ridiculous, when the great extent of land covered by this favourite Plum is considered. It would be an impossibility, and I believe it would at the same time be quite useless. I am more inclined to put my trust in the discovery made by Mr. Barron, of Borrowash, some years ago, in the matter of the dying out of the limbs of Apricot trees, which he fully convinced me was caused by October frosts catching the sap either before it had descended or before it became consolidated and the wood ripened. In the case of the Apricot, although the branch is struck in October it does not show the defect till the following summer, when the leaves are expanded and the fruit is about half an inch long, when the sun calls upon the tree to support the fruit, which it cannot do, but dies of apoplexy. It may be argued that if one branch is struck by frost why should not others suffer? To this I reply that frost always makes its own selections, and I believe it will be found that the most robust branches are affected first. And so it may be with the Prince of Wales Plum, from its being excited into excessive growth by a stock that lures it on and then destroys it. That Cherry trees are thus affected in October I have not the least doubt, especially if the October frosts have been accompanied by wet weather. My observation goes to show that we do not attach sufficient importance to the destruction of vegetation by October frosts, and if protection is to be given to trees, October is the time to give it. Many a farmer can tell of the enormous loss the country suffered about eight years ago from the destruction of the Mangel crop by an early October frost: many a pit did I see opened the following spring showing a mass of putrefaction. *C. Lee, Hounslow.*

Mulberry Trees for Australia.—In your last issue a correspondent asks for information as to how he can best send the Mulberry to Australia—whether as cuttings or plants. At the present season neither mode would be successful, as the buds are just bursting; the best time to send the young trees is the month

of November, and any nurseryman would pack them suitably. If cuttings are sent they should be taken from well-ripened shoots of the year's growth, tied in small bundles, and both ends dipped in softened pitch or resin, and then packed in a case with layers of crushed charcoal between the bundles and cuttings. They should be sent from England in the month of November or December, and the case may be either soldered down or secured with a lid fitting rather closely. I am not aware of any useful variety of Mulberry not already in the Australian colonies; and it is just possible your correspondent may be giving himself unnecessary trouble and expense in sending out plants of which the colonists have an abundant stock. If your correspondent is desirous of sending out something useful to his friends or to those important colonies, I shall be happy to afford him information as to plants not very well represented at present in the Australian colonies. *W. Clarson, Hayes, Kent.*

Picea concolor.—I have been much interested from first to last in Mr. Murray's remarks on Picea concolor, or, as he would call it, P. grandis, var. concolor, and the reasons he assigns for considering it so related. He informs us that he grounded his opinion on having seen P. grandis in its native Rocky Mountains with all the characters that this species presents; and he adds that he found "very great differences in the habit of trees of P. grandis growing side by side. One would bear its leaves scattered thin and sparingly, and wide apart; another would have its foliage twice as thick; one would have long leaves, as in lasiocarpa and Lowiana; another quite near it would have them only half the length. And even in colour a great difference was constantly to be seen; one would be of a darker green, another yellowish olive, a third nearly white, and so on." We who have been accustomed to look upon plants raised from seeds sent home from the Pacific coast and Vancouver's Island, have seen in them no such variability. In holding the opinion that this form of Picea is a variety of P. grandis Mr. Murray differs from Dr. Engelmann and M. Roezl, both trained botanists in the field, who, having seen it in its native habitat, consider it a distinct species; and M. Roezl at least thinks it more closely related to P. lasiocarpa of Hooker than any other known species, which opinion is certainly strengthened by all that I know of this Conifer. I have about fifty fully-matured leaves of it which I selected from among the seeds disposed of by the Messrs. Sander & Co., St. Albans, and they certainly indicate close relationship to P. lasiocarpa, but differ from its leaves in having almost the entire upper surface from edge to edge dotted with stomata, whereas the band of stomata that runs along the middle of the upper face of the leaves of lasiocarpa occupies not more than one-half the leaf-surface, the remaining portion on either side being of a light green. But this is not the case in P. concolor, the whole leaf-surface, upper and under, being covered with a whitish mealiness. Now I know that Mr. Murray has elsewhere (*Proceedings of the Royal Horticultural Society*, No. 5, vol. iii.) expressed great faith in the number of lines of stomata as a specific character, and, taking him at his word, I now ask him whether this new form of Picea, with almost the entire upper surface of its leaves dotted and striated with stomata, together with their length, shape, and disposition on the branches, comes not nearer to P. lasiocarpa than it does to P. grandis with its channelled leaves destitute of stomata in the upper face? Besides these leaves I have within easy reach a dozen or more two-year-old seedling plants of P. concolor that differ from P. lasiocarpa (Parsonsiana or Lowiana) of the same age, mainly in the way that I have already indicated, and in showing no signs of a channel on the upper face, and in being bluish white instead of pale green, as in P. lasiocarpa. The hundreds of seedlings that we have of this new Conifer, now in the seed leaf, also differ from those of P. lasiocarpa growing alongside of them in that they have from five to seven seed-leaves (P. lasiocarpa having from six to eight), and in being of a beautiful bluish-white colour, certainly very distinct from any Picea that has ever before been raised in England. It matters not to the botanical world whether this Picea is more closely related to P. grandis than to P. lasiocarpa; but the case is different with those who are interested, pecuniarily and otherwise, in the cultivation of Piceas. To them a bluish-white form of P. grandis would certainly be an acquisition and a plant to be desired; but how much greater an acquisition, and how much more desirable, would be a hoary or bluish-white form of the already highly ornamental P. lasiocarpa, I leave them to answer. And now, just a word as to the probable hardiness of this Picea. The two-year-old plants that I have already referred to have, in company with a number of plants of other species of Picea, been wintered in a cool house, but for the last four weeks or so they have been subjected to a little artificial heat, and the consequence is, that the plants of P. concolor are now bursting their buds, and exhibit about the same degree of advancement that P. magnifica, notably the most tardy of known Piceas, exhibits; while others, such as Piceas Pindrow, Webbiana, and firma, similarly circumstanced, have made from 2 to 3 inches of growth, so that cultivators of this Picea need have nothing to fear from spring frosts. *George Syme.*

Horticultural Shows at South Kensington.—There seems to be some misapprehension among exhibitors as regards the 50 per cent. reduction on the prizes. Some are of opinion that it applies to the whole of the shows during 1875, whilst others believe that it does not include May 12, June 2, and July 7. This is a matter that ought to be clearly understood, seeing the effect that the fifty off has had already. The Society must now be saving money. Last Wednesday's schedule offered £72 15*s.*, and according to the awards only £8 7*s.* 6*d.* was given, so that we may conclude that the Society will not only soon be able to pay last year's prizes, but have a good balance at their bankers. *W. B.*

Araucaria imbricata.—We have not succeeded in growing a single plant to perfection in our botanic garden, which is situated upon a chalky gravel. They grow tolerably well for a few years, but then the white resinous substance begins to form amongst the leaves at the end of the stem or branches. It extends, and the plants gradually die off. My idea is, that the chalk in the soil is the cause, but I should much like to know the experience of others. Several of the Pine tribe will not grow in our soil. *C. C. Babington, Cambridge.*

A Perpetual Flower Garden.—Would any of your correspondents favour me with their experience? We have three windows commanding a small plot of ground in front of the house, facing west. I wish to keep this always supplied with plants in flower, especially in the spring months, and propose making a single tier of rockwork, so as to have pockets which will have some protection from sun, wind, and driving rain; a few of these, would have fixtures in the shape of small evergreens, such as Skimmia japonica, Ledums, Gualtheria procumbens, the dwarfest Retinosporas, &c.; the others would have empty flower-pots fixed in them; in these, plants in pots, bloomed elsewhere, would be placed and renewed as required. I should think that by this means a constant succession of pretty flowers could be kept up as in a conservatory without very much trouble, and that the partial protection of the rock pockets would sufficiently protect from weather to prevent them becoming much draggled except from very hard frosts. If any of your correspondents have tried anything of the sort, and would communicate the results in your columns, I should be much obliged. *George F. Wilson, Heatherbank, Weybridge Heath.* [The empty pots might be plunged in cocoa-nut refuse with advantage. Eds.]

The Past Winter.—I think we may now venture to reckon up the gains and losses of the past winter, which I consider to have been one of the most trying that we have had for many years. I therefore send, according to promise, a list of plants of whose hardiness I was doubtful, with the results of the winter upon them. All have been equally unprotected, except that some may have been in more sheltered spots than others. The following, I fear, are dead:—

Yucca filifera	Fuchsia Dominiana
,, concava	Boykinia occidentalis
Eucalyptus obliqua	Modiola geranioides
,, amygdalina	Cheiranthus mutabilis
,, corynocalyx	Hypericum balearicum
Callitris cupressiformis	Heuchera himalayensis
Convolvulus Cneorum	Erigeron glaucum
Statice echioides	Solanum jasminoides (in the open border).
Salvia taraxacifolia	

The following are all alive, though some of them have been more or less injured:—

Yucca aloifolia variegata	Callirhöe involucrata
Ruscus androgynus	Orchis foliosa
Teucrium fruticans	Tritonia aurea
Lycium purpureum	Tulbaghia alliacea
Edwardsia microphylla	Habranthus pratensis
Solanum jasminoides (against a wall)	Tricyrtis macropoda
Richardia æthiopica	Saxifraga Fortunei
Phormium tenax	,, mutata
Cneorum tricoccum	Cyrtomium Fortunei
Mandevilla suaveolens	Margyricarpus setosus
Xiphion Histrio	Geum capense
Vallota purpurea	Lastrea atrata
Umbilicus Libanotis	Psoralea Pourcei
Pterostyrax hispidulum	Kniphofia caulescens
Mutisia decurrens	Eccremocarpus scaber
Iris fimbriata	Pentstemon Palmeri
Pelargonium Endlicherianum	Phlox pilosa
Cyclobothra pulchella	Diplacus glutinosus
Veronica Hulkeana	Hypericum Coris
Pistacia Lentiscus	Rubus australis
Clerodendron Bungei	Globularia nana
Vitex Agnus-castus	Bellium minutum
Arisarum vulgare	Bellis rotund. coerulescens
Leuzea conifera	Eupatorium ageratoides
Polygonum filifolium	Eulalia japonica
Philesia buxifolia	Brugmansia sanguinea
	Geranium tuberosum.

In this list I should like to draw special attention to Mutisia decurrens. My plant was a small one, and I was very doubtful about leaving it out; but the winter has not only had no bad effect upon it, but the plant has been actually growing slowly but steadily all the winter, so that it has now shoots of this year's growth of more than 8 inches. The plant may, therefore, be highly recommended as a hardy climber. Its flowers are very handsome, and its leaves very curious; their shape is very quaint, and each leaf is terminated by a long double tendril. I am so much pleased with the plant, that I would try the beautiful M. ilicifolia if I could meet with it, but I fear it is very scarce. There are many plants that have not yet sufficiently declared themselves to be placed in either of the above lists; but I can send you a supplemental list if you so wish. I hope others will send you similar lists. *Henry N. Ellacombe, Bitton Vicarage, Gloucestershire.*

Primroses Changing Colour.—What is the cause of the common Primrose turning pink? In my shrubbery borders this spring a large proportion of the plants have produced pink flowers, having hitherto produced yellow flowers. Many old plants have half their flowers yellow and half pink; some flowers appear to be in a transition state. The yellow and pink flowers on the same plants differ in shape, the pink being thinner flowers, with larger intervals between the petals. I gave the border which contains them a dressing of riddled garden heap, chiefly leaf-mould, in winter. I have often noticed the pink variety before, both wild and in cultivation, but have never observed a similar transition. I have not the same doubt about this transformation as I had about that of the Daffodils. *C. W. D., Eton.*

Horticultural Exhibitions.—At a time when the metropolitan and neighbouring societies are offering prizes at their exhibitions which, with the single exception of the Royal Horticultural Society's principal summer show, are of such paltry value as to produce nothing better than the mere shadow of what these exhibitions once were—and, to make matters still worse, in some cases the arrangement of the different classes such as to effectually prevent many exhibitors from showing—it is refreshing to point to what is being done elsewhere. Take Leeds, for example: the liberality of the prizes which the Society offers, and other inducements which they hold out to exhibitors, deserve especial mention. For twelve Roses in pots, £20, £12, £8; twenty Roses, pots, not over 9 inches, £10, £6, £4; twelve stove and greenhouse plants, £20, £12, £8; twelve show Pelargoniums, £12, £8, £5; twelve Orchids, £12, £8, £4; Azaleas, Ericas, Ferns, hardy and exotic; fine-foliage plants; Zonal, Fancy, Bronze, and Variegated Pelargoniums; Fuchsias and other popular plants; numerous classes for cut Roses and other flowers, with fruit both in collections and single dishes, for all of which most liberal prizes are offered. In addition to which the Society finds horses free of charge to draw exhibitors' vans to and from the railway stations, and good roomy vans for those who convey their plants in railway trucks. This matter of horses and vans is a real advantage to exhibitors, who are too often victimised by the exorbitant charges imposed upon them when not in a position to resist it. When horticultural exhibitions, which ought to be representative, are carried out in a niggardly spirit, the money expended is simply so much thrown away, as they do little to advance the pursuit of horticulture, and the display never being sufficient to attract the public in numbers, a loss is generally involved. *T. Baines.* [Leeds, and Manchester too, set a good example in this matter. Eds.]

Camellia reticulata.—This magnificent Camellia is now grand in the Camellia conservatory at Chiswick House. It has been literally sheeted with its gorgeous blossoms, but the requirements of Marlborough House are constantly denuding the tree of its large and rich blossoms. Planted by Mr. C. Edmonds in 1829, this tree has grown up under his constant supervision to the present moment, and probably he was never before so proud of it as he is this season. Size is always a main feature of the blossoms of this species. This year, notwithstanding the wonderful profusion, the flowers are of great size, and richly coloured—a striking hue of warm, red rose. The diameter of the flowers is really surprising, but the broad, bold petals—generally three and four deep—and the large bunch of golden anthers in the centre, require space to develope themselves. One turns with something like relief from the symmetrical blossoms of C. imbricata alba with their almost geometrical outline, and other compact flowering varieties, to the bold rugged grandeur of those of C. reticulata, and admires them all the more for decorative purposes. The plant at Chiswick House has outgrown the space allotted for it, and it seems to turn and twist itself in the hope of finding larger quarters in which to make free growth. Its necessarily contracted abiding place, though it spoils the beauty of the tree, does not in the least degree affect its freedom of flowering. It is difficult to imagine that a plant could bear more blossoms than that in question. Would that a new house could be built over it, with ample space in which to develope itself without restraint. It deserves it; and let us hope that Mr. Edmonds may live to see his favourite plant flourishing under freer conditions, and yearly building up a yet more distinguished reputation. *R. D.*

HORTICULTURAL EXHIBITIONS, 1875.

MAY.

12.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees. Pot Rose Show.
14 to 21.—Manchester Botanical and Horticultural Society's Annual National Exhibition, at the Garden, Old Trafford. Manager, Bruce Findlay.
17 and 18.—Halifax Floral and Horticultural Society's Annual Exhibition. Sec., Leonard Kershaw, 20, Gladstone Road, West Hill Park.
20.—Royal Horticultural Society of Ireland. Early Summer Exhibition. Sec., A. Balfe, 28, Westland Row, Dublin.
22.—Crystal Palace Great Flower Show. Sec., F. W. Wilson.
26.—Royal Botanic Society, Regent's Park. Summer Exhibition. Sec., W. Sowerby.
26.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.
31.—Coventry and Warwickshire Floral and Horticultural Society's First Show of the Season. Sec., Thomas Wigston, 3, Portland Terrace, Lower Ford St., Coventry.
31 to June 4.—Bath and West of England Society's Exhibition at Croydon.

JUNE.

1 and 2.—Royal Western Horticultural Society's Exhibition at Plymouth. Hon. Sec., F. B. Bond, 16, Penrose Street, Plymouth.
2.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees. Great Summer Show.
9, 10, and 11.—Leeds Horticultural Society's Twelfth Annual Summer Show. Sec., James Birbeck, Delph Lane, Woodhouse, Leeds.
10.—South Essex Floricultural Society's Exhibition at Leyton Sec., G. E. Cox, Leyton.
16.—Royal Botanic Society, Regent's Park. Summer Exhibition. Sec., W. Sowerby.
16.—Glasgow and West of Scotland Horticultural Society. Midsummer Exhibition. Sec., F. G. Dougall, 167, Canning Street, Glasgow.
16.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.
17 and 18.—Lee and Blackheath Horticultural Society's Exhibition. Sec., C. Helmer, 5, Boones Road, Lee.
18.—Scottish Pansy Society's Exhibition at Edinburgh. Sec., W. M. Welsh, 1, Waterloo Place, Edinburgh.
19.—Crystal Palace Rose Show. Sec., F. W. Wilson.

THE
Gardeners' Chronicle.

SATURDAY, MAY 1, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY,	May 1	Opening of the Alexandra Palace (this day). Special Exhibition of Clematis at Regent's Park (until 24th).
MONDAY,	May 3	Mr. W. Paul's Special Show of Roses, Pelargoniums, &c., at Regent's Park (until 10th). Meeting of the Entomological Society, at 7 P.M.
TUESDAY,	May 4	Sale of Ferns, Aloes, Agaves, Orchids, &c., at Stevens' Rooms.
WEDNESDAY,	May 5	Sale of Poultry and Pigeons, at Stevens' Rooms.
THURSDAY,	May 6	Sale of a Collection of Established Orchids, at Stevens' Rooms. Meeting of the Linnean Society, at 8 P.M.
FRIDAY,	May 7	Sale of 5000 Bulbs of Lilium, Established Orchids, &c., at Stevens' Rooms. Sale of a Collection of Specimen Stove and Greenhouse Plants, at Stevens' Rooms. Exhibition of Plants and Flowers in the Kibble Conservatory, Glasgow (two days).

THE SPRING GARDEN AT BELVOIR is always a thing to be seen with pleasure, and, if it be possible, this year more than ever. The long, dreary winter, the laggard spring, and continuous east winds, have irritated us to weariness. For such a feeling no more potent antidote could be found than a visit to the wooded slopes of Belvoir, enamelled as they are with a lavish flush of beauty, framed by noble trees in the tender hues of first opening buds.

This year, too, the extensive additions which Mr. INGRAM is making begin to tell, and, beautiful as they now are, give promise of a yet more delicious prospect in years to come. In the old spring garden, which has so often been mentioned in these columns, the flowers are grown in more or less symmetrical beds on flat terraces, environed by fine trees, and, as it were, nestling beneath the terrace walls of the Castle, which in general aspect and in site presents no slight resemblance to Royal Windsor. The beds are "carpet beds" or "bouquet beds," and well deserve the latter name, for from the end of winter, or even earlier, till early summer, they are a dense mass of varied bloom. The variety is one of the chief points of interest: almost every day, certainly every week, some fresh flower opens, and, it may be, gives an entirely new aspect to the whole.

So thickly studded and so varied are the inhabitants of these beds, that enumeration would be wearisome; suffice it to say, that the general principle in planting them is to have a centre of some striking foliage plant, such as a low growing Yucca or a Veratrum—this last, by the way, a noble plant for such a purpose, giving a quasi-tropical aspect eminently bold and effective. The edging is of Euonymus radicans variegatus, Ivy, the purple-leaved Heuchera lucida, or the Golden Thyme or what-not. Between the centre and the edging, so constructed, is the "carpet"—and a rich carpet it is, satisfying the eye with a soft richness of colour, and a rainbow-like gradation of hues and tints utterly indescribable, but as different from the harsh glare of the eternal scarlet Pelargoniums as a sketch of RAFFAELLE'S is from the gaudy tinsel of a Roman Catholic church in the country towns of France.

The staple of the "carpet," the material of the "bouquet," consists of Aubrietias, Arabis, Primroses of all hues, Erica mediterranea and carnea, Myosotis dissitiflora, the yellow Doronicum austriacum, Golden Thyme, various Sedums, bulbous plants, Scillas, Hyacinths, Tulips, Pansies, Daisies, and many more.

We shall have something to say at another time as to certain special plants we noticed, and as to their fitness for special purposes; we shall have to note once more the compact strain of Wallflower with which Mr. INGRAM'S name has become associated—and a variety of novel seedlings, in particular a lovely Iris in the way of pumila; but we must not stay now to enter into details. We would prefer now to comment on the contrast between the spring beds on the terraces and the new development of spring gardening now in progress. Exquisitely beautiful and exceedingly interesting as the terrace beds are there is still a trace of formality about them—a *soupçon* of "bedding out," which somehow does not seem to associate well with spring flowers. Still more pronounced was this feeling on viewing the "ribbon borders." Whether the same idea has occurred to Mr. INGRAM or not, we know not; at any rate, by the Duke's permission, he has evolved a spring garden on a scale and of a form which will put all similar attempts into the shade. Imagine the side of a steep and lofty hill scooped out like the combes on the South Downs; further imagine that an overpowering torrent has swept the side of the combe, laying bare the rocks, and exposing their stratification, which projects in bold masses; fill every cranny and every nook with spring flowers, with alpines, with Ferns, with Sedums, or what-not—with striking plants, such as Yuccas, Arundo conspicua, double Gorse, Arundinaria falcata—clothe the hilltops with noble trees, and set the whole in a framework of forest scenery, with peeps of distant landscape and a lake at the foot of the hills, and you have some idea of what is being done at Belvoir. The idea is admirably carried out; the site is, as it were, made on purpose, the rocks are disposed as only a man with at once an artist's and a geologist's eye could arrange them: they have, in fact, the supreme charm of truthfulness. A cascade, were it only a tiny mountain rill falling from rock to rock, seems alone wanting to complete the illusion.

All this has been done by simply clearing away from the steep escarpment a quantity of old crowded shrubs and trees, and by artistically placing blocks of stone here and there—helping Nature, as it were. Deep pockets between the blocks, reminding one of the "pot holes" of the chalk, are filled with soil, and in this the plants are grown. "Only a rockwork on a large scale," some one will say; true, but what a rockwork! It is a Swiss hillside pasture transferred to the midlands, and with the flowers multiplied beyond measure in the transfer. If such be the impression now, when the work is new and unfinished, what will it be in the course of a few seasons when the plants become established? We must, perforce, content ourselves now with this general notice, reserving comment on certain details till another occasion.

PROFESSOR NEWMAN and the members of the Vegetarian Society are making great efforts to proselytise and make converts to their peculiar doctrines. Let us say at once that to a large extent we sympathise with them. We believe that among the upper classes a great deal more animal food is eaten than is at all necessary or desirable. On the other hand, the poor and the labouring classes get, as a rule, far too little. We admit, too, that it is quite possible to live and thrive upon a pure vegetable diet. We know that whole nations do so. We admit and lament that our working-classes neglect or ignore forms of vegetable food as palatable, much cheaper, and as nutritious as any they get. We have seen dock labourers in Genoa, artisans in Florence and other Italian towns, making hearty nutritious meals off Lentils, Peas, and Pulse, nearly as nutritious weight for weight as meat itself, and very palatable, and have lamented that our own people should not have availed themselves of fare so excellent and cheap. Over and again, too, have we urged in these columns the increased production and consumption of fruit, and advocated the giving to cottagers a few perches of garden ground to provide his own family with vegetables. But, admitting so much, we cannot concede all that Professor NEWMAN asks. We acknowledge that the slaughter of animals is cruel, and that it behoves us all to do what we can to reduce that cruelty to a minimum; but the inevitable cruelty does not show that meat is not a proper food for man. If the vegetarians pushed their theories to their utmost limits they would neither eat nor drink nor breathe. Let them take all the care to exclude animal food they can do, the next tumbler of water they take may contain more animal life than they would care to measure. They can hardly draw a breath in some places without unconsciously inhaling minute forms of animal as well as of vegetable life. Fruits, Pulse, Flour, Sugar, and most vegetable substances are apt to teem with minute animals, and the vegetarians in strict logic should not eat them. True they may say that cooking destroys them, but what is the cooking but cruelty? Again, cooking is not always certain to destroy them. It may be said that all this is mere quibbling, that it is pushing matters to an extreme; but if so it is the vegetarians who compel us to present them with this *reductio ad absurdum*.

Let us put the matter in another point of view. Vegetables of all kinds have been necessarily scarce and dear this winter. If the use of meat were entirely abandoned, even supposing enough vegetables could be produced or imported, the price would be so high that we doubt whether the poor man would be at all the better in purse did he confine his meat to vegetables. Our country friends, and those with large garden establishments to draw on, will, we expect, be surprised to see the prices paid to a suburban greengrocer at the end of March and beginning of April; and they will agree with us, we think, that with such prices it would not be practicable to feed a family of hungry children on vegetables alone at economical rates, even if the fresh vegetables were supplemented, as they would have to be, by farinaceous foods of various descriptions.

Rhubarb, 1*s.* the small bundle; dish of Turnip-tops, 6*d.*; small Broccoli, each, 4*d.*; small bunch of Turnips, 5*d.*; Celery, per head, 6*d.*; Beetroot, each, 1½*d.*, 2*d.*, or 3*d.*, according to size; small bottle of dried herbs, 6*d.*; Oranges, each, 1*d.*; small bunch of Parsley (withered), 1*d.*; dessert Apples (very small),

1*d.*; stick of Horseradish, 3*d.* and 2*d.*; Potatos, 5*s.* the bushel; pudding Apples, 1*d.* each; Lemons, each, 2*d.*; Carrots, about three for 2*d.*; Onions, rather cheaper, but very variable; dish of Broccoli Sprouts, 6*d.*; a pickling Cabbage, 9*d.*; Savoys, each, 3*d.*

In this, as as in so many other matters, use with discretion and thankfulness is better than abuse, which is always indiscreet and ungrateful.

—— On April 16 a meeting of botanists, from various parts of Scotland, was held in Perth to hear the report of the committee appointed at the Fungus Show at Aberdeen, in September last, to organise a CRYPTOGAMIC SOCIETY OF SCOTLAND. The Society was then duly founded, and the following office-bearers appointed for the present year:—President, Sir T. Moncrieffe, of Moncrieffe, Bart.; Vice-President, Professor Dickie, Aberdeen; Secretary, Dr. Buchanan White, F.L.S., Perth; Treasurer, Rev. J. Stevenson, Glamis; members of Council, Rev. J. Fergusson, Fern, near Brechin; Rev. M. Anderson, Menmuir; Rev. J. Keith, Forres; Mr. J. Roy, Aberdeen; Colonel Drummond-Hay, of Seggieden, Perth; Professor Ogilvie, Aberdeen; and Mr. C. Howie, Largo. It is proposed to have a show of Fungi, &c., every year, in different districts of Scotland, in rotation; and arrangements were made for the show this year, to be held in Perth on October 1. Persons desirous of further information regarding the show or the Society should communicate with the Secretary.

—— The applications for space in the British section of the PHILADELPHIA INTERNATIONAL EXHIBITION OF 1876 are numerous, and of a satisfactory character. In consequence, however, of arrangements recently communicated by the American authorities, whereby the time for Foreign Commissions to make definite application for amount of space required is extended, it will be possible for the British Executive to receive applications from intending exhibitors, addressed to 5, Craig's Court, Charing Cross, London, up to May 15 inclusive.

—— In the fine collection of ORCHIDS at Whitchurch Rectory, the property of the Rev. J. B. NORMAN, are at present in bloom some fine varieties of Odontoglossum Andersoni, a Masdevallia ignea, with over forty flowers; one of the finest varieties of Vanda suavis Veitchii we remember to have seen, with two spikes of fifteen flowers each; Vanda gigantea, with two spikes 18 inches long and with sixteen flowers each; two plants of Aerides Fieldingii, with each two spikes 2½ feet long; and a very beautiful variety of Dendrobium Wardianum. Orchid growers will find this collection well worthy of a visit.

—— Among forced flowering plants the LABURNUM takes a prominent position, though it is not so generally seen grown in this fashion. Mr. GEORGE BUCK, the gardener at Castle Ashby, finds it invaluable in early spring, and his forced plants yield him splendid wreaths of yellow flowers, which are much prized for house decoration. Late in autumn the plants are lifted from the open ground, and the roots thrust into suitable sized pots *sans cérémonie*; but the plants flower well when introduced into heat, notwithstanding the summary character of the potting process. After they have done flowering they are planted out in the open ground for the summer, and in the autumn again potted and placed in warmth as stated above.

The standard shape seems to be best suited to the purpose.

—— The fourth summer exhibition of the GRANTHAM AND SOUTH LINCOLNSHIRE HORTICULTURAL SOCIETY will be held on July 7 and 8, at the Cricket Ground, Grantham.

—— Those interested in the fertilisation of the flowers of the female AUCUBA would do well to pay a visit to the Royal Horticultural Gardens at South Kensington, and there examine the results obtained where plants of the male variety have been placed in juxtaposition. Immediately at the top of the broad walk on the Exhibition Road side of the gardens is a block of shrubs bordered with fine female Aucubas. Exactly at the angle of this block is placed a small plant of the male variety, just now in full bloom. The effect of the previous season's fertilisation is seen in the beautiful crop of berries borne by the female plants, and these, in spite of the proverbial London smoke, are robust, and look exceedingly ornamental. It is noticeable that the plants nearest to the male variety have the greatest quantity of berries. The crop is thinner in proportion to distance. All who have female Aucubas should plant male Aucubas near to them, if they wish to possess the additional ornament of a nice crop of berries.

—— The ROSSENDALE FLORAL AND HORTICULTURAL SOCIETY will hold an exhibition on the 7th of next August.

—— Messrs. COLE BROTHERS, Holly Nursery, Hundley, Spilsby, Lincolnshire, inform us that a specimen in their nursery of MAGNOLIA CONSPICUA, 16 feet high and 33 yards in circumference, has now

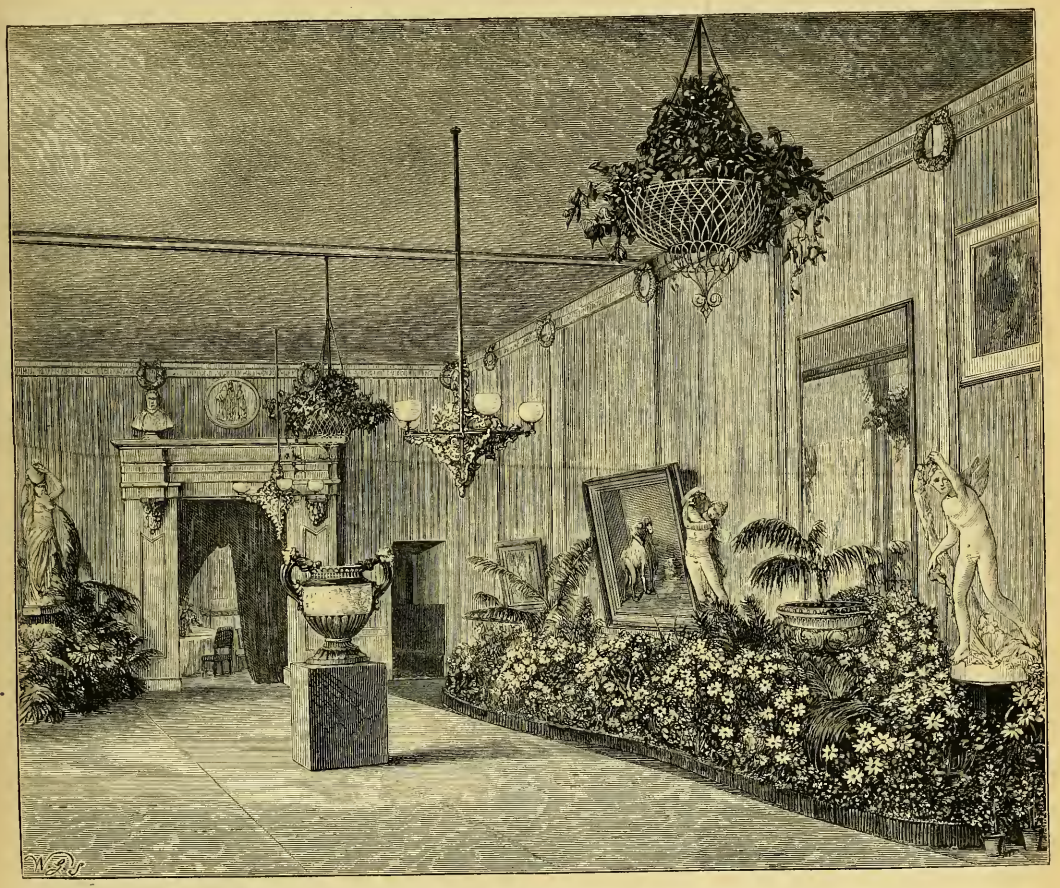

FIG. 119.—THE QUEEN'S CORRIDOR, CRYSTAL PALACE, DECORATED WITH CLEMATIS, ETC.

some thousands of blooms upon it. This plant is flowering most freely this year, and amongst other good specimens we have seen is a fine tree in Sir Henry Peek's garden at Wimbledon House. We also saw a splendid specimen, as large as the above, in full bloom, a few days since, at the Goldsworth Nursery, Woking.

—— A schedule of prizes offered for competition by the Croydon Horticultural Society at the exhibition of flowers, fruit, and vegetables, to be held on Wednesday, July 14, has just been issued.

—— The recent mention of the fine specimen Chusan Palm, at Gunnersbury, naturally leads to a renewed notice of the very fine pair of the same Palm growing in the pleasure grounds at Heckfield; but these receive no protection of any kind, and have come through the trying ordeal of the past winter quite unscathed. These plants are about 9 feet in height, and the same in diameter, and promise to develope into the finest pair of outdoor Palms in the kingdom. Peculiar interest attaches to this pair as, although not the slightest knowledge as to their sex existed when planted, yet, singularly enough, they now prove to be a veritable pair—male and female. Both of them flower annually, and the female produces seed that is found to ripen, and to germinate freely. A knowledge of these facts may lead to a wider planting of these Palms in sheltered parts of our large gardens.

—— The Nottingham and Midland Counties Grand Rose and Horticultural Exhibition will be held on July 8, 9, and 10, instead of on July 9 and 10, as previously announced.

—— The Disease of the Lemon and Citron Trees in Sicily is spreading very fast, as we are informed by M. Heritte, in the *Bulletin de la Société d'Acclimatation*, and threatens to destroy the whole of the plantations. The writer thinks that the growers are to blame in the matter, because they have induced an unnatural degree of fertility, and disregarded the conditions under which these trees flourish in a natural state. He states that the trees are planted very thickly, are very highly manured, and are permitted to bear enormous crops of fruit year after year; hence the decay of constitution. Be this as it may, the destruction of the plantations is a very serious affair for the inhabitants, as they have long been the principal source of their wealth and prosperity. M. Heritte says that it has been an exceedingly profitable industry, and the fortunes it has made are incalculable. There is far less risk of loss from decay than there is in the Orange trade, as the Lemon is a firmer fruit, and thus bears pressure, and keeps longer than the Orange. The only remedy known is to graft healthy scions of the Lemon on the bitter Orange, which has been done to a considerable extent during the last few years, and so far appears likely to succeed. But as the trees do not begin to bear until they are eight or ten years old, a long time must elapse before the old trees can be replaced.

—— The first annual exhibition of the newly-formed Richmond Horticultural Society will be held on July 8, and about £200 will be offered in prizes. The subscription list is rapidly increasing, and there is good prospect that a first-class suburban society will be established.

—— The golden-blossomed Berberis Aquifolium is just now in the height of its beauty. The inflorescence of the present year is remarkably strong and abundant, and the shrub, whether seen in fine specimens or in masses, can hardly be exceeded in beauty and effectiveness. At all times a handsome foliage plant, it has now glorious heads of yellow flowers that will presently be succeeded by bunches of rich purple berries that are exceedingly ornamental. This shrub is so hardy that it makes capital cover, and its fruit presents the choicest of food to wild birds in the autumn; it is not over particular as to soil, and thrives alike in clay, loam, gravel, or peat. Few shrubs present in a mass of seedlings such singular varieties of foliage, for not only are hues of colour numerous, but the character of the leafage is most varied.

—— We learn, from an abstract in the *Bulletin* of the Botanical Society of France, xxi., p. 101, Rev. Bibl., that M. Franz Krasan has published some observations on the Geographical Distribution of certain plants, with a view to ascertain the reasons why they are capable of living in various very different climates. Allium ochroleucum, in fact, grows on the high Alps with Saxifrages, and equally well in the vicinity of the Olives and Figs of the Mediterranean district. Our gardens supply very numerous illustrations of a similar pliability in plants. M. Krasan, in his endeavours to elucidate the matter, remarks that while in the Alps the plant above-named flowers in August, it is not till September that it is found in bloom near Görz. M. Krasan remarks that water at a temperature of 4° C., absorbs as much as five volumes of carbonic acid, while at 15° C. it only absorbs one volume. Carbonate of lime is much more easily soluble in the cold water of the mountains than in the more temperate water of the Mediterranean. The humus, so abundant in mountain districts, has moreover a much greater capacity for absorbing and retaining heat than the purely mineral soils—a circumstance which obviates the ill-effects of oscillations of temperature. M. Krasan has further cultivated Colchicum autumnale on the mountains and in the hotter regions. The plant, as is well known, thrives equally well in both situations, and flowers about the same time in both. It becomes then a matter of interest to know how this plant can escape the influence of the heat of the plains, which one would suppose would hasten its growth. The peculiar mode of vegetation accounts for this: at first the plant is purely foliaceous, and remains so during the formation of the young corm, which period is prolonged till the end of July. During this time the heat of spring and of summer has not much effect on the development of the flower. With regard to the expansion of buds in spring, M. Krasan remarks that the intensity of the winter's cold—short, of course, of actual destruction—has no influence in delaying the expansion of buds when a favourable season does occur; a conclusion supported by common experience.

—— Mr. Newman, Devonshire Square, Bishopsgate, sends us specimens of his Paper for Drying Plants. From many years' use we can thoroughly recommend this as the best drying paper with which we are acquainted.

—— The South Essex Floricultural Society's next exhibition will take place on June 10, at Leyton.

—— M. Gillekens, in the *Moniteur Horticole*, ridicules the idea of planting Fruit Trees along the roadsides, as there is little or no shelter in such situations. As to the scheme for planting the railway banks with fruit trees, the same writer points to the insignificant results along the line from Brussels to Louvain, or Marchiennes to Baume, where hedges of this kind have been planted without due preparation of the soil beforehand.

—— A new Cooling Apparatus for Liquids, such as water, wine, milk, beer, &c., and which is claimed to be most efficient and convenient, and at the same time among the cheapest, has been recently patented in Vienna. It consists simply of a tube, most conveniently made of tin, with a tight-fitting cover, which is rapidly packed, by aid of a wooden stamper, with pounded ice and salt, either mixed or in alternate layers. This tube thus charged is to be plunged into the liquid that is to be kept cool.

—— We do not remember to have seen the fine Pyramidal Pear Trees in the Royal Horticultural Society's garden at Chiswick clothed so lavishly with flowers as they are at the present time, every branch carrying such a profusion of pearl-white blossoms as they have never borne before, and which is the more surprising when we consider the great strength and robustness of the branches. Many of these trees have never carried a full crop of fruit, and that such a great promise of abundance may not be blighted by frost is a consummation devoutly to be wished. When the orchard was given up some four or five years ago, many of these pyramids were cut back and grafted with such varieties as it was thought desirable to perpetuate in this way, and it is most pleasing to note how satisfactorily they have grown since. The Apple trees are not yet in full bloom, but the show is equally fine. The trained pyramid Plum trees have also flowered magnificently; but the sharp frost of Sunday morning last killed great numbers of the blooms both on them and the Cherries. The small bush Pear trees, the upright cordon Cherries, and the lateral cordon Apples in Mr. Rivers' suburban garden, show a like abundance of bloom; and, indeed, it is most gratifying to look upon the fruit trees in all parts of the garden decked with such a profuse inflorescence. Of the lateral cordon Apples, three years worked on the true French Paradise stock, none are more beautiful than Braddick's Nonpareil, which seems to adapt itself to this style of training better than any other English variety—its pretty rosy blossoms being evenly and freely produced through the entire length of the cordons.

—— We have comparatively few Ornamental Trees with Pinnate Leaves, and therefore the acquisition of another species of that class will be hailed with delight by amateurs. In 1865, M. Carrière, the editor of the *Revue Horticole*, published in that journal what he then called a new species of Ailantus, to which he gave the name of flavescens. He described it as closely resembling the common species, which doubtless was the cause of little notice being taken of it at the time, especially as it is well known that M. Carrière avowedly gives names to slight varieties, and calls them species. After a period of ten years, however, he has discovered, he says, that the tree in question is the Cedrela sinensis, of Jussieu, a perfectly hardy subject, from North China. In a recent number of the *Revue Horticole* he gives a figure representing a specimen of it growing in the Jardin des Plantes of Paris, upwards of 25 feet in height. It may also be seen in some of the French nurseries around Paris. We are told that it has not suffered the slightest injury, even from the most extreme colds, and we may therefore expect it to prove quite hardy in the climate of London. It has large, unequally pinnate leaves, resembling those of Ailantus glandulosus, small flowers, and a five-celled woody seed-vessel, differing in this particular very materially from Ailantus. Indeed, it belongs to a different family.

—— The Southgate Horticultural and Cottage Garden Society's Show will be held in the grounds of Southgate House on July 3, by the kind permission of W. J. Armitage, Esq.

—— The cultivation of the Red Cedar, Juniperus virginiana, is being tried on a considerable scale in Bavaria, North Germany, and other parts of the Continent. No other wood, except the still rarer J. bermudiana, has been found equal to it in the manufacture of lead pencils, and as the consumption for that purpose is very large some of the makers have recommended their Governments to attempt its cultivation. Faber, one of the largest manufacturers on the Continent, has already planted upwards of 5000 on his own estate. In North Germany it has been planted in the forests, and on the waste ground by the side of the railways. We have not heard of its being planted in this country for commercial purposes, but there is no doubt it would succeed very well, especially in the South. It will bear the wind well, and flourish on the sea coast, and certainly deserves to be more generally planted than it is.

—— According to the *American Naturalist*, if you wish to get rid of Ants, Flies, and other troublesome Insects, you have only to cultivate some plants of Azalea viscosa, whose clammy flowers hold prisoner all that once alight upon them. The more they struggle to free themselves the more hopelessly they become fixed in the fatal glue. The experiment may easily be tried, but as the flowers do not last long, and not all insects would be so imprudent as to visit them, this fly-trap is more interesting than useful.

—— For a long time it was generally believed in America that the Flowers of Wistaria sinensis were fatal to Bees; but Mr. Meehan, who has been investigating the matter, thinks the death of numbers of bees frequently found lying around this plant must be attributed to some other cause. He says that he has himself often seen hundreds of dead bees under this shrub, and formerly shared the popular idea that the flowers contained a secretion that poisoned them; last year, however, he observed that bees eagerly visited the flowers without the least apparent injury.

—— The Tobacco Harvest in Algeria last year was very productive; the quantity delivered to the State being 4,850,000 kilogrammes, or about 10,704,170 lb., which brought the growers 3,530,607 francs, or about £141,224, or nearly double that of the previous year. From 1847 up to last year the French Administration had received about 68 millions of kilogrammes of tobacco from the European and native planters, for which 54 millions of francs were paid. The profits realised by the State on manufactured articles during the same period amounted altogether to a sum of 493,360,000 francs, or £19,734,444.

—— A paragraph in the *Times* a few weks ago, appealing for presents of flowers for the Home of Industry, Spitalfields, and Mildmay Park, seems to have given some benevolent people the excellent idea of collecting spring and other flowers, and sending them to the hospitals for the patients. "We (*British Medical Journal*) believe a Flower Mission have been started with this view, which hails from Commercial Street, Spitalfields. Children are employed in their playtime to gather the flowers in the woods, fields, or gardens, as the case may be, and then the vicar of the parish sends them in hampers to the hospital. Guy's has been the fortunate recipient of several hampers of flowers during the week, and the Home of Industry has sent 100 bouquets, in flower-holders, tastefully surrounded by appropriate texts, for the patients. If the clergy will take the matter up warmly, 'The Flower Mission' will be the means of cheering many a poor sufferer, and we hope all who have flowers to spare will send them to some one or more of the London hospitals. We assure our readers that a ward at Guy's Hospital, after the arrival of one of these hampers of flowers, was indeed a pleasant and cheering sight. The poor patients seemed to take a new lease of life from the freshness of the flowers, and bright, happy, contented faces

were to be seen on all sides after its advent. Will anybody refuse to aid the 'Flower Mission,' or deny these poor sufferers so cheaply purchased and yet so inestimably valued a pleasure as a bunch of fresh, sweet, radiant flowers? We hope some will be sent for the sailors of the old *Dreadnought*, Greenwich."

—— The *Journal de Rouen* takes the *Bulletin Français*, the cheap official journal, to task, for the nonsense it talks about WATERCRESSES. While confirming the fact that four millions of francs' worth (£160,000) of Watercresses are annually sold in Paris, the *Bulletin* repeats the ridiculous statement that the culture of Watercresses in France is only fifty years old. If we are to believe this *ana*, their cultivation was imported from Erfurt to Paris by a surgeon of the French army during the First Empire. Both the *Journal de Rouen*, the *Magasin Pittoresque*, and other publications, have already corrected that error. In the first, it was proved that the existence of *cressonnières*—Cress-beds, or cresseries—was authentically demonstrated, 220 years ago, at St. Martin-du-Vivier. At Clères, and at Cailly, the culture of Watercresses had been practised at a still earlier date. VALMONT DE ROMARE, an inhabitant of Rouen, in a *Dictionnaire d'Histoire Naturelle*, printed more than a hundred years ago, speaks of the excellent Watercress grown at Cailly. RICHELET, under LOUIS XIV., also mentions Watercress as an excellent salad. In "Rabelais," under FRANCIS I., Watercresses are eaten. And is not the family name of the LACRESSONIÈRES a proof of the antiquity of cresseries in France? In truth, Prussia herself, to whom the invention is attributed, is less ancient than some of the French Cress-beds. The *Bulletin Français* is, therefore, advised to give no further currency to so absurd a fable. Nevertheless, people might eat Watercresses, and even gather them from Cress-beds, which were not artificially or intentionally planted.

—— The whole of the FLORAL DECORATIONS AT THE ALBERT HALL on the occasion of the installation of H.R.H. the PRINCE OF WALES, as Grand Master of English Freemasons, on Wednesday last, were supplied by Brother J. WILLS, of the Royal Exotic Nursery, Onslow Crescent, W. The Prince's room was very tastefully decorated with a choice collection of handsome foliaged and flowering plants, which were very judiciously arranged in groups about the room, the great feature of the decoration being the table usually in the centre, the surface of which was entirely covered with undulating banks of Lycopodium, on the raised portions of which were hillocks surrounded by graceful Palms, and appropriately interspersed with the beautiful Odontoglossum Alexandræ. The groundwork below was embellished with Lilies of the Valley, arranged naturally as if growing on mossy banks. These were relieved by masses of Maréchal Niel roses, Gardenias, Stephanotis, and various other sweet-smelling flowers. On the four corners of the table were placed Masonic emblems; in one the square and compass, arranged with Lilies of the Valley and light blue Cinerarias, the opposite corner being occupied by the square, the centre of which was composed of blue Cinerarias, with a margin of Lilies of Valley; in the other two corners the plummet and compass were similarly depicted. On a raised terrace in the centre of this lovely plateau the following initials were placed—"H.R.H. A. E., M.W.G.M.," wrought in dark blue Cinerarias. Right and left of the stairs leading to the daïs were handsome groups of plants, consisting of Palms, Dracænas, Azaleas, and many other flowering and foliage plants, the whole being surrounded by an undulating bank of Isolepis and Lycopodium, the surface of the daïs being covered with crimson cloth. Brother WILLS had arranged a margin of yellow Genistas beneath a canopy of graceful Palms, which imparted to the eye the appearance of a charming prism, the whole being in complete harmony with the other decorations of this noble hall. Brother WILLS was ably assisted in the above arrangements by Brother A. F. BARRON, Superintendent of the Royal Horticultural Society's Gardens at South Kensington and Chiswick.

—— The large show-house at the PINE-APPLE NURSERY, Maida Vale, is just now particularly attractive, an excellent display being made of a fine lot of Azaleas, Acacias, Cinerarias, a few late Camellias, Lily of the Valley, Cytisus, show Pelargoniums, Spiræas, Heaths, Deutzias, &c. Some pots of Narcissus Bulbocodium and Muscari racemosum are very beautiful, and so also is Amaryllis Harrisoni. Erica Victoria, a very showy variety, is well represented, and a standard bushy plant of Acacia grandis forms a striking object backed up with the dark foliage of large Camellias and handsome Tree Ferns. The furnishing of floral decorations and bouquets forms a branch of the operations of this establishment of no mean importance, and Mr. BESTER, the courteous manager, has gathered around him a considerable quantity of suitable materials for this work; and we are bound to add that the ordinary nursery stock has greatly improved under his superintendence.

OATS AND WHEAT.

I AM surprised to see that Mr. Read has taken up the exploded idea that Oats may by constant cutting be changed into Wheat. Of course I never believed it to be a fact, although positively stated to be one by credible persons. A few years since the idea was prevalent in this neighbourhood to such an extent that a supposed new variety of Wheat was sold as thus obtained. A former curator of our Botanic Garden (Mr. Stratton) and I determined to try the experiment, and although I mention the result almost every year in my lectures, I believe that it has never been published.

We obtained from a first-rate seedsman clean samples of the best kinds of Oat. We took one or more of these samples, and divided them into two parts. One of these parts was sown as it came from the shop, the other was spread out on a table, and the grains passed individually under our eyes. By this examination we discovered that even in what seemed a very clean sample there was a considerable number of seeds of weeds. After cleaning it thoroughly, this part of the sample was also sown. According to the directions given to us by the gentleman who supposed that he had obtained Wheat from Oats, we cut the young plants five or six times in the course of the year, so as effectually to prevent them from flowering, and allowed them to remain through the succeeding winter. In the second year as many as survived were allowed to grow unchecked. Of the part which we had thoroughly cleaned only one or two plants survived, and they produced Oats. Of the other part many of the plants had borne the treatment, but most of these were Brome-grass (Bromus mollis, or commutatus), and not a single instance of Wheat appeared, nor anything of which we had not seen abundance of the seeds in the part of the sample thoroughly cleaned by us. Of course many other weeds came up as well as the Brome-grass, but they were not grasses, and did not affect the question.

We came to the conclusion that Oats would not bear this treatment, but that the Brome-grass, a native weed, would do so, and flourish under it; also that it was dirty seed that had been used by those who obtained the Wheat, for we took many grains of Wheat out of the sample of Oats before sowing it. It appears to be next to impossible to clean a large quantity of seed quite perfectly; and I must add, to the credit of the seedsmen, that this seemed to be an absolutely clean sample until we examined it grain by grain.

Of course we communicated the result to our correspondent, and I am afraid that I need hardly add that he was not convinced of his error. He had no idea of the great care requisite to obtain results of any value from experiments of this kind.

I am reminded whilst writing this, that Mummy Wheat is still sold and believed in, although a careful examination of the evidence of its origin was made by my respected predecessor, Prof. Henslow, and traced to Sir Gardner Wilkinson, who himself said, in answer to a question, that he obtained it in Egypt, but not in such a way as to render its origin certain. All the real mummy grain which has been examined is found to be totally deprived of vitality by the process to which it had been submitted by the embalmers.

I venture to think that in these cases we have an evidence of credulity which was hardly to have been expected in the present day, when experimental research is so common, and, when properly conducted, so trustworthy. *C. C. Babington, Cambridge.*

—— After your severe criticisms upon my statement at the Society of Arts, I deem it right to furnish you with some authority for what I said. I don't think it at all likely that those half-dozen sharp and most respectable men of business would be deceived, and I am positive they would scorn to deceive others. There is a new variety of Barley extensively grown in Norfolk which is called Oat-Barley, and if it would interest your readers I am assured that the same positive proof of this Barley having been produced in like manner to Mr. Colman's Wheat will be forthcoming. I was a long time before I could believe what appeared to be an utter impossibility; nor should I now credit the evidence if it was not corroborated by the indisputable testimony of so many unimpeachable witnesses. *Clare Sewell Read, The Farmers' Club, E.C., April* 28.

"East Harling, April 27, 1875.

"C. S. Read, Esq., M.P.—Dear Sir,—The assertion I made in conversation with you respecting Wheat being produced from Oats I am positive is correct. The Oats were planted in the presence of half-a-dozen persons—my neighbour, Mr. John Everett, for one. I am surprised the writer in the *Gardeners' Chronicle* is not conversant with the fact, as I think I can refer him to others who have produced Wheat in the same way.—I am, dear sir, faithfully yours, TIMOTHY COLMAN.

"I enclose Mr. Everett's note."

"Harling, April 26, 1875.

"Dear Mr. Colman.—I beg to return the *Gardeners' Chronicle* of the 24th. The article at page 533 has an especial interest for both of us, as the strange fact has been 'observed properly' and the 'weighed evidence' so positive as to convince us and others that the Oats, planted in our presence, cropped and covered during the winter under our direction, and reaped during the following season, produced a sample of red and white Wheat, and from which very sample James Barnes secured his prize Wheat, now so extensively grown and approved. I think it due to our worthy member, Clare Sewell Read, that you should by evidence help to confirm his remarks, which the Editor calls 'nonsense.' His remarks as to the 'utility and proper method of conducting agricultural experiments' are so appropriate that I feel surprised, when so carried out, that he should think the ass and the horse a happy illustration.—I am, my dear sir, yours very faithfully, "J. EVERETT."

[How many grains of Wheat were there in the "covering of straw," which, it appears, was applied "from the first"? Why was the covering made use of? EDS.]

MAIZE.

I HAVE waited until the time for planting the Maize has nearly come in the hope that some one better versed in this affair than the writer would have come forward and given us his experience on the subject. I see, from the agricultural papers, that Maize acclimatised is for sale in bulk for farmers to try in the best parts—that is, the southern parts of the country—but, strange to say, the vendor objects to supply seed for mere gardening experiments; and this is just what is wanted, viz., a supply of seed to start half the cottagers in the kingdom growing green Maize, not to mention starting also all the great and good gardeners in the same race. Surely America can vouch for the free-growing qualities of this corn, and it is also cultivated in the Old World as well as in the New, and is even at our doors in France. And when we see the word "acclimatised" used in the advertisement in reference to this grain, there ought to be no hitch in having green Maize along with green Peas this very summer, and ripe ears in autumn.

About the year 1850 I grew Kean's Forty Day Maize in Devon, and not only had the green corn, but also the ripened ears, yielding mature seed for future sowing.

Most people are alarmed at Maize when they see some tall kind 12 feet high that could not be supported, and could not be ripened for want of more heat and longer summers. Kean's Maize was all that it professed to be, an early dwarf-growing variety, and mine did not rise higher than 3 to 4 feet. The ground was laid double in depth and richly manured, and the seed was not dibbled or planted until the middle of May, when the May bug was to be seen. This natural barometer and thermometer was to be the cultivator's guide as to the time of sowing or planting. These instructions, and some others, were sent along with the small bag of seed corn bought for experiment.

Another item was to the effect that it was not to be grown in pots and turned out as bedding plants are treated, as Maize is said not to bear transplanting well. I followed the instructions given, and, favoured by a southern climate and being near the sea level, the experiment was satisfactory; and if seeds could only be distributed now to the growers everywhere, we should have data to guide us in this highly important affair for future years. Of course premiums should be offered to cottagers, to get them to compete for the prize, and the honour of being able to grow green Maize and to eat of the fruit thereof. *A. F.*

THE PLANTAIN AND BANANA.

THE Plantain and Banana, which are known in this country only in tropical plant-houses, producing fruits which are considered a delicacy rarely to be obtained, are so common throughout the tropics that in many countries they form quite the chief food of the natives. The two plants are very similar to outward appearance; the fruits, however, of the Banana (Musa sapientum) are usually more round and plump than those of the Plantain (M. Paradisiaca). Numerous varieties of both plants are known, the difference in the fruits being one of the chief characteristics.

The Banana fruits, as ripened in our stoves, are of a yellow colour, somewhat Cucumber-shaped, but slightly angled longitudinally. They are of a rich mellow flavour, almost melting in the mouth. The whole of the fruit, excepting the thick rind, which easily peels off, is edible, the pulp being of a similar consistency throughout, and the fruits being without seeds. The flavour varies somewhat in the different varieties. In some countries Plantain fruits are dried and reduced to a meal, and stored away for future use. In the Calcutta bazaar some four or five distinct

varieties of edible Plantain fruits are known, which are again divided in sub-varieties, as follows :—

Variety Kanchkalla :—
1. Kanchkalla proper.
2. Bhoosna, greenish fruit with white bloom.
3. Loombee, yellow fruit.

Var. Kantallee :—
1. Kantallee proper.
2. Chinee Kantallee. This often has seeds.
3. Bichee Kantallee. A variety with seeds.
4. Kalleeban.

Var. Martaban :—
1. Martaban proper; large fruit.
2. Sabree ; medium.
3. Chatun ; small.

Var. Champa :—
1. Champa proper.
2. Chinee Champa ; smallest.
3. Kanai Banshee ; Khrishma's Flute. Fruit often 15 inches long.

Besides these there is the Dacca Plantain or Girto Kauchau, and the Kamkela, a red-fruited kind.

Few of the above, it will be seen, bear seeds, but seeded Plantains, Dr. King informs us, are common in Bengalee villages, and are often to be bought in the bazaar in Calcutta ; the only reason why they are not always to be seen there, is that they sell for so little.

Two varieties of these seeded Plantains are distinguished. The first, known as Bichee Kalla, is described as having a scanty pulp and numerous seeds, a thin stem, the central part of which is eaten. The inflorescence is boiled whole, and the flowers eaten with salt as a vegetable. The entire fruit is cooked as curry by poor people, and the pulp is also eaten by such raw. It is moreover taken as a cooling remedy by dyspeptics, and the seeds are medicinal.

The second is the Dayrea or Daura kalla. In this the seeds are less numerous than in the last, and the pulp correspondingly larger. It is best distinguished from the last by its very much thicker stems and larger inflorescence, the pulp is sweet and is eaten, and is of a cooling nature, the entire fruit is also cooked, and is eaten as curry. The central part of the stem is also edible, as are the flowers similar to the last, and the seeds are medicinal. Both are common on waste ground—neither is cultivated. The central part of the stem is brought into the Calcutta bazaar to the amount of half a ton to a ton daily, and is largely eaten by the fishing population after being boiled. The fruit is occasionally to be had in the bazaar, but is hardly worth bringing to market. *J. R. J.*

BUDS.

THE accompanying illustration, which we owe to the skilful pencil of Mr. Fitch, may suffice to call the attention of amateur landscape gardeners, and especially of young gardeners, to the great importance of making themselves acquainted, ere the season be too far advanced, with the different forms and appearances of buds.

To the lover of Nature, at this season of the year in particular, no such recommendation is needed—there is a charm and a freshness of enjoyment in watching the unfolding bud that is quite unique. We need scarcely add that, as throughout Creation, the more closely observed the more fully studied, the greater the beauty and interest revealed. The skilful pruner of Peach trees knows full well the varying form, position and arrangement of the buds, and directs his course accordingly. The Rose-grower is not less keenly alive to the way in which the buds grow on the shrub which claims so much of his attention. We are inclined to think that the woodmen, and those who have to deal with growing timber, are, of all classes of the gardening community, those who most neglect the teaching of the buds. Of course we do not intend to make broadcast imputations, but common observation will, we think, bear out our opinon of the matter. This neglect is the more unfortunate as the buds are the very foundation of the tree, and upon their due development and proper position depends not only the symmetry and beauty of the tree, but also its value for timber purposes. All the text-books go into greater or less detail as to these organs. They tell of leaf-buds and flower-buds, of mixed leaf and flower buds, of scaly buds and naked buds, of side buds and terminal buds, buds definite in position and station, and buds that are adventitious in this respect. Gardening books tell us how these buds are developed into shoots, or spurs, or laterals, or what-not. In the case of fruit-trees there is a wealth of terms expressive of the different appearance and mode of development of buds. The French gardening language is specially rich in such terms, as might be expected from the variety and neatness they show in their methods of pruning and training fruit-trees. Though it is quite possible our neighbours are over-nice, and sometimes show unnecessary refinement in their manipulations, yet it cannot be denied that their practice is a logical sequence of their more thorough knowledge of the buds, and of their mode of growth.

Mr. Fitch, in his study of buds, fig. 120, has had an artistic purpose in view rather than a practical one. But this artistic purpose is precisely what the landscape gardener also aims at. What rounded, billowy masses the Horse Chestnut buds make at this season with their downfolded leaves, not yet strong enough to float horizontally in mid-air ; how the Elms seem studded over with little green balls, while the Poplar shoots are tipped with sharp lances, and still more so the slender, graceful shoots of the Beech. The forked Sycamore boughs end in broad-ended clubs ; the Oaks are thick-set with clusters of stout, sturdy, egg-shaped buds ; the Hawthorns bear inverted pyramids of clearest green foliage ; the Ash, only a day or two since a mass of thick black knobs, has burst into a blurred, confused mass of black, which in another day will spread out into an open, feathery mass of bloom. Each tree, in fact, has its own mode of budding, and, when the times are propitious, each day makes a notable difference in their appearance. The accompanying sketch shows us how these general outlines, such as we have just been speaking of, are made up. Multiply by thousands the Horse Chestnut bud shown in the figure ; raise them on a trunk, and the mind will have no difficulty in realising what the entire tree was like when that spray was drawn. The rounded form of the spray is easily accounted for when we remember that the centre of that bud is a mass of flowers, an inflorescence whose power of lengthening in a direct line is limited. Compare it with the narrow lances of like buds of the Poplar or the Beech, and there will be no difficulty in understanding the different form of the framework, if we may so call it, of the respective trees.

Now, too, is a good time to see on the Hazel, the Elm, and specially the Lime, the curious downward bend which the young shoots present just as they merge from the buds, and the explanation of which is not easy.

Lastly, not to cumber with detail an article which, like the sketch itself, is intended to be merely suggestive, we may call attention to the beautiful series of transitions which may be met with between the rudimentary leaf in the shape of a bud-scale and the perfect organ. The Horse Chestnut, the common Maple, the Currant and the Rose, not to mention others, afford admirable illustrations of this, and are a source of genuine satisfaction to those who like to know how things are made and why.

Florists' Flowers.

THE CINERARIA.—I have recently been favoured with an opportunity for a critical inspection of the fine strain of the Cineraria grown by Mr. James at Redlees, Isleworth. A small group of a dozen plants staged at some spring show offers but an indifferent chance to note the merits that exist in a large collection of several hundreds. Moreover there is room for suspicion that the pick of the strain only are sent, whilst the poorest samples are kept at home. Now the great merit of Mr. James' strain is this obvious fact, there is not an indifferent flower to be found in the whole collection. One is struck with the general evenness of height that pervades all the plants, the breadth and evenness of the heads of bloom and the size of individual flower-heads, combined with breadth and substance of the florets, their excellent form, and varied hues of colour. There were many "blooms" so large that when a half-crown piece was laid on them there was a margin nearly a quarter of an inch in width still visible all round outside the coin, and these not starry blooms but of good form. Nothing oppressed me so much as the difficulty experienced in describing the hues of colour found in many of the flowers. Florists are producing such combinations that this is a growing difficulty, and although any one flower is not a chameleon in possessing the power to change its colour, yet it is probable that there are many flowers of which a dozen observers would pronounce diverse opinions as to its colour markings. Here are a few of the colours that struck me as effective. One has a white disk, and the florets rich violet-rose. Another has a white disk, and the florets are of a bright rosy crimson. Then comes a new colour, a flower having a grey disk and rosy magenta florets. Another is in colour rich reddish-crimson, then rich rosy-maroon, violet-cerise, and deep indigo-blue. Most of the self-flowers have white disks, except the blue, and these are invariably dark. Although deep-coloured flowers preponderate, there is yet a considerable admixture of those that have light markings, and I especially noted two extremely fine flowers having black disks encircled with broad rings of pure white, and margined with wide bands of in one case deep reddish-crimson, and in the other rosy-violet. Mr. James has received several certificates for seedling flowers, to which names have been given, but these are used by him solely for exhibition purposes, and he grows no other named kinds ; indeed, so reproductive of its best forms through seed is the Cineraria, that seed of a good strain is certain to give a fine lot of flowers equal to ordinary named kinds, and in great variety of markings. The Cineraria still retains a high position as a decorative plant, and so much has it been improved of late years that its growth is not likely to show any signs of decadence during the present generation. *A. D.*

Natural History.

ADDERS, TOADS, AND SNAKES. — Having read Mr. Rust's remarks (p. 463) under the above heading, and being a subscriber to and constant reader of your paper, I venture to give my experience on similar subjects. In my younger days, now some fifty summers since, I remember seeing many snakes' eggs, which I believe were strung together by the outer skin, in a manner very similar to that in which we see sausages ; these were deposited in and about some old manure-heaps, and left there to be hatched by the heat of the sun. On one occasion only did I see the young adders run down the parent's throat, and she escaped with them ; this occurred on my jumping over a hedge and coming suddenly upon them, but, so quick were their movements, that in my fright, having nothing in my hands in readiness to strike, they escaped. Some years after this, being at Mitcham Grove, the then seat of the late Sir John Lubbock, on a very boisterous day, when many small branches were strewed on the carriage drive, at some distance from me I saw what appeared to be a naked stick twisting about, and curiosity led me to go and see what it was, when, to my surprise, I found it was an adder struggling to cross the gravel drive, and I noticed, some distance down the body, a slight projection, similar to the knuckle on the finger. Much as I dreaded such things, being in the open I had the courage to take it up by the tail, when it twisted all manner of ways to get at my hand, but could not ; when, to my utter dismay and astonishment, its mouth opened, as though the head was turning inside out, a pair of claws appeared, and down dropped a frog, extended to an extraordinary length, the front legs being in advance of the head and the hind legs in the opposite direction, and he immediately drew himself up and hopped, the only perceptible injury being the skin a little torn on one hind leg. The adder in the meantime turning his head up to my hand, I dropped it and killed it with my boot, leaving poor froggy to escape into the shrubbery. This, I think, proved, without doubt, that with the frog extended in the inside the adder could not bend his body, and therefore he disgorged him to attack me. With reference to toads, my gardener always encouraged them in his Cucumber-house and other places. I remember well a very large one that he christened, and which would come from his hiding place when called by him. *A. B.*

Notices of Books.

The Narcissus: *its History and Culture, &c.* By F. W. Burbidge ; to which is added a Scientific Review of the entire Genus, by J. G. Baker. Reeve & Co. 8vo, pp. 95, tab. col. 48.

Very opportunely, considering the revived taste for these beautiful border flowers, Mr. Burbidge has issued the work whose title is above given. The contents of the book comprise the history of the cultivated Daffodils, the poetry of the Narcissus, notes on the propagation and culture of the plants, observations on the diseases and insects to whose attacks they are subjected, a full descriptive list of all the species and varieties, together with miscellaneous information concerning them ; and, last not least, forty-eight coloured plates, in which a large number of the species and varieties are figured, including several which are not in cultivation, and which, in consequence, Mr. Burbidge has drawn either from dried specimens or from other illustrations not readily accessible to the ordinary reader. In the literary portion of his volume Mr. Burbidge has culled from various sources a large amount of valuable or interesting information ; but he appears sometimes not to have given himself sufficient time to digest or revise his material, hence we find occasionally that the paragraphs do not fit well together, but show signs of hasty workmanship, while the misprints give here and there evidence of inadequate revision. Perhaps the desire to have the book issued before the Narcissus season was over for the year, has had something to do with this.

These, however, are but trifling blemishes in what is likely to prove a very useful book. So far as the arrangement and description of the species is concerned, Mr. Burbidge has reproduced the monograph which first appeared in these pages from the pen of Mr. Baker, who has revised it for the purpose. This circumstance, together with the abundant correspondence which has appeared in the gardening journals on the subject of this genus of late, a good deal of which is incorporated into the volume before us, relieves us of the necessity of saying much in the way either of criticism or elucidation of the text. We may only note in passing the careful manner in

which Mr. Burbidge has cited his authorities when he has had occasion to make use of their materials, setting in this wise an excellent example to other authors and compilers. After all it is the plates which give the special value to this treatise; they are numerous, and, generally speaking, faithful to Nature. There is no attempt at exaggeration or distortion for the sake of effect, but an honest attempt in every case to represent the flower as it is. Here and there there are to our eyes errors of perspective or colouring, which are not to be wondered at when the difficulties in the way of the artist are considered. Colour indeed is very much a matter of individual appreciation.

In any case it is no slight boon to have in so accessible a form so large a series of illustrations. In many cases it is almost impossible by words to convey an accurate idea of a particular variety or of its distinguishing characteristics, but a faithful figure makes apparent to the eye niceties of character which words alone are insufficient to define. Again, for strictly botanical purposes it is a great advantage to have such a series of varieties as Mr. Burbidge has given us in the case of N. Tazetta, brought together so as to be seen at a glance, and compared one with the other.

We have not scrupled to allude to what we think are the deficiencies of the work, but at the same time we should be very sorry to convey any other general impression to the reader than that this is a very serviceable piece of work, useful and trustworthy, and one for which all Narcissus growers owe their hearty acknowledgments to the artist. We may add, in conclusion, that this is one of a series of works on cultivated plants which it is proposed to issue; and, judging from the specimen before us, the utility of such a series will be so great, that we hope the publisher will receive every encouragement to proceed, and authors and artists be stimulated to do their best to secure fulness and accuracy.

—— The publication of the translation of Professor Sach's *Lehrbuch* of Botany by Messrs. Macmillan is announced. The translation has been made by Mr. Alfred Bennett, who has been assisted by Professor Dyer. It is expected that this book will take its place as the standard reference book for advanced pupils in anatomical and physiological botany. In any case a good translation will prove of great service.

Reports of Societies.

Royal Botanic: *April* 28.—Favoured with one of the brightest days we have had since last year, a fair complement of good flowering plants and cut flowers, and a good attendance of visitors, the Royal Botanic Society may be said to have altogether had a very successful exhibition on Wednesday last. Stove and greenhouse plants were shown in fair numbers. Mr. J. Ward gr. to F. G. Wilkins, Esq., Leyton, had his superb variety of Anthurium Scherzeranium, Odontoglossum hystrix, with four fine spikes; Tremandra ericifolia, 2 feet through, well flowered; Cypripedium villosum, well flowered; Odontoglossum Pescatorei, with two fine branched spikes; Eriostemon intermedium, well flowered, &c. A nicely flowered group also came from Mr. G. Wheeler. Azaleas were well shown by Mr. Turner, who staged six very finely bloomed standards, with bushy heads, from 3 to 4 feet through. The varieties shown were Etendard de Flandre, Comtesse de Flandre, Reine des Fleurs, Duc de Nassau, Madame de Cannart d'Hamale, and Cedo Nulli. Nicely flowered groups of six also came from Messrs. H. Lane & Son, Mr. G. Wheeler, and Messrs. Dobson & Son.

Mr. Turner was the only exhibitor in the class for nine Roses in pots, and he showed beautifully flowered specimens, from 3 to 4 feet through, of La France, Madame Clémence Joigneaux, Le Mont Blanc, Edward Morren, Duke of Edinburgh, Céline Forestier, Madame Thérèse Levet, Paul Verdier, and Juno. A capital group of plants was also shown by the same exhibitor in the miscellaneous class. Forced Rhododendrons were excellently represented by a dozen specimens from Messrs. H. Lane & Co., the varieties being much the same as those shown at Kensington last week. Six finely grown cone-shaped specimens of Mignonette came from Mr. T. Barnes, gr. to A. Chancellor, Esq., The Retreat, Richmond; and a group of Amaryllis from Mr. Harborough, gr. to C. Keiser, Esq., Broxbourne. Of Heaths a small but very nicely flowered group came from Mr. G. Ward; and in the class for nine Cinerarias the best came from Mr. James, Messrs. Dobson & Son being 2d. Mr. Parker, Tooting, contributed a fine group of flowering herbaceous plants, including, as well as many shown at Kensington last week, Anemone nemorosa rubra flore-pleno, very pretty; and the beautiful little Viola Delabordei, a close tufted dwarf species, with pink and lilac flowers.

The miscellaneous class was rather a large one, and comprised fine groups of new plants from Mr. B. S. Williams, Messrs. James Veitch & Sons, and Mr. Bull; admirable collections of Auriculas from Mr. Turner and Mr. Douglas; four boxes of very fine cut Roses, two of them being of Maréchal Niel, from Mr. J. Walker, of Thame, Oxon; a basketful of splendidly bloomed plants of Col. Champneys Auricula, from Mr. Turner; a fine basketful of flowering plants of Primula amœna [Sieboldii], from Mr. J. Douglas; a collection of Cinerarias from Messrs. Standish & Co.; a choice collection of stove and greenhouse plants from Messrs Cutbush & Son; four boxes of excellent cut Rose from Mr. William Paul; flowering plants of Primula mollis, a very distinct species from Bhotan, with flowers resembling a Lychnis, and produced in tiers like P. japonica, shown by Mr. Chambers, Westlake Nursery, Spring Grove, Isleworth; a stand of Pansies, from Mr. Hooper, of Bath; a basketful of the Duchess of Edinburgh Coleus, from Messrs. Jas. Carter & Co.; seedling double Cinerarias, standard specimens of Lithospermum fruticosum, and several varieties of Pelargoniums, from Messrs. E. G. Henderson & Son; and a nice group of flowering and fine-foliaged plants, Orchids, &c., from Messrs. Rollisson & Son.

New plants were exhibited in fair numbers, and the following awards were made:—Botanical Certificates to Mr. William Bull for Crinum brachynema, Typhonium Brownii, an Aroid with three-lobed leaves, and a broad, dark, bronzy brown spathe, a plant of dwarf stature; Odontoglossum Roezlii album, Dracænas insignis, candida, and elegantissima; Tillandsia musaica, in flower; Metroxylon filare, the handsome Palm figured at p. 497; Ptychosperma robusta, a strong clean-growing Palm, in the style of a Seaforthia; and Thrinax nobilis, a very distinct Fan Palm. To Messrs. James Veitch & Sons, for Crotons

Fig. 120.—A STUDY OF BUDS.

Disraeli, tortile, and appendiculatum, and Dracænas hybrida and elegantissima, the latter being a narrow, dark-leaved form from the South Sea Islands. To Mr. B. S. Williams for Gloneria jasminiflora, a Brazilian plant of a Daphne-like habit, with short terminal racemes of white flowers; and the Metroxylon filare, and Odontoglossum Roezlii album before-mentioned. To the New Plant and Bulb Company, Colchester, for Freesia Leichtliniana, a pretty bulbous plant, with flowers of a primrose-yellow colour tinted with orange. To Messrs. E. G. Henderson & Son, for Sonchus elegantissimus, an exceedingly fine-leaved graceful foliaged plant. To M. Louis Van Houtte, Ghent, for Bertolonia Van Houttei, a most superb plant, in which the venation of the leaves is distinctly delineated in bright sparkling rose; and for Bertolonia Miranda, a cordate leaved form, the leaves being evenly but thickly spotted with minute rosy dots. And to Mr. R. Parker, Tooting, for Saxifraga aretoides primulina, a small dense growing species with primrose-yellow flowers—quite a little gem in the alpine class. Floral Certificates were awarded to Mr. Turner for Rhododendron Countess of Dudley, a very fine hybrid, with pure white flowers, of good substance, and measuring 4 inches across,—the flowers, which are delicately scented, being produced in trusses of three or four, and having a grand appearance; for Auricula Gertrude Knight (Turner), a green-edged show variety with dark purple ground; for Alpine Auricula National (Turner), glowing velvety purple, with pale lemon centre, the pips measuring 1½ inch across; and for Alpine Auricula Iron Duke, a smaller-flowered variety, almost black in colour, and tipped with purple. To Mr. Carmichael, gr. to W. Tugwell, Esq., Crowe Court, Bath, for Azalea William Carmichael, a hybrid between A. amœna and A. Flag of Truce, with bright rosy flowers; and for Azalea Mrs. Carmichael, a hybrid between A. amœna and A. Stella, with rosy purple flowers. Azalea amœna was the male parent in both cases, and the general habit of the plants partakes most of the character of this parent; they are stronger growers, however, and flower most profusely. To Mr. William Paul for his new Hybrid Perpetual Rose Peach Blossom, a globular-shaped flower, very well named as to colour.

The Metropolitan Floral Society offered prizes in several classes for Auriculas, and though the exhibition was only a small one, it was much better than any the Society has had before. Mr. Turner was 1st for twelve show varieties with the following:—Grey-edged, Competitor (Turner), Robert Traill (Lightbody), John Waterson (Cunningham), George Lightbody (Headley), and Colonel Champneys (Turner); green-edged, Lovely Ann (Oliver); white-edged, Alderman Wisbey (Headley); Charles Perry (Turner), violet-purple self; Blackbird (Spalding), black self; and three varieties not named—a very nice, even and refined lot. Mr. James Douglas, gr. to F. Whitbourn, Esq., Loxford Hall, Ilford, was 2d, with stronger plants of Colonel Champneys (Turner), Robert Traill (Lightbody), Lancashire Hero (Cheetham), Unique (Dickson), and Competitor (Turner), grey-edged; Lovely Ann (Oliver), Duke of Wellington (Dickson), Apollo (Beeston), and Admiral Napier (Campbell), green-edged; Mrs. Sturrock (Martin), purplish claret self; and Meteor Flag (Lightbody), a bluish purple self. Mr. J. James, gr. to W. F. Watson, Esq., Isleworth, came in 3d, and the Rev. H. H. Dombrain, 4th. In the amateurs' class for six show varieties Mr. Douglas came in 1st with Prince of Wales (Ashton), green-edged; General Neill (Traill), green-edged; Master Hole (Turner), black self; Mary Ann (Fletcher), grey-edged; Lord Clyde (Lightbody), crimson-maroon self; and Colonel Champneys (Turner), grey-edged. Mr. James and the Rev. H. H. Dombrain were 2d and 3d respectively.

The best selfs were Charles Perry (Turner), deep violet-purple, shown by Mr. Turner, 1st; Master Hole (Turner), black or bluish black, shown by Mr. Douglas, 2d; and Blackbird (Spalding), almost black, shown by Mr. James, 3d. In the class for white-edged flowers, Mr. James was 1st with Countess of Wilton, Mr. Turner 2d with Favourite (Turner), and Mr. Douglas 3d with an unnamed plant. The Rev. H. H. Dombrain's Richard Headley (Lightbody) was the best in the grey-edged class, followed by Mr. James' Colonel Champneys (Turner), and Mr. Douglas' Alderman Charles Brown (Headley); while amongst green-edged varieties, Alderman Wisbey (Headley), shown by Mr. Turner, and Lady Richardson (Gairn), shown by Mr. Douglas, were respectively 1st and 2d.

The best twelve alpines also came from Mr. Turner, and consisted for the most part of seedlings unnamed, the only named ones being John Gair, Iron Duke, and National, the two latter also gaining Floral Certificates. Mr. James came 2d with Diamond, Mr. Reeves, Spangle, Miss Colvin, Miss Andrews, F. Watts, Dazzle, Beauty of Redlees, Mercury, Queen Victoria, Dolly Varden, &c.; and Mr. Douglas was 3d with Mercury, Favourite, Brilliant, Elcho, Minnie, John Leech, Sydney, King of Crimsons, Edgar, Miss Reed, and two seedlings.

Manchester Botanical and Horticultural: *April* 27.—In the present unhappy circumstances of the Royal Horticultural Society, Manchester has certainly stolen a considerable march on South Kensington. One of the small meetings of the Manchester Botanical and Horticultural Society was held on this occasion, and, both in the extent and value of the subjects staged, it certainly equalled, even if it did not transcend the early Rhododendron show at South Kensington on April 21. Then there was the added attraction of the National Auricula Society's exhibition, and the two combined filled every available part of the spacious Town Hall; while the company was so numerous, owing to the fine afternoon, which followed a somewhat unpromising morning, that locomotion was almost impossible; and there was no band to stimulate visitors to put in an appearance. These meetings—so happily conceived and so successfully carried out—appear to have become a necessity to Manchester, and will have to be continued as a part of the programmeo of the Botanical and Horticultural Society.

One of the most conspicuous features was a fine bank of pot Roses, staged by Mr. Charles Turner, Royal Nursery, Slough, and to which the Gold Medal of the Society was awarded. This included capitally grown and flowered plants of Céline Forestier, Mdlle. Thérèse Levet, Madame Victor Verdier, La France, Madame C. Joigneaux, Edward Morren, Dupuy Jamain, Souvenir d'un Ami, and Marie Baumann. A First-class Certificate was awarded to Mr. C. Turner for Azalea Apollo, one of Verschaffelt's newer seedlings, the flowers white, slightly striped with carmine, very large and of excellent form. In addition, Mr. Turner had Mdlle. Léonie Van Houtte, Comtesse de Beaufort, and the fine old Charmer in grand condition. A First-class Certificate was awarded to E. G. Wrigley, Esq., for a capital example of Dendrobium macrophyllum, bearing three spikes of flowers, one having as many as fourteen fine blossoms. The same exhibitor had D. Pierardi major, D. thyrsiflorum, D. crystallinum, Odontoglossum citrosmum and its variety roseum, O. Pescatorei, with a finely bloomed spike of forty flowers; Cattleya Mendeli, Vanda cœrulescens, Masdevallia Lindeni, and M. Veitchii. From Mr. Geo. Toll came Odontoglossum hystrix, bearing a fine spike of flowers; O. nævium majus, O. Bluntii, Cypripedium Crossii. From R. Aders, Esq., came Dendrobium Dalhousianum, Cypripedium Dominianum, and a small plant of Odontoglossum vexillarium, with one large flower of fine substance. A First-class Certificate was awarded for Rhododendron Countess of Derby, partaking of the character of R. Edgworthii, with very large pure white flowers of great beauty and substance, flowering very freely even as very small plants: this came from Mr. Isaac Davies, of Ormskirk. Messrs. G. & W. Yates, of Manchester, contributed a large group of plants, consisting of Palms, Azaleas, Rhododendrons, greenhouse-flowering plants, &c. Some charming bouquets were furnished by Mr. Thos. Studd; H. Martindale, Esq., sent a box of fine blooms of Gloire de Dijon Rose; and Messrs. E. Cole & Sons got up a box of cut flowers, comprising Acacia longifolia magnifica, Richardia æthiopica, Vanda suavis, Musa coccinea (very fine), Magnolia conspicua, Phajus Wallichii, the showy Scutellaria Moccliniana, Franciscea calycina major, and Brugmansia grandiflora. A First-class Commendation was awarded to Mr. Richard Dean, Ealing, W., for a stand of twelve bunches of cut fancy Polyanthuses, which appeared to find much favour among the Auricula cultivators.

In the way of fruit there was a capital basket of President Strawberries, from J. Rylands, Esq.; while from E. Lever, Esq., came three bunches of Lady Downe's Grapes, cut from the Vines about two months ago, and kept in water. The berries were fine and plump, and covered with a beautiful bloom.

The exhibition of the National Auricula Society fell somewhat short of the expectations of the promoters, both in point of numbers and general average quality of the flowers; on the other hand it must be admitted that some of the flowers were as perfect in the matter of superb finish as Auriculas could well be. The Town Hall is not adapted to show off Auriculas to the best advantage; it is too dark to bring out the exquisite marking of the finely-finished examples of this "beautiful and fascinating flower"; and the judges, owing to the gloom which prevailed in the early part of the day, had to carry the flowers to the light in order to give them that searching examination required in the circumstances of such a spirited competition. The regulation which requires that all the trusses must be shown free from all artificial packing and support, is not calculated to show off the flowers to the best advantage; they get a hangdog appearance—large trusses are apt to overweight the stem, and they bend over, even to the danger of snapping asunder; it also tends to encourage small rather than bold trusses. Exhibitors at a distance are allowed to turn their plants out of pots, shake out a portion of the soil from the roots, bind them up in damp moss, and in this way a good number of plants can be closely packed in a small space. Pots and soil are provided at the place of the exhibition, the plants are repotted previous to staging, and the soil is covered with damp moss, which is not as a general rule laid on in a neat and tidy manner. The space at the service of the Auricula growers in the Town Hall was circumscribed in space, and the plants were huddled together, giving them a confused appearance. These matters are set forth, not in a captious spirit, but merely as indicating defects that might be remedied; still it must be borne in mind that such an exhibition as that of the National Auricula Society is intended mainly for the fanciers of the Auricula, and they prefer to see the plants in all their naked loveliness of pip and truss, apart from all attempts at enhanced attractiveness.

The blue riband of the exhibition was undoubtedly the 1st prize in Class A. for six dissimilar varieties of show Auriculas, one at least in each of the classes being required. This was won by the Rev. F. D. Horner, Kirkby Malzeard, Ripon, the premier amateur cultivator of the day, and a formidable opponent to practised growers like Mr. Charles Turner. He staged excellent examples of Regulator and Smiling Beauty, white-edged, the last very fine; Prince of Greens, green-edged, a very fine flower; Complete, and George Lightbody, grey-edged, both very fine, the latter especially so; and Pizarro, a very fine maroon silk with a pure white paste. Mr. C. Turner was 2d with Cygnet, white-edged; Alderman Wisbey, green-edged; Robert Traill, Colonel Champneys, and George Lightbody, grey-edged, all very fine; and Charles J. Perry, a very fine deep violet-red, with a clear white paste. Mr. H. Wilson was placed 3d with George Lightbody, grey-edged; Favourite, white-edged; Colonel Taylor and Imperator, green-edged; Pizarro and Othello, selfs. Mr. S. Cooper, who was 4th, staged John Waterson, A. Smith, and Lovely Ann, white-edged; Imperator, green-edged; and Mrs. Sturrock and Metropolitan, selfs. Four collections only were staged in this class. In that for four dissimilar varieties, one in each class, Mr. C. Royds was 1st with Imperator, green-edged, bearing six fine pips; Smiling Beauty, white-edged, Conqueror of Europe, grey-edged, a very fine example, with seven splendid pips; and a fine dark self, named Mrs. E. Lancaster, raised by Mr. Pohlman, paste and body colour being almost perfect. The Rev. F. D. Horner was 2d with General Bolivar, grey-edged; Smiling Beauty, white-edged; Charles E. Brown, grey-edged; and Mrs. Sturrock, self. Mr. S. Cooper, who was 3d, had Imperator, green-edged; Conqueror of Europe, grey-edged; Taylor's Glory, white-edged; and Pizarro, dark self. Mr. C. Turner came 4th with Alderman Wisbey, green-edged; Privateer, grey-edged; Arabella, white-edged; and Blackbird, self. Class C. was for pairs, the ruling condition being that the plants be dissimilar both in variety and class. Mr. C. Royds was again 1st, having self Mrs. Lancaster in splendid condition; and Imperator, green-edged, with five fine pips. The Rev. F. D. Horner was 2d with Walker's George Levick, a very fine but scarce grey-edge of splendid quality; and Prince of Wales, a fine green-edge. Mr. E. Elliott, who was 3d, had General Bolivar, grey-edged, and Pizarro, self. Mr. R. Lord, Todmorden, was 4th, with General Taylor, grey-edged; and Stapleford Hero, white-edged. There were seven pairs competing in this class.

Next came the classes for the premier flowers in the four sections, viz., green, grey, and white edges, and the selfs. Here, as might be expected, the competition was numerous and exciting. In the green-edged class, out of some thirty flowers, the judges selected for the premier prize a finely finished example of Colonel Taylor, furnished by Mr. R. Lord. Next in order came Imperator, shown by the Rev. F. D. Horner; Lady Ann Wilbraham, Beeston's Apollo, Lovely Ann, Traill's Anna, Lancashire Hero, and Prince of Wales. The premier grey-edged were Alexander Meiklejohn (Kay), shown by the Rev. F. D. Horner, a fine flower of great beauty; next came George Lightbody, Complete, Chas. E. Brown, Robert Traill, Alexander Meiklejohn, Alma, Conqueror of Europe, and Ne Plus Ultra. The Rev. F. D. Horner also exhibited Robert Traill in fine character. The premier white-edged was Catherina, and the same variety took second honours also; then came Omega, bearing a fine truss, Smiling Beauty, Richard Headley, the next two unnamed, Robert Traill, and the next unnamed. There were forty-two grey-edged, and about twenty white-edged flowers competing in these two classes; but selfs were much more numerously represented, no less than seventy being staged. The best was a fine dark self Othello, staged by the Rev. F. D. Horner; next came Pizarro, Charles Perry, the body colour very fine; Topsy, Lord of Lorne, a bright deep red self, very attractive; Garibaldi, True Blue, Lord Clyde, and Meteor Flag.

Alpines were divided into two groups, those with yellow and those with white centres, and they were shown singly for premier honours. The best was

Bessie Ray, a splendid new form, from Mr. C. Turner, the body colour dark maroon, edged with very bright pale orange red. Then in order came Nimrod, Ovid, Alice, Diadem, Dolly Varden, Bronze Queen, John Leech, and Evening Star. The premier Alpine with a white centre was Mauve Queen, pale mauve body colour, very pretty indeed; this was shown by Mr. R. Gorton; then came George Lightbody, fine velvet ground colour; Beatrice, Constance, and others.

Polyanthuses were poorly shown—it was said that the severe winter tested their endurance severely. Such fine old varieties as Exile, Lord Lincoln, George the Fourth, President, and Cheshire Favourite, put in appearance, being shown as pairs, as also in the class for premier honours.

All the plants exhibited in the "pans"—*i.e.*, a class requiring two and more examples—must have not less than five expanded pips. Those in the premier classes must carry not less than three.

After the judges had done their work, a large number of exhibitors and fanciers met them at dinner, under the presidency of Mr. Samuel Barlow; and when dinner was over a liberal subscription list was started towards holding the exhibition in 1876. It is due to the Council of the Manchester Botanical and Horticultural Society to state that they give liberal encouragement to the Auricula, Tulip, Carnation, and Picotee cultivators, and that this support is doing much to increase the interest attaching to these exhibitions. The Tulip show will take place at the Botanical Gardens, Old Trafford, during the third or fourth week in May, and the Carnation and Picotee show at the same place during the second or third week in August.

The Villa Garden.

Bedding Plants.—In another week or two we shall have reached onwards to that time when plans for filling the flower-beds must be laid down, and the plants intended to fill them must be got together. In large gardens, where from five to fifty and sixty thousand subjects are wanted to fill the flower-beds, it is necessary that the work of preparation commence quite early in the year, and already thousands of plants are established singly in 60-pots ready for marshalling in columns, groups, and divisions at the opening of the summer floral campaign. Such a task needs much forethought and nice calculation; the gardener must be constantly looking ahead, and something very nearly allied to genius—even if it be not that sublime quality—is required to plan the embellishment of a large flower-garden, and arrange all its details in a complete and symmetrical manner.

The Villa gardener has no such weighty cares on his mind. Still the task of filling his beds, even if they be small, is one requiring thoughtful care. Our floral competitions are by no means confined to flower shows; the development of modern gardening has given birth to pleasant local rivalries; neighbours vie with each other in the perfection of their floral displays; neighbours who are not personally acquainted instinctively compete in this way—it gives a zest to gardening, and creates a larger interest in it.

Now many bedding plants have been wintered in boxes and large pots—placed there as cuttings in August and September last, and wintered on the shelf of a greenhouse, in cold frames, and in lofts and store-rooms. In this way Pelargoniums, and Calceolarias especially, Echeverias, the variegated Mesembryanthemum, dwarf Nasturtiums, Petunias, Verbenas, &c., are annually wintered in quantities, and with more or less success. It has been an unfortunate winter for amateur gardeners, however—many and complete are the losses sustained; but then the winter was unusually severe and prolonged, and continuously wet. Any plants wintered in this way should be potted off singly into small pots, if it has not already been done, to admit of their becoming established somewhat before being planted out in the open borders for the summer display.

What to do with these when they are potted off is a matter of considerable importance with many whose accommodation for plants is limited. Those who have a greenhouse or conservatory can store them away on upper shelves, where they will do well provided they are kept watered. Some who have no house can place the plants in a cold frame, which can be kept close for a time, till the plants make growth and should have air. But what of those who have neither house nor cold pit, who yet winter a few plants in some such way as that mentioned, and who, now they are potted off, want more space in which to stow them away? To such we tender advice of this character. Select the warmest and cosiest spot in the garden, and there dig out a pit a foot or so in depth, the diameter according to the number of the plants to be provided for; put a layer of cinder ashes or slates at the bottom, then add about 4 inches of cocoa-nut fibre, which can be obtained anywhere almost, and at a small cost, and plunge the pots in it thickly together. Next put a fence of old boards or something similar round the pit in the form of an outside wall, but on the ground level (this fence should be a foot or so in height); then lay some cross pieces from one side to the other, and cover with mats, Frigi Domo, pieces of old sacking, and other materials. In this way considerable protection can be given to half-hardy plants; and if covered by night, and opened by day, the plants will become gradually hardened off by the last week in May. If it is inconvenient to dig out a pit, then stand the pots on the ground level; but the protecting fence should be at least a foot higher than in the case of the sunken bed. The weather is now warm and bright, leaves are rapidly unfolding themselves, the cuckoo is heard in the woods, and the full flow of summer life is at hand, but it must not be assumed that the summer season is so near as it now seems. May is a precarious month; sometimes it is very cold and stormy. Nature may have exhausted its store of wintry forces for the present—it may be that onwards, till the summer closes, the weather will be all that is desired—but a careful gardener will not venture to halloo till he is out of the wood, and the time of egress may be yet distant.

Succulents, such as hardy Sempervivums and tender Echeverias, are now much in request, together with a few close growing Sedums, for small flower gardens. They have the great advantage of being wintered with comparative ease; and they grow from small to large plants with considerable rapidity in early summer. Many offshoots of Echeveria secunda, and the glaucous variety also, have been wintered in shallow boxes, pricked in thickly in August and September, and now growing into charming rosette-like plants. These want room. They don't require potting, as they are well able to take care of themselves, and what we would suggest is that a bed of fine soil be made up under a warm wall, and the plants placed out there in rows, giving each a little space to grow in. Unless the weather should come in very badly—cold hail-storms, snow, rain, and frost—no protection will be needed, and a net thrown over them at night will keep them quite secure. If much wet weather comes in, and cold with it, so raise the mat over the surface of the bed as that it will form a kind of sloping roof, and the rain will then fall away on either side. Sedum glaucum, silvery-grey, and S. lividum, deep bright green; Sempervivum californicum and S. montanum, and those two charming grasses, Festuca viridis and F. glauca, are perfectly hardy, and they can be planted out ready for use by-and-by, in neat beds, in lines a little way apart. If it has not already been done, sow a pinch of Golden Feather Pyrethrum on a warm spot; it will soon come away if kept watered in dry weather. It is not well to have this too early. Early raised plants throw up their flowers at midsummer, when they are not wanted.

The charming Mesembryanthemum cordifolium variegatum, one of the best variegated-leaved bedding plants of recent introduction, is a difficult plant to winter, requiring a dry heat. Hundreds of plants have died for want of requisite warmth during the past winter. Those who have succeeded in wintering a store plant or two, or who can obtain them now, should place it in a greenhouse or in a sunny window, and as the young growth is put forth make cuttings of it and place them thickly in shallow pans in a light sandy soil; they will soon strike on a warm shelf in a greenhouse, or on the inner sill of a window. Villa gardeners should include this plant among their indispensable summer bedders, and few things are better suited for suspending either in pots or baskets to enliven a sunny window.

Garden Operations.

(For the Ensuing Fortnight.)

[The subjoined directions are intended to supply general information, and must, of course, be adapted to the peculiar circumstances of each locality. Other departments of the garden will be treated on from week to week in succession, according to the requirements of the season. Special directions for the management of "The Villa Garden" will be found in the preceding columns.]

PLANT HOUSES.

Greenhouse Hard-wooded Plants.—*Epacrises* for winter flowering are much more useful in a comparatively small or moderate size, than when allowed to get large; by keeping them somewhat limited in their dimensions, they do not individually occupy so much room in the forcing pit when being brought on into flower in the autumn, which is an advantage, as it admits of more variety. The nature of the plants, in bearing without injury closely cutting in, favours their being kept for years in a comparatively small state, yet withal healthy. Plants that have been flowered in succession through the spring will in many cases have had their shoots reduced in length by removal for decorative purposes in the shape of cut flowers, yet they are not cut so close in as to prevent their increasing in size more than may be wanted; where such is the case they should at once be shortened back before any shoots that may have already broken out have grown much. In this shortening back the operator should be guided by the size he desires his plants ultimately to attain; they will bear very well to be thus reduced to within 4 inches of where they were cut back to last year. Although they will make their growth well with ordinary greenhouse treatment, yet where the object is to have them early in flower this will be much accelerated by now keeping them a little warm, closing the pit or whatever structure they occupy early in the afternoon, syringing overhead at the same time. *Acacia Drummondii*, *A. armata*, and other varieties of moderate growth; *Genistas*, *Habrothamnus elegans*, grown bush-fashion in pots, and similar plants that have flowered through the spring, should also now be cut back as far as required. These are better not cut in so closely as advised for the *Epacrises*, but, like them, will be much benefited by a somewhat closer atmosphere and by being damped overhead in the afternoons. If this is carefully done, so as to get the water well to the underside of the leaves, it will not only accelerate growth, but keep them free from their summer pest—red-spider. Prevention in this way is much easier than the necessity for recourse to more decided means when the insect has established itself upon the plants.

The small Otaheite Orange, so useful for winter flowering, should, when out of bloom, have its growth pushed on in a little warmth. This plant is subject to scale, and before any young growth is made they should be thoroughly cleansed with insecticide, using the sponge in preference to the brush, the latter being liable to scratch the leaves. Plants of varieties of large growth that have flowered should be similarly treated. *Oranges* of all kinds, whilst making their growth, must be well supplied with water, especially overhead, and be also slightly shaded from the sun. The Orange is a plant of comparatively easy growth, and naturally able to withstand a good deal of bad treatment without being killed outright; and to this, no doubt, may be attributed the indifferent condition in which they are often seen. When in a bad state the roots are generally few, and almost dormant at a time when they should be ramifying in all directions; when thus stunted and unhealthy the best course is to turn them out of their pots, reduce the balls considerably, put them in smaller pots, and place at once in moderate heat with a close moist atmosphere until the roots are unmistakably active and the growth is made: plants in such condition will be much benefited by a moderate bottom-heat of about 70°.

Coprosma Baueriana variegata is a very useful conservatory plant, its shiny variegated foliage being effective amongst flowering subjects, but through the winter it is liable to get bare of leaves, when it becomes unsightly. When in this state, it should now be cut back and kept a little warm in a moist atmosphere until it pushes growth; the points of the shoots thus cut away will at the present time strike much more freely than further on in the season—they will do either singly in small pots, or several placed round larger ones.

Azaleas.—In time plants of these sometimes get somewhat large and straggling in their branches, having a thin open appearance, or they get too large. In either case they may at the present time be cut back, but this must not be carried too far, or to the extent that it would be safe to go with Camellias in a similar state; neither must the cutting back be attempted if the roots are not in good condition. If the plants are large they may with safety have their branches shortened a foot or so all round. They must then be placed in a close, warm atmosphere, syringed twice a-day overhead, keeping the soil rather dry until they have made an inch of growth.

Deutzia gracilis that has been forced through the winter and has done flowering will now be pushing growth. The best way of treating this plant, and by which it may be kept in a healthy, useful condition for a number of years, is to cut out the old wood after it has flowered, depending for next year's bloom upon the young shoots that push up freely from the collar when the plant has plenty of roots. To ensure its blooming satisfactorily every year when forced it should, after flowering, be kept in a little heat, such as a vinery at work, until the growth is made and flower-buds formed. If in small pots give them a moderate shift; if they do not require more room they will whilst growing be benefited by manure-water twice a week or so. Hardy shrubs, such as *Ghent Azaleas*, *Rhododendrons*, the *double Prunus*, *Laurustinus*, &c., that have been used for conservatory decoration, should, when done flowering, be placed for a few weeks in a cool house, instead of, as too often seen, turned out-of-doors and neglected; if allowed to harden a little before being exposed they may be induced to flower again next winter. *T. Baines.*

Orchids.—At the present time, and for four months to come, most of the plants will be in a growing state. The temperature should now be increased

in the East Indian house to from 70° to 90° by day, and to from 65° to 70° by night. The Cattleya-house should be from 65° to 75° by day, and from 60° to 65° by night. The Odontoglossum-house should be 60° to 70° by day, and 55° to 60° by night. Should there be any plants that are not growing satisfactorily, ascertain at once the cause of it, and apply a remedy; the roots must be examined, and if it is found that any part of them are decaying—*i.e.*, rotting—which is frequently the case if they are kept too wet, the parts should be cut away to prevent the disease being carried into the plant. If the plant can be turned out of the pot without damaging the healthy roots, so much the better; the roots can then be washed, and repotted into moderately dry material, of a kind suitable to the plant which is to be operated upon, and very little water should be given until new roots, are formed. It should be borne in mind that air-plants do not require a large mass of material to root into. Shading will become more and more necessary as the season advances; at the same time air will be required. It often happens that when the blinds are rolled down the air is excluded from the house, except that entering by way of the bottom ventilators. Where sliding top-lights are in use, and the canvas is allowed to lie close down on the glass, it effectually prevents the escape of heat. This does not so much matter in the case of many East Indian Orchids, but to the majority of pseudobulbous plants it is very injurious. When the sun is sufficiently powerful for the plants to require shading there should be a free circulation of air, and to allow of this the canvas must be kept off the glass. The most easy way to do this is to raise the lath on which the canvas is nailed on 3 inch blocks of wood screwed firmly on the top of the rafter: a piece of quartering 3 inches by 1½ inch should be screwed on each rafter, or where rafters are not used the ends may be made fast to the top and bottom rail of the house, at distances of about 5 feet apart. It is necessary to nail thin laths about 3 feet apart to prevent the canvas "sagging" on the glass when wet; thus the roller and blind will be kept 3 inches above the glass, which will allow a free circulation of the air. Plants hanging very near the glass will be especially benefited, for when the sun is shining brightly the glass becomes much hotter with the shading lying upon it than when there is no shading at all. Some of the Mexican Orchids will be found to succeed better in the greenhouse for the next four months. *Lælia majalis* should be grown in the full sun and air; if grown in a shaded house it is a shy bloomer. The *Stanhopeas* should be examined frequently, and if found at all dry should be well soaked in tepid water: any that are starting into growth may be repotted. *Zygopetalums* may now be repotted. A general routine will now and for some time to come be required in the matter of watering and syringing. *G. Baker, Clapham Common.*

FLOWER GARDEN, &c.

The Parterre and Mixed garden. — *Erythrinas*, which make very effective plants for the centres of large beds, should now be started with a view to forwarding them for planting or plunging out in May; and if desirable to increase the stock, a portion of the young shoots when formed may be taken off with a heel and be inserted in heat, where they will soon strike. Any *Cannas* not yet started should at once be placed in gentle heat. Any old half-spent hot-bed, containing a few rotten leaves on the surface, will do admirably for the purpose of plunging them in and will save potting. *Caladium esculentum*, *Aralia papyrifera*, and many other fleshy-rooted plants used for bedding out, may be treated in the same way, and by so doing space, time, and labour in potting may be saved. Seed of the fast growing subtropical plants, such as *Zea*, *Ricinus*, *Beta Cicla*, *Amaranthus*, &c., may now be sown, and these will be found far more satisfactory than others of the same varieties sown at an earlier date. The different *Solanums*, *Chamæpeuce*, *Uhdeas*, *Acacias*, *Ferdinanda*, and such like subjects, advised to be sown in February or March, should be potted on and nursed in gentle heat to get them large and strong. *Coleus*, *Alternanthera*, *Iresine*, and other tender quick-growing plants to be used for bedding purposes may still be propagated, as there is ample time to grow them to a good size by the first or second week in June, which is quite as soon as it is safe to venture them out. As soon as struck, such things as the above, together with *Lobelias*, *Verbenas*, dwarf *Ageratums*, and many other fast-growing bedding plants, should be pricked out in frames prepared for the purpose. If planted in leaf soil, or old spent Mushroom dung, they lift with large balls without a check, and treated in this way it saves a large amount of time and labour in potting, watering, &c., and is far preferable in every way. It will now be necessary to transfer from the houses to cold pits and frames all the hardier varieties of bedding plants that may be standing under the shade of Vines, Peaches, &c., so as to gradually harden them off and inure them to the sun and air.

Ivy-clad walls and buildings should now be gone over with the shears, and be closely clipped in, so as to shave off all the old leaves of last season. Their appearance will not be of the most desirable kind for a week or two, but they will amply repay any little loss of effect for the time by clothing themselves with lovely fresh green foliage, free from dirt or discoloration. *J. Sheppard.*

FRUIT HOUSES.

The Orchard-House.—The present spring has been remarkably backward, and this circumstance has of course operated upon fruit trees in unheated structures, such as orchard-houses, as well as upon those in the open air, but with no injurious results, as far as can be at present perceived, and the prospects of the fruit crops of all kinds are all that can be desired.

Apricots are now fairly set, and where they are in very great abundance they should be at once slightly thinned out. At the same time that this is being done, strong or superfluous shoots should be rubbed off or pinched back, so as to secure symmetrical development of the trees, which are also about this time not unlikely to be attacked by a small caterpillar, which preys upon the young shoots and leaves; these are easily discovered by the leaves being drawn together, and when this is observed they should be carefully unfolded and the caterpillar removed, or it may be effectually destroyed by gently pinching the leaves enclosing it. The trees should also at this stage be abundantly supplied with water, whether they are growing in pots or planted out; well diluted manure-water should also be given about twice a-week. This is more particularly necessary as regards trees in pots, which may also about this time have the surface-dressing renewed. If they are carrying a heavy crop of fruit, the pots being full of roots—which may be supposed to be case—should the soil become very frequently dry the bricks on which the pots are placed may be withdrawn, allowing them to rest upon the surface of the prepared border of soil, into which the roots may be allowed to travel freely for a time; and should any undue luxuriance be the result of this treatment, it can readily be checked by raising the pot and severing a portion of the roots which may have entered the border.

The fruit of the *Peach* and *Nectarine*, although less forward than that of the *Apricot*, will now be set, and as such trees are seldom at this stage altogether free from aphis, the garden engine must be brought into active operation about 7 o'clock on the morning of every day which promises to be fine. Should these syringings fail recourse must at once be had to fumigation, and this should be done during calm evenings, when the trees are perfectly dry. In cases, however, where only a few trees are infested with green-fly, these may be cleaned by the use of quassia water, prepared by boiling quassia chips, after the rate of an ounce of chips to a quart of rain-water, for ten or more minutes; and adding to this while cooling an ounce of soft soap. This when cold should be applied to the infested trees with a soft painter's brush, or the trees may be well dusted with Pooley's tobacco powder, during any still evening; and this, together with the dead or paralysed insects, will be washed off by the engine on the following morning. About this time mildew sometimes attacks *Peach* and *Nectarine trees*, and whenever this occurs no time must be lost in applying sulphur (the only known remedy) in some of its forms—either dusting the trees well with flowers of sulphur well dried, or syringing with Ewing's Infallible Composition, which is the most convenient and effectual remedy which can be applied to fruit trees suffering from mildew. Abundance of air is necessary to induce *Cherry trees* under glass to set their fruit freely, and they are also exceedingly liable to be attacked by the black or Cherry fly, which it is somewhat difficult to destroy, but which will, nevertheless, generally succumb to the incessant use of the syringe or garden engine, or repeated fumigations. Should the fruit set in great abundance it may, in some cases, be necessary to thin it out, and this should be done carefully, using for the purpose Grape scissors. *Fig trees*, in pots or otherwise, are now swelling their fruits rapidly, and should be abundantly supplied with water, as if they are even once allowed to become too dry the check they will sustain will be likely to cause the young fruit to drop off. Ventilation must now be very carefully attented to, and the ventilators should be opened every morning about 7 or 8 o'clock, unless during the prevalence of very cutting north-east winds, &c., when it may be necessary to keep the ventilators closed, or nearly so, and for some time to come it will be advisable to close them at about 6 P.M.; but whenever frost, or a very low night temperature, is apprehended, they should be closed somewhat earlier, in order to enclose a considerable amount of solar heat. No danger need be apprehended from a somewhat high sun temperature during the latter portion of the afternoon, and by this means an undue depression during the night or early morning may, to some extent, be prevented. *P. Grieve, Culford, Bury St. Edmunds.*

KITCHEN GARDEN.

Amongst other matters which will soon demand attention here will be the thinning out of the various kinds of spring-sown crops of roots, such as *Onions*, *Parsnips*, and *Carrots*. This operation is best done before the plants become large, and therefore it should not be unnecessarily delayed much beyond the time when they can be properly handled. A large supply of what are termed *Button Onions* are generally wanted. Instead of sowing seeds specially for this purpose, replant into drills thickly those which are drawn from the main crop when thinned out. These give the requisite supply of such, and of *Spring Onions* also, without necessitating any interference with the regularity in appearance of the chief beds. These matters are of importance where appearances are studied, which should always be the case in every garden of any pretensions. *Parsnips* should be thinned out at once finally to about 9 inches or a foot apart, as the nature of the soil or circumstances require. In thinning out *Carrots*, as many more as those which will ultimately be required should be left, in order to give a supply of them in a young state. These can be obtained in this way by judicious thinning, without detriment to those which are left for the main crop, which should finally be left at from 9 inches to a foot apart for long varieties, and 6 inches for the shorter kinds. Set out *Chicory* to about 9 inches or a foot apart, and leave *Scorzonera* and *Salsify* at about 6 inches from each other. Plant the main crop of *Dwarf French Beans* and *Scarlet Runners*; the former should include that remarkable variety, Canadian Wonder, and among the latter Carter's Champion should be grown, as being fine for exhibition purposes, and equally as prolific as the common variety. In both cases plant the Beans in single rows about 6 inches asunder; there is no advantage in having double rows, as but two side surfaces can be fully exposed to the operating influences of those elements which are the essence of success with this subject. The antiquated practice of planting double rows of Scarlet Runner Beans has not yet become obsolete at many places. Experience in practice will, however, soon convincingly demonstrate its futility, and cause its abandonment. The cultivation of this vegetable can be varied according to circumstances in well enriched and prepared soil. Where long sticks are employed the rows should be 6 feet apart; at a less distance with shorter sticks, by stopping the plants when they reach the top; and where sticks are not procurable, it will do exceedingly well without them planted in rows about 3 feet apart. Surface heat, with plenty of moisture at the roots, are the elements which are most suitable to *Runner Beans*, therefore places possessing these advantages should be selected for them. We plant in drills 3 inches deep; in heavy soils 2 inches will suffice. After the Beans are up in light soils, raise the soil about 3 inches on either side of the row about 18 inches wide, slightly inclining the fall towards the row; this will arrest the penetrating power of the sun's rays until the sticks are placed, when an addition of from 4 to 6 inches of mulching material should be applied. This when well saturated will preserve the equability of moisture which is so desirable. Encourage growth by frequently stirring the surface soil between the rows, and, if necessary, by watering the Spanish section of *Onions* which were sown last autumn. These will now be coming in, and supplying the lack of old Onions, which now are becoming soft. The *Early White Naples* and *Giant White Tripoli* are much esteemed by cooks generally, and by French ones particularly, because of their whiteness. Care should be exercised in removing those for use, so as to leave some of the most promising in appearance, if fine examples are likely to be required. Take advantage of suitable weather to surface hoe the quarters, and wherever weeds are likely to be found. Use such available places as those between Peas which are being sown now for the sowing of *Spinach*, *Lettuce*, or similar subjects. Look over *Cauliflower plants*, and remove those which have buttoned, and replace them with plants from the late sowing. Keep up plentiful supplies of salading, which, to be tender and good, will require liberal supplies of water in hot dry weather. As Potatos protrude, draw the soil lightly up round them. At the beginning of May make a sowing of *Broccoli* for late use; this will also be a good time for making another sowing of *Savoys*, and the newly-introduced dwarf varieties, such as King Koffee, Tom Thumb, and Early New, are decided improvements on the large section both in regard to quality and usefulness.

In the glass department continue to give constant attention to stopping, tying, and watering early-fruiting Tomatos; shift on into 5-inch pots those which are to be placed against the walls outside. Prepare Gherkin and ridge Cucumbers for planting out under hand-lights or otherwise, and likewise Vegetable Marrows. Liberally supply Carrots with water, and sprinkle the surface of them every morning. *G. T. Miles, Wycombe Abbey.*

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
For the Week ending Wednesday, April 28, 1875.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Mean of 18 Years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure from Mean from Average of 60 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
	In.	In.	°	°	°	°	°	°			In.
April 22	29.70	−0.06	43.2	38.0	5.2	39.0	−8.8	36.7	92	E.N.E.	0.10
23	29.82	+0.05	52.1	35.3	16.8	42.2	−5.8	37.3	84	E.N.E.	0.00
24	30.03	+0.27	51.1	33.2	17.9	41.8	−6.4	33.3	73	E.N.E.	0.00
25	30.10	+0.33	59.1	30.0	29.1	44.1	−4.2	38.4	80	W.; SSW.; E.N.E.	0.00
26	29.98	+0.21	61.2	36.8	24.4	48.3	−0.1	36.6	64	S.; S.S.W.	0.00
27	29.85	+0.08	69.0	45.4	23.6	56.4	+7.8	44.3	64	S.S.E.; W.	0.00
28	29.95	+0.18	70.1	47.9	22.2	57.4	+8.6	47.8	70	WSW	0.00
Mean	29.92	+0.15	58.0	38.1	19.9	47.0	−1.3	39.2	75	ENE.; S.	sum 0.10

April 22.—Overcast and dull day. Occasional rain: cold.
— 23.—Fine, bright, mild, and partially cloudy.
— 24.—A fine bright day. Little hoar-frost on ground in early morning.
— 25.—Fine, bright, and partially cloudy throughout.
— 26.—Fine, mild, partially cloudy, misty.
— 27.—A fine mild day.
— 28.—A fine warm day; light clouds were prevalent.

——In the vicinity of London, the reading of the barometer at the level of the sea decreased from 30.16 inches at the beginning of the week to 30.10 inches by the early morning of the 18th; increased to 30.19 inches by the evening of the 19th, and remained almost without change at this reading till the morning of the 20th; it then decreased to 29.85 inches by the afternoon of the 21st; increased to 29.93 inches by the evening of the same day; decreased to 29.88 inches by the afternoon of the 22d; and again increased to 30.28 inches by the end of the week. The mean reading for the week was 30.06 inches, being 0.21 inch lower than the value of the preceding week.

The highest temperatures of the air at 4 feet above the ground ranged from 72° on the 20th, to 43¼° on the 22d, the mean value for the week was 59⅛°. The lowest temperatures of the air varied between 40⅓° on the 21st and 33⅓° on the 24th, the mean weekly value being 37⅞°. The mean daily range of temperature in the week was 21⅞°, ranging from 32° on the 20th to 5¼° on the 22d. The mean daily temperatures of the air, and the departures from their respective averages, were as follows:—18th, 48°, − 1°; 19th, 51°.9, + 4°.7; 20th, 54°.2, + 6°.8; 21st, 53°.5, + 5°.9; 22d, 39°, − 8°.8; 23d, 42°.2, − 5°.8; 24th, 41°.8, − 6°.4. The mean temperature of the week was 47°.2, being 0°.7 below the average, as deduced from observations extending over a period of sixty years.

The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in sun's rays, were 131° and 129° on the 19th and 20th, but on the 22d day the sky was overcast throughout, and the reading was no higher than 54⅓°. The lowest readings of a thermometer placed on grass, with its bulb fully exposed to the sky, were 31° and 29⅔° on the 23d and 24th, but on the 21st 39⅓° was the lowest reading. The mean for the seven low readings was 34°.1.

The direction of the wind was E. and E.N.E., and its strength very gentle.

The weather during the week was fine and mild, with the exception of the 22d, which was cold, dull, and the sky overcast, and frequent rain fell.

Rain fell on two days; the amount measured was 0.31 inch.

In England, the extreme high temperatures observed by day varied from 80° at Sunderland to 66° at Norwich, with a general average all over the country of 71⅞°. The extreme low temperatures observed by night ranged between 38° at Newcastle-on-Tyne and 29° at Hull, with a general average of 33⅓°. The mean of the extreme ranges of temperature in the week was 38⅓°, the greatest range being at Sunderland, 46°, and the least at Newcastle-on-Tyne, 29°. The mean high day temperatures ranged from 66⅔° at Manchester to 57° at Newcastle-on-Tyne, the general average being 61⅓°. The mean low night temperatures varied between 43⅔° at Truro and 32⅓° at Norwich, with an average value of 38⅓°. The mean daily range of temperature in the week was 23°, ranging from 28° at Nottingham to 16⅓° at Newcastle-on-Tyne. The mean temperature of the air for the week was 48°, being 7⅓° lower than the value for the corresponding week in 1874; the highest occurred at Manchester, 51⅓°, and the lowest at Norwich, 43⅓°. Rain fell to the depth of a quarter of an inch at most stations in the South of England, but in the midland counties no rain fell. The average fall was one-tenth of an inch.

The weather during the week was fine, bright, and mild, with the exception of the 22d, which was cold and dull; the sky was overcast throughout, and occasional rain fell. Snow fell at Bristol on the 22d instant.

In Scotland, the highest temperatures ranged from 76⅓° at Aberdeen to 68⅓° at Glasgow. The lowest temperatures varied from 34⅔° at Aberdeen to 26° at Perth, their respective averages being 71⅓° and 30½°. The mean range of temperature was 41°. The mean temperature of the air for the week was 48⅓°, being 1° warmer than that of England, and 5° lower than the value for the corresponding week in 1874. The highest happened at Greenock, 49⅓°, and the lowest at Glasgow, 47⅓°. No rain fell at any station, with the exception of Aberdeen, where 0.01 inch only was measured.

At Dublin, the highest temperature was 72°, the lowest 27°, the mean 47⅔°, and rainfall 0.31 inch.

JAMES GLAISHER.

Variorum.

Bamboos.—Early last year the *Straits Times* had a note on the deadly quality said to belong to certain small black filaments found within the hollow stems of the Bamboo, and which the natives of Java employed to cause the death of obnoxious persons. These black filaments are clothed with exceedingly minute sharp hairs. Introduced into food and eaten, they cause irritation and violent inflammation, terminating in death. This may be true or not, but the Editor of the *Bulletin de la Société d'Acclimatation de France*, in making an allusion to it, described it as a deadly poison, and thereby created quite a commotion throughout the South of France, where the cultivation of the Bamboo is now becoming very general. This unfortunate slip provoked a great deal of correspondence, and also a very interesting article on the uses of the Bamboo, contributed to the above-named journal in December last by Dr. Vidal. Some of the facts, if not absolutely new, are worth reproducing, as the author writes from personal experience in China and Japan. The purposes to which different parts of the Bamboo are applied are innumerable, and many of them well known to our readers. We shall confine ourselves here to one or two less widely known. In a climate where it will succeed, the Bamboo is one of the best things for shelter, as it will resist the most violent winds, and it is at the same time a great ornament to the garden. In Europe it will flourish only in the most favoured localities in the South, that is to say, attain anything approaching its normal dimensions. We do not here include the hardier smaller growing species occasionally seen in the open air in British gardens. The species commonly planted in Japan for shelter and shade is called Medaké, or Onnataké; but there is another more slender species, called Hatchikou, used for the same purpose. For forming dense hedges a dwarf species, named Chinodaké, is commonly employed. It is a very hardy kind, growing in great profusion on the hills. For ornamental purposes in the flower garden a smaller species with slender stems, spotted with black, is frequently cultivated—it is the Soudzoutaké. In addition to the use of the Bamboo in constructing buildings, in furniture, &c., it is also extensively used both in China and Japan as a vegetable. It is taken to all the markets in large quantities all through the spring, and is highly esteemed by the inhabitants of both countries. The part eaten is the young tender shoots, taken off soon after they appear above the ground. They vary in length, from 3 or 4 inches to a foot, or a foot and a half, according to the species. Although probably all of the species are edible, only a very few are used as an article of diet. Those most cultivated for this purpose are called, in Japanese, Mo-so, Otechikou, Hatchikou, and Medaké. The Chinese eat it in a fresh state in the spring, and preserve it in a sort of brine for use during the rest of the year. Not only the natives, but also the resident Europeans, eat it served up with white sauce or gravy sauce. Only quite young shoots should be taken, and all the preparation they require is washing. They need, however, a great deal of cooking—an hour and a half, or two hours boiling, at least—a fact that will tell against them with the cooks.

Answers to Correspondents.

Aucubas (Q. 49, p. 540): In answer to "J. F. M.," I may say that Aucubas may be budded in the same manner and at the same time as Roses, and grow as readily. I have at this time a bud, inserted last June, now 4 inches long, all bloom. *J. H. N.*

Bedding-out: *Young Gardener.* Your proposed arrangement for planting in circular beds seems a very good one. We do not quite understand your other question.

Bedding Pansies: *W. Oxford.* The strain seems to be a good one. You should send plants to Mr. Barron, at Chiswick, for trial against the standard kinds. The merit of bedding varieties depends mainly on their habit as regards continuous flowering, and this cannot be judged of from cut specimens. Nos. 5 and 6 appear likely to be the most useful, though Nos. 3 and 4 are good in colour and fine in form. The white edges which show near the eye of the other two are defects. Whole colours and fertility of blossom are the essential qualities in bedding Pansies.

Corynophallus; *X. Y. Z.* We are not aware of Corynophallus Afzellii having any synonyms. There are many forms of it, however, and three of these (C. elegans, C. spectabilis, and C. latifolia) were described, together with the typical plant, at p. 1619, 1872.

Crocuses: *R. C. Walker.* The defect you mention may possibly be attributable to disease such as attacks the Gladiolus, Tulip, &c. We can suggest no other cause.

Double Auricula: *H. Cannell.* The flower sent is very handsome, large, bright yellow, with about three rows of petals. There is, however, a double yellow variety in cultivation, but whether distinct from this or not we have no means of determining.

Insects: *Abergele.* The leaves of Holly are infested with the larvæ of a minute two-winged fly (Phytomyza ilicis), which eats the fleshy part of the leaves, leaving the two surfaces entire. We know no better remedy than squeezing the infested part between the fingers, or by picking off and burning the infested leaves. *I. O. W.*

Marantas: *X. Y. Z.* The following sorts are deciduous—namely, M. tubispatha, M. leopardina, and, we believe, M. concinna.

Names of Plants: *A. Bennett.* Centaurea nigra, var. decipiens. — *Kit.* Epidendrum sanguineum. — *A. G.* Calceolaria violacea.—*Amaryllis.* Sprekelia formosissima.—*An Anxious Inquirer.* Pyrus japonica, Japan. It is difficult to say what may be the cause of the paleness of some of the flowers; it may be due to a want of direct sunlight, or an insufficient supply of the colouring principle in those parts, or to other and unknown causes.—*D. C.* The true Citrus Aurantium, L. We have no means of determining the particular variety. — *M. J.* 1, Spiræa prunifolia flore-pleno; 2, Lathræa squamaria; 3, Petasites vulgaris; 4, Chrysosplenium oppositifolium; 5, Luzula campestris.

Nectarines: *R. H.* Perhaps it arises from scalding during some of the very hot days we have had recently; or possibly a chill. It is difficult to say without knowing all the circumstances. The appearance of the fruit is suggestive of scalding.

Pelargoniums: *C. Burley.* The petals had all fallen off when the flowers reached us, and they were in too hopeless a confusion for us to deal with.

Roses: *Young Amateur.* The leaves appear to have been caught by a bright sun while wet from syringing. There is no other cause of miscbief apparent.

*** Correspondents are specially requested to address, post-paid, all communications intended for publication to the "Editors," and not to any member of the staff personally. The Editors would also be obliged by such communications being posted as early in the week as possible. *Letters relating to Advertisements, or to the supply of the Paper, should be addressed to the Publisher, and* not *to the Editors.*

☞ Foreign Subscribers.—We are requested by the Publisher to desire Foreign Subscribers sending Post Office Orders, to be good enough to write to the Publisher at the same time.

Communications Received:—T. Shortt.—W. B.—J. Scott.—J. W.—R. P.—E. A. M.—G. G. G.—P. Fry.—J J. M.—G. Wallis.—N. E. B.—W. M. (next week).—T. J.—T. P.—J. C.—C. P.—R. G.—G. S.—R. B.—G. T. M.—J. C.

Markets.

COVENT GARDEN, April 29.

A moderate rate of business is being done here. Importations are heavy, and a large quantity of inferior late Apples are in the market, causing a dull trade for them. New Potatos from Lisbon and Malta are easing the market, frame Potatos having fallen to 9*d.* and 1*s.* *Thos. Taylor, Wholesale Apple Market.*

Fruit.

	s. d. s. d.		s. d. s. d.
Apples, per ½-sieve	3 0– 4 0	Oranges, Malta, doz.	2 0– 3 0
Grapes, English, per lb.	8 0–20 0	Peaches, per doz.	21 0–48 0
— foreign, do.	1 6– 4 0	Pears, p. doz.	4 0–12 0
Lemons, per 100	8 0–12 0	Pine-apples, p. lb.	3 0– 6 0
Nuts, Cob, p. lb.	2 0– .. 0	Pomeloes, each	0 6– 1 0
Oranges, p. 100	8 0–12 0	Shaddocks, each	2 0– 3 0
— Tangierine, doz.	1 6– 2 6	Strawberries, per oz.	1 0– 2 0
		Walnuts, p. bush.	16 0– ..

Vegetables.

	s. d. s. d.		s. d. s. d.
Artichokes, Fr., doz.	4 0– ..	Leeks, per bunch	0 2– 0 4
Asparagus, English, per bundle	5 0– 6 0	Lettuces, per doz.	1 6– ..
— French, do.	4 0–15 0	Mint, per bundle	1 6– ..
Beans, French, p. 100	4 0– ..	Mushrooms, per pott.	1 0– 2 0
— broad, p. ½-sieve	10 0– ..	Onions, young, bun.	0 4– 0 6
Beet, per doz.	1 0– 2 0	Parsley, per bunch	0 9– 1 0
Cabbages, per doz.	1 0– 2 0	Parsnips, p. doz.	0 9– 1 0
Carrots, p. bundle	0 6– 0 9	Peas, per quart	8 0– ..
— French, do.	2 0– ..	Radishes, per bunch	0 2– 0 4
Cauliflowers, per doz.	2 0– 6 0	Seakale, per bundle	1 0– 1 6
Celery, per bundle	1 6– 2 0	Shallots, per lb.	0 3– ..
Cucumbers, each	1 0– 2 6	Salsify, per bundle	1 6– ..
Endive, per doz.	1 0– 2 0	Sprue, French, bund.	1 6– ..
Herbs, per bunch	0 2– 0 4	Turnips, per bundle.	0 6– ..
Horse Radish, p. bun.	3 0– 5 0	— French, p. bund.	2 0– ..

Potatos:—Early Shaws, 110*s.*; Regents (early), 120*s.*; best, 160*s.*; Early Dons, 120*s.*; and Victorias, 160*s.* per ton.

CUT FLOWERS.

	s. d. s. d.		s. d. s. d.
Araleas, p. 12 sprays	0 6– 1 6	Lily-of-the-Valley, 12 sprays	1 6– 3 0
Camellias, 12 blooms	2 0– 6 0	Mignonette, 12 bun.	4 0– 6 0
Carnations, 12 blooms	1 6– 3 0	Narcissus, per doz...	0 6– 1 0
Cineraria, p. bunch..	0 9– 1 6	Pelargoniums, 12 spr.	0 9– 1 0
Cyclamen, 12 blooms	0 2– 0 6	— Zonal, do. ..	0 6– 1 0
Deutzia, per bunch..	0 6– 1 0	Primula, dbl., p. bun.	0 9– 1 6
Eucharis, per doz. ..	6 0–12 0	— single, do. ..	0 4– 0 9
Euphorbia, 12 sprays	1 6– 6 0	Roses, indoor, p. doz.	2 0– 6 0
French Lilac, p. bun.	3 6– 5 0	— French, do. ..	1 0– 2 6
Heliotropes, 12 sprays	0 6– 1 0	Spiræa, 12 sprays ..	2 0– 4 0
Hyacinths, per bunch	0 9– 1 6	Stephanotis, 12 sprays	6 0–12 0
— Roman, per 12 spikes	1 0– 2 0	Violets, per 12 bun...	1 0– 3 0

PLANTS IN POTS.

	s. d. s. d.		s. d. s. d.
Araleas, per dozen..	24 0–60 0	Hyacinths, per doz.	6 0–18 0
Begonias, do. ..	6 0–12 0	Lily of the Valley, 12 sprays, about ..	1 6– 3 0
Bouvardias, do. ..	9 0–18 0	Mignonette, do. ..	6 0– 9 0
Calceolarias, do. ..	9 0–18 0	Myrtles .. do.	3 0– 9 0
Cineraria, do. ..	6 0–15 0	Pelargoniums, dble., per doz. ..	6 0–12 0
Cyperus, do... ..	6 0–12 0	— Scarlet, do. ..	6 0– 9 0
Deutzias, do. ..	8 0–18 0	Roses, do. ..	12 0–60 0
Dracæna terminalis	30 0–60 0	Solanums, do. ..	6 0–18 0
— viridis, per doz.	12 0–24 0	Spiræa, do. ..	12 0–24 0
Ficus elastica ..	1 6– 7 6	Stock, do. ..	6 0– 9 0
Fuchsia, per doz. ..	6 0–18 0		
Gardenias, do. ..	24 0–60 0		
Heaths, in var., doz.	12 0–30 0		

SEEDS.

LONDON: *April* 28.—A fair retail demand still prevails for Clover seed; stocks remaining on hand being almost unprecedentedly low, prices for all varieties keep very firm. For Lucerne seed there is a good inquiry. Sainfoin is cheaper. A large business at the recent great advance in values has been doing in white Mustard and sowing Rape seed. Spring Tares must be quoted 1*s.* to 2*s.* per quarter higher on the week; some shipments of this article are being made to France. For Hemp and Canary seed the tendency of currencies is upwards. White Millet keeps in slow request. English Linseed is exceedingly scarce. *John Shaw & Sons, Seed Merchants*, 37, *Mark Lane, E.C.*

CORN.

At Mark Lane on Monday English Wheat sold steadily at last Monday's prices. Barley was in very poor request, and malting descriptions were generally offered at a slight decline. Grinding produce supported the rates of Monday se'nnight. Malt was in excess of the demand, and occasionally lower. Sound Oats improved from 3*d.* to 6*d.* per quarter. Maize was easier to purchase. Beans and Peas were without appreciable alteration. Flour was difficult to move, even on rather lower terms.—On Wednesday the market was dull, the fine brilliant weather and a change in the wind favourable to the vessels homeward bound naturally creating caution on the part of buyers. Wheat was slightly cheaper than on Monday, so also was Barley, but Oats maintained the advance established on that day. Maize was flat, and the quotations for Beans, Peas, and flour had a downward tendency.—Average prices of corn for the week ending April 24:—Wheat, 43*s.* 4*d.*; Barley, 41*s.* 1*d.*; Oats, 29*s.* 9*d.* For the corresponding week last year:—Wheat, 60*s.*; Barley, 49*s.* 11*d.*; Oats, 28*s.* 11*d.*

CATTLE.

At the Metropolitan market on Monday choicest quality beasts were not very plentiful, and were readily disposed of. Prices generally were rather improved, although inferior kinds did not move off quickly. In sheep there was a cheerful demand for all kinds at rather higher rates. Choice lambs and calves were in request, but second-rate met with a dull sale. Quotations:—Beasts, 3*s.* 8*d.* to 4*s.* 6*d.*, and 5*s.* 6*d.* to 6*s.*; calves, 4*s.* 6*d.* to 5*s.* 8*d.*; sheep, 5*s.* 2*d.* to 5*s.* 6*d.*, and 5*s.* 8*d.* to 6*s.* 4*d.*; lambs, 7*s.* 4*d.* to 7*s.* 8*d.*; pig, 4*s.* 4*d.* to 5*s.* 6*d.*—Trade in beasts was dull on Wednesday; choice qualities, however, made nearly Monday's prices. For sheep the quotations of the previous market day were pretty well maintained throughout. Choice lambs and calves were in good demand at fully late rates.

HAY.

The Whitechapel report states that, with moderate arrivals and a steady demand, the value of all kinds of fodder has been maintained. Prime Clover, 100*s.* to 130*s.*; inferior ditto, 85*s.* to 95*s.*; prime meadow hay, 90*s.* to 124*s.*; inferior ditto, 55*s.* to 75*s.*; and straw, 35*s.* to 40*s.* per load. Cumberland Market quotations:—Superior meadow hay, 120*s.* to 130*s.*; inferior, 92*s.* to 112*s.*; superior Clover, 126*s.* to 135*s.*; inferior, 100*s.* to 110*s.*; and straw, 40*s.* to 45*s.* per load.

POTATOS.

The Borough and Spitalfields reports state that sound Potatos command a ready sale and rather higher prices, but inferior sorts, of which the supply principally consists, are dull and cheaper. Quotations:—Regents, 95*s.* to 130*s.*; Victorias, 100*s.* to 140*s.*; Flukes, 110*s.* to 150*s.*; Rocks, 65*s.* to 80*s.* per ton.—Last week's imports into London comprised 20,694 bags from Antwerp, 2126 bags, 8350 sacks, and 471 tons from Dunkirk; 561 bags, 536 sacks Boulogne, 535 bags Harlingen, 120 tons Ghent, 117 boxes Lisbon, 331 sacks Malta, and 10 casks from Madeira.

COALS.

There was an active demand at market on Monday, at last prices. Dulness characterised business on Wednesday, and house coals gave way 1*s.* per ton; Hartleys, however, advanced 6*d.*

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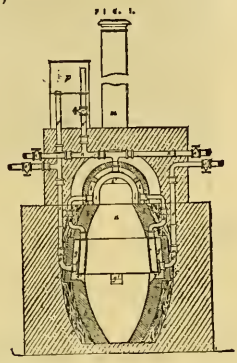

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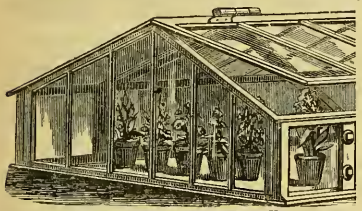
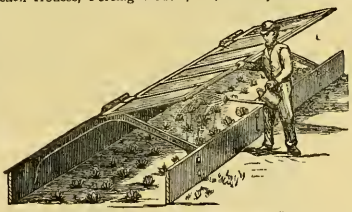
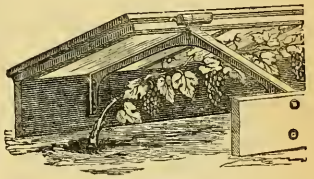


AS A LAWN CONSERVATORY.



FOR PLANTS OR VEGETABLES.



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Instead of having to remove or slide loose glass every time it is necessary to attend to the plants, we attach the glazed lights (21-oz.) with hinges to the frame of each light, thereby doing away with continual breakage of glass and loss of time. Two men can instantly remove a complete length, 12 ft. by 4 ft. wide; thus proving them to be really portable. They are made in the following sizes. One pair of ends is sufficient for any number of lengths, if set in a continuous row.

Cash Prices carriage paid to any Station in England on Orders amounting to 60s. and upwards.

	Price.	Ends per pair extra.
6 feet long by 2 feet wide	£1 5 0	5s. 0d.
12 feet long by 2 feet wide	2 10 0	5s. 0d.
6 feet long by 3 feet wide	1 15 0	7s. 0d.
12 feet long by 3 feet wide	3 5 0	7s. 0d.
6 feet long by 4 feet wide	£2 6 0	8s. 6d.
12 feet long by 4 feet wide	4 4 0	8s. 6d.
12 feet long by 5 feet wide	5 10 0	10s. 6d.
12 feet long by 6 feet wide	7 0 0	12s. 0d.

Lawn Conservatories, with Glass sides and ends, 12 feet long by 4 feet wide, £7 5s.; 12 feet long by 5 feet wide, £8 15s.; 12 feet long by 6 feet wide, £10.

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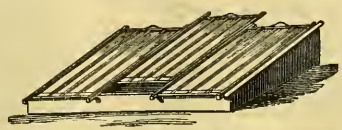

Cash Prices, carriage paid to any station in England when orders amount to 60s. and upwards.

4 feet long by 6 feet wide, 1 light	£1 17 6
8 feet long by 6 feet wide, 2 lights	3 5 0
12 feet long by 6 feet wide, 3 lights	4 17 6
16 feet long by 6 feet wide, 4 lights	6 7 6
20 feet long by 6 feet wide, 5 lights	7 17 6
24 feet long by 6 feet wide, 6 lights	9 7 6

Two-thirds allowed for Packing Materials when returned free to our Works. Cash or reference respectfully requested with transmission of all first orders.

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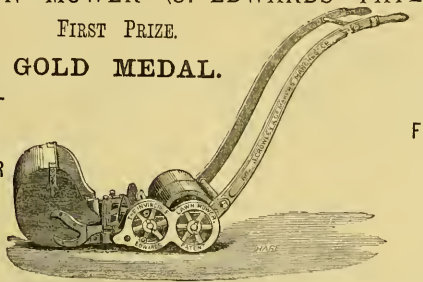

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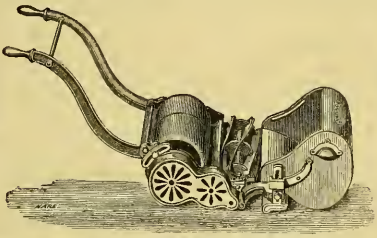

PIPES, CONNECTIONS.

NEW PATENT "CLIMAX" BOILER (1874). See p. 666, 1874, *Gardeners' Chronicle.*

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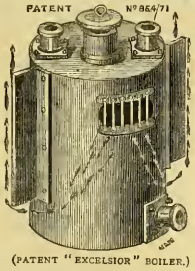
PATENT "EXCELSIOR" BOILER (1871).



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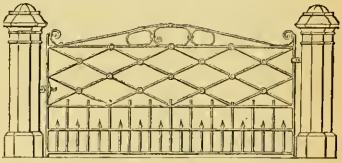

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WM. CUTBUSH AND SON beg to state that they have at all times on their Books MEN of VARIOUS QUALIFICATIONS, whose characters will bear the strictest inquiry. Any Gentleman making application would save time by clearly stating the duties to be undertaken, wages offered, &c., so that suitable Men may be selected.—Highgate Nurseries, London, N.

Head Gardeners.

JOHN LAING can at present recommend with every confidence several energetic and practical Men, of tested ability and first-rate character. Ladies and Gentlemen in WANT of GARDENERS and BAILIFFS, or GARDENERS for First-rate Establishments or Single-hand situations, can be suited, and have full particulars by applying at Stanstead Park and Rutland Park Nurseries, Forest Hill, London, S.E.

B. S. WILLIAMS, having at the present time several very excellent GARDENERS upon his Register, is desirous of placing them in Situations where great experience and trust are required. B. S. W. would at the same time beg to intimate that when a Gardener is applied for that the filling of the situation should be left with him, as that would prevent unnecessary correspondence and delay.—Victoria and Paradise Nurseries, Upper Holloway, London, N.

To Gardeners in Want of Situations,

WHOSE CHARACTERS WILL BEAR STRICT INVESTIGATION.

THE PINE-APPLE NURSERY COMPANY devote special attention to this important matter—proper Men to suitable Situations. For a GARDENER, or for a SITUATION, please send full particulars to Mr. JOHN BESTER, the Pine-Apple Nursery Company, Maida Vale, London, W.

GARDENER (HEAD), where two or more are kept.—Age 29, married, two children; twelve years' experience in Forcing all kinds of Fruit, Flowers, and Vegetables, also good Kitchen and Flower Gardener. Good reference to late employers.—Y. Z., Cooksbridge Nursery, near Lewes, Sussex.

GARDENER (HEAD), where two or more are kept.—Age 25, married; understands Gardening in all branches. Good character.—R. R., Post Office, Kingston, Surrey.

GARDENER (HEAD), where two or more are kept.—Age 30; fourteen years' experience in Forcing all kinds of Fruit, Flowers, and Vegetables, also good Flower and Kitchen Gardener. First-class character.—W. H. M., The Gardens, Aberaman Park, Aberdare, South Wales.

GARDENER (HEAD), where two are kept (or SINGLE-HANDED).—Age 29; ten years' experience in Flower and Kitchen Gardening. Good references.—G. A., Mr. Savage's, West Wickham, Kent.

GARDENER (HEAD), where three or more are kept.—Age 35, married, one child; thoroughly practical; fourteen years' experience, gained in three Noblemen's places. Four years' good character in present situation. —J. SMITH, Marshall's, Romford, Essex.

GARDENER (HEAD), to any Nobleman or Gentleman requiring the services of a good practical Man.—Age 30, married; understands the Growing and Forcing of Fruits, Flowers, and Vegetables. Good references as to abilities, &c.—J. WILSON, Allington Hall Gardens, Grantham.

GARDENER (HEAD).—In the prime of life, married, Scotch; is at present open to an engagement with any Nobleman or Gentleman requiring the services of a thorough practical man. Has lived in some of the leading places in Scotland, England, Wales, and Ireland.—P. H., 10, Baker Place, Edinburgh.

GARDENER (HEAD), in an extensive place, where good Gardening is required. Age 34, married, two children; Scotch.—W. E. BARRY, Esq., wishes to recommend his Gardener, who has been in his service five years, as above. Sixteen years' experience in large establishments. Character strictly good.—A. DONALDSON, Gardener, The Cedars, Norwood Green, Southall.

GARDENER (HEAD).—J. MASON, fifteen years Head Gardener to the late Jesse Watts Russell, Esq., Ham Hall, Staffordshire, is at liberty to engage with any Nobleman or Gentleman requiring a practical and persevering Man.—Ham, Ashbourne, Derbyshire.

GARDENER (HEAD).—J. W. LAURENCE, Gardener to the late Right Rev. Bishop Sumner, Farnham Castle, is at liberty to engage with any Nobleman or Gentleman requiring the services of an experienced Man.—Prospect Cottage, Upper Hale, Farnham, Surrey.

GARDENER (HEAD).—Age 33, married; understands Gardening in all its branches. Sober and persevering. Excellent character from late employer. — J., 20, Mountash Road, Sydenham, S.E.

GARDENER (HEAD).—Age 40, married, no family; well skilled in all branches of the profession.—W. B., Mr. Roache's, Tywning, Gloucestershire.

GARDENER (HEAD).—Age 40, married; understands the profession in all its branches. Three and a half years in last situation.—W. HUME, Seedsman, 11, New Road, Gravesend.

GARDENER (HEAD).—Age 44, married, no incumbrance; thoroughly understands every branch of Gardening, also Land and Stock. Three years' good character from the Gentleman he has left.—J. J., Mr. Pitts, Holmesdale Road, Reigate, Surrey.

GARDENER (HEAD).—Thoroughly understands the profession in all its branches. Good testimonials from late and present employers. — T. M., Mr. Bindley's, High Street, Burton-on-Trent.

GARDENER (HEAD, WORKING), where three or more are kept.—Age 25, married; thoroughly experienced in all branches of the profession. Five and a-half years' good character.—H. T., Northgate Nursery, Chichester, Sussex.

GARDENER (HEAD, WORKING).—Age 28, married; thoroughly understands all branches of the profession. Good character from last and previous places.—A. E. C., 18, Newcomen Road, St. John's Road, Tunbridge Wells.

GARDENER (HEAD, WORKING).—Age 33, married, one child (6½ years); thoroughly understands all branches of the profession.—H. H., Post Office, Henley-on-Thames.

GARDENER (HEAD, WORKING).—Age 38, married, no incumbrance; thoroughly understands the profession in all its branches. First-class references.—W. T., Northgate Nursery, Chichester.

GARDENER (HEAD, WORKING).—Married; thoroughly understands Vineries, Greenhouses, the Growing of Melons, Cucumbers, and Fruit, and is a very good Flower and Kitchen Gardener. Twenty-two years' experience; over seven years as Head Gardener with his late employer, from whom first-class references can be had for sobriety and efficiency, &c.—Address, stating wages, with all particulars, to W. F., Bucks Hill, near Rickmansworth, Herts.

GARDENER (HEAD, or SINGLE-HANDED). —Age 25, married; good practical knowledge of Flower and Kitchen Gardening, Forcing, &c.—X. X., Mrs. White's, Wells Lane, Streatham, Surrey.

GARDENER, in a Nobleman's or Gentleman's Garden, under a Foreman.—Age 21. Two years and seven months' good character from present situation.—F. R., New Hall, Bodenham, near Salisbury, Wilts.

GARDENER, in a Nobleman's or Gentleman's Garden, under the Foreman, where he is desirous of improving his knowledge of plants, &c., in the houses.—Age 23. Good knowledge of Outdoor-work. Three years in present situation.—A. H., The Gardens, Upper Gatton Park, Merstham, Surrey.

GARDENER, age 33, married, three children.—A GARDENER wishes to recommend a sober, honest, industrious, and trustworthy Man, or to take charge of a place where help is given. No objection to a Horse or Cow.—D. B., Wembley Park, Harrow, Middlesex.

GARDENER, age 35, married, two children. —Mr. Fox, Steward to Edward Leigh Pemberton, Esq., of Torry Hill, Sittingbourne, Kent, would be glad to recommend the above to any Lady or Gentleman requiring the services of a sober, industrious, working Man.

GARDENER (good WORKING).—Age 30, married, two children; understands Flower and Kitchen Gardening, and is willing to make himself generally useful. Six years' good character.—J. BUTLER, Foulmire, Cambs.

GARDENER and ESTATE BAILIFF.—Age 46, married; thoroughly good practical Gardener in every Department, and well up in the Management of Woods and Plantations, and the general Superintendence of Estate Repairs of all kinds, Grass Land, Stock, &c. Seven and a-half years' good character. — C. D., Mr. Savill's, Manor Farm, Clavering, Bishop Stortford.

GARDENER and BAILIFF. — Age 40, married; has had twenty-three years' experience in the cultivation of Pines, Vines, Peaches, Melons, Mushrooms, Stove and Greenhouse Plants, and Flower and Kitchen Gardening. Has also a thorough practical knowledge of Farming, the Management of Stock, and Buying and Selling. Wife can superintend Dairy, and thoroughly understands Poultry.—J. B., Messrs. Cripps & Son, Nurserymen, Tunbridge Wells, Kent.

FOREMAN, in a Nobleman's or Gentleman's Establishment. Good character from last and previous places. — W. R., 28, Newcomen Road, St. John's Road, Tunbridge Wells.

FOREMAN, in a Nobleman's or Gentleman's Garden.—Age 25; well up in Early and Late Forcing, also the Cultivation of Stove and Greenhouse Plants. Good reference.—H. E., The Wilderness Gardens, Whiteknight Park, Reading.

FOREMAN, in a good Establishment.—Age 23. Seven years' experience in all branches of the profession. Highest references as to character and ability.—W. S., 5, Mill Place, King's Road, Chelsea, S.W.

GARDENER (SECOND), in a Nobleman's or Gentleman's Garden. — Age 19. Two years' good character; has also gained some experience in his father's Garden.—J., Ratcliffe House, The Newlands, Peckham Rye.

GARDENER (SECOND), in the Houses, under a Foreman.—Age 22, respectable. Two years' good character.—A. B. C., The Olivers, Painswick, Gloucestershire.

GARDENER (UNDER), in a Nobleman's or Gentleman's Garden Preferred. — Age 20, sober and industrious; has a thorough knowledge of Stove and Greenhouse Plants, &c. Good character. — State wages, &c., W. W., Highgate Nurseries, London, N.

GARDENER (UNDER).—Age 21; has a good knowledge of Flower and Kitchen Gardening. Good recommendation.—J. L., Broad Oak, Milstead, Sittingbourne, Kent.

GARDENER (UNDER). — Understands Housework in all its branches.—B. A., 6, Victoria Chambers, Luke Street, Finsbury, London, E.C.

JOURNEYMAN, in a good Establishment. —Age 23. Good references.—J. DOWE, The Gardens, Worksop Manor, Worksop, Notts.

PROPAGATOR (HARD-WOODED).—Successful Grafter. Will be shortly disengaged. First-class reference as to character and ability.—X. Y. Z., 55, Ludlow Street, Chorlton-on-Medlock, Manchester.

PLANT GROWER (EXHIBITION), in a first-class Establishment in the Trade or otherwise, where Plant Growing is gone into with spirit.—B., Pine-apple Nursery, Maida Vale, W.

ROSE GROWER. — Age 26. Six years' experience, both in and out-door. Good reference.—J. WILLIAMS, Mr. H. Bennett's, Manor Farm Nursery, Stapleford, Salisbury.

To the Seed Trade.

MANAGER, or HEAD SHOPMAN. — Thoroughly understands the business. First-class references.—C. C. C., *Gardeners' Chronicle* Office, W.C.

MANAGER, or TRAVELLER. — Twenty years' experience. Thoroughly competent and practical. Has Travelled England, Scotland, and Ireland, in the Trade.—B. S., 16, Tenant Street, Derby.

TRAVELLER and CORRESPONDENT.—Thoroughly acquainted with the Wholesale Seed Trade, and many years' experience on the Road, with good connection. —S., 44, Devonshire Road, Holloway, N.

SHOPMAN (HEAD), or MANAGER. — Age 35; thoroughly acquainted with the Seed Trade in all its branches. Twelve years with one of the leading Wholesale and Retail Houses in the above capacity. Can take an occasional journey, if required. Four years' connection on the road in the Midland Counties and North of England.—H. W., 3, Stafford Terrace, Britannia Road, Fulham, London, S.W.

SHOPMAN (HEAD), or TRAVELLER.—Has had upwards of twenty years' experience; knows the Midland Counties, Lancashire and Yorkshire, North of England, South of Scotland and Ireland, and is well known amongst Gardeners, Stewards, &c.—B. D., *Gardeners' Chronicle* Office.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
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CONTENTS.

SALES BY AUCTION.

Hardy Plants and Bulbs.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, May 12, at half past 12 o'Clock precisely, a great variety of BEDDING PLANTS, ROSES in pots, HERBACEOUS PLANTS, GARDEN HURDLES, LAWN MOWERS, RUSTIC GARDEN WORK, &c., and a quantity of GLADIOLI.

On view the morning of Sale, and Catalogues had.

Disas.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, May 13, an Importation of the BLUE-FLOWERING DISA, D. HERSCHELLI, received in good condition.

On view the morning of Sale, and Catalogues had.

Odontoglossum Alexandræ.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, May 13, 300 good plants of ODONTOGLOSSUM ALEXANDRÆ. These have been recently imported, many of them breaking freely, and are in the best possible condition.

On view the morning of Sale, and Catalogues had.

New Masdevallia.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, May 13, a few plants, all breaking strongly, of the magnificent MASDEVALLIA MACRURA. This is the largest-flowered species yet introduced. Individually the flowers are 11 inches long; colour orange, with red rays. The growth is very strong and robust, very much more so than any other species in cultivation. (See drawing to be exhibited at time of sale.)

On view the morning of Sale, and Catalogues had.

Established Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, May 13, at half-past 12 o'Clock precisely, a small COLLECTION OF ESTABLISHED ORCHIDS, including some fine specimens of Phalænopsis Schilleriana, Odontoglossum vexillarium, Odontoglossum Roezlii, Cattleya Dowiana, Epidendrum vitellinum majus, and many other rare kinds; also a large quantity of Dendrobium Devonianum and Pleiones, imported from India, in excellent condition.

On view the morning of Sale, and Catalogues had.

Stove and Greenhouse Plants, Bedding Plants, &c.

MR. J. C. STEVENS will SELL by AUCTION, on the Premises, South Bank, Surbiton, about the END OF MAY, the Collection of STOVE and GREENHOUSE PLANTS formed by J. A. Barton, Esq., consisting of Camellias and Azaleas, Stephanotis, Clerodendrons, Bougainvilleas, Anthuriums, Crotons, a few Orchids &c., also a good lot of Bedding Plants, Roses in Pots, a MOWING MACHINE, Two WATERBARROWS, Four TWO-LIGHT BOXES, HAND-LIGHTS, &c.

Catalogues will be ready one week prior to the Sale.

Auction Rooms and Offices, 38, King Street, Covent Garden, W.C.

Wood Green, N.

IMPORTANT SALE of 30,000 autumn-struck BEDDING PLANTS.

MESSRS. PROTHEROE AND MORRIS are instructed to SELL by AUCTION, without reserve, on the Premises, The Vineries, Nightingale Road, Wood Green, N., on SATURDAY, May 15, at 1 for 2 o'Clock precisely, about 30,000 remarkably well-grown BEDDING PLANTS, consisting of the best Tricolor, Zonal, Scarlet, and Double Geraniums, and the usual miscellaneous assortment.

On view the day prior to Sale. Catalogues may be had on the Premises, and of the Auctioneers, 98, Gracechurch St., E.C.

Upper Sydenham, S.E.

CLEARANCE SALE of choice BEDDING and GREENHOUSE PLANTS, &c.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. George Selley to SELL by AUCTION, on the Premises, Kirkdale Nursery, Upper Sydenham, S.E., on WEDNESDAY, May 19, at 1 for 2 o'Clock precisely, without reserve, the Land being sold and immediately required for other purposes, the whole of the well-grown BEDDING and GREENHOUSE PLANTS, comprising thousands of Geraniums, Verbenas, Calceolarias, &c., a few Camellias, Azaleas, and other Greenhouse Plants.

Now on view. Catalogues may be had on the Premises, and of the Auctioneers and Estate Agents, 98, Gracechurch St., E.C.

West Dulwich, S.E.

IMPORTANT SALE of VALUABLE STOVE, GREENHOUSE, and BEDDING PLANTS, &c.

MESSRS. PROTHEROE AND MORRIS have received instructions from Messrs. F. & A. Smith to SELL by AUCTION, without reserve, on the Premises, the Nursery, Park Road, West Dulwich, S.E., on THURSDAY and FRIDAY, May 20 and 21, at 11 for 12 o'Clock precisely, a large quantity of beautifully-grown STOVE and GREENHOUSE PLANTS, including many handsome specimens, numerous selected Palms and choice Orchids, a considerable number of fine double Camellias (many of which are well-furnished plants of the old true double white), also quantities of Azalea indica, together with a large and rich assortment of 40,000 GERANIUMS and other plants for bedding out purposes.

On view. Catalogues may be had on the Premises and of the Auctioneers, 98, Gracechurch Street, E.C.

Tooting, S.W.

IMPORTANT SALE of a large quantity of extra stock of choice STOVE and GREENHOUSE PLANTS, the whole of which are in a very healthy and thriving condition, containing some New and Rare Plants; also some selected ORCHIDS, quantity of EXOTIC FERNS, several valuable PALMS, together with a fine assortment of Succulent and Hardy HERBACEOUS PLANTS, Hardy CLIMBERS in pots, &c.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from Mr. R. Parker to SELL the above by AUCTION, on the Premises, Exotic Nursery, Tooting, Surrey, S.W., on MONDAY, May 24, at 12 for 1 o'Clock precisely.

On view the day prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, 98, Gracechurch Street, E.C., and Leytonstone, E.

Edmonton, N.

To NURSERYMEN, MARKET GARDENERS, BUILDERS, and OTHERS.

MESSRS. PROTHEROE AND MORRIS will include in their next PERIODICAL SALE of PROPERTIES, to be held at the Auction Mart, Tokenhouse Yard, City, on MONDAY, May 31, at 12 for 1 o'Clock, about FOUR ACRES of highly productive LAND, situate in the Hyde Road, Edmonton, five minutes' walk from the station, and immediately available for Building purposes; or a portion could be advantageously utilised for Nursery and Market Garden purposes.

Cards to view may be obtained of Messrs. PROTHEROE AND MORRIS, 98, Gracechurch Street, City, E.C.

In Liquidation.—Guilford Nursery, Whitfield, near DOVER.

CLEARANCE SALE of the entire FLORIST'S STOCK, GREENHOUSES, PLANT FRAMES, HORSE and VAN, &c.

MR. HENRY HAYWARD has received instructions from the Trustee of the Estate of Mr. C. H. Burbridge (in liquidation by arrangement), to SELL by AUCTION, at the Nursery, on TUESDAY, May 11, commencing punctually at 11 o'Clock, the whole of the choice FLORIST'S STOCK, including several thousand plants, now in or just coming into bloom, viz., Acacias, 100 choice Azaleas, two magnificent White Camellias, about fifty other Camellias, fifty pots of Lilium auratum and lancifolium, Creepers for baskets, Alpine Plants, 500 choice Exotic and British Ferns, five large and valuable specimen Ferns, several Palms, two large Stephanotis and other Stove Plants, 100 dozen Pelargonium Geraniums, thirty choice Exhibition Tricolor Geraniums, and twenty Zonal ditto, 20,000 healthy Bedding Plants, 1,500 Roses and Shrubs in pots, five large Greenhouses, ten Plant Frames of various sizes, Horse and light Spring Van, Water Barrel on Wheels, Garden Engine, Wheelbarrows, and Tools, 10,000 Flower Pots, &c.

On view the day previous to and morning of Sale, and Catalogues to be had on the Premises; or of Messrs. WORSFOLD AND HAYWARD, Auctioneers and Surveyors, New Bridge, Dover, and 12, Queen Victoria St., London, E.C.

The NURSERY to BE LET, inquire of the Auctioneer.

Cairnforth House, Moorgate, Rotherham.

TWO DAYS' SALE—WEDNESDAY and THURSDAY, May 12 and 13, commencing each day at 11 A.M.

MR. ROWLAND WARD, of the Central Repository, Sheffield, is favoured with instructions from George Brown, Esq., to announce that a SALE by PUBLIC COMPETITION will take place, as above, of very choice PALMS, CROTONS, TREE FERNS, Specimen ALLAMANDAS, CLERODENDRONS, DIPLADENIAS, BOUGAINVILLEAS, TODDEAS, PHORMIUMS; also a variety of choice ORNAMENTAL PLANTS.

For days to view, prior to Sale, see Catalogues (6d. each), to be had of Mr. H. ALBITSON, Gardener, Cairnforth Lodge, Moorgate, Rotherham; and of the Auctioneer, Central Repository, Castle Hill, Sheffield.—April.

Hammersmith, W.—Fine Nursery Stock.

MR. J. A. SMITH will SELL by AUCTION, at Mr. Herridge's Nursery, Fulham Road, near Hammersmith Broadway, on MONDAY, May 17, at 1 o'Clock, about 25,000 plants, in fine condition, including 12,000 GERANIUMS, of the best kinds; 2000 AUREA and GOLDEN GEM, 4000 LOBELIAS, various; thousands of HELIOTROPES, FUCHSIAS, PELARGONIUMS, &c., all of the most approved selection.

View Saturday prior. Catalogues had on the Premises and of the Auctioneer, Hammersmith, W.

Lee's Nursery, Albion Gardens, Hammersmith, W.

COMPLETE CLEARANCE SALE.

MR. J. A. SMITH will SELL by AUCTION, on the Premises as above, on WEDNESDAY, May 19, and following days, at 1 o'Clock each day, to clear the site for Building, twenty-one span-roof PROPAGATING and GREENHOUSES, with apparatus complete, 50 ft. each; SPRING VAN and COVER, various IMPLEMENTS in TRADE, upwards of 200,000 fine GREENHOUSE and BEDDING PLANTS, including most of the best and many special varieties; COMPOST, IRON RAFTERS, GIRDERS, LEAD and IRON PIPING, LIGHTS, and other effects.

View day prior to Sale. Descriptive Catalogues had on the Premises, and of the Auctioneer, Hammersmith, W.

*** The LAND to BE LET for Building.

To Florists.

TO BE LET, for a term, to a tenant who would erect glass thereon, a capital CORNER PIECE of LAND, opposite Kew Bridge Stations. Frontage to the high road 225 feet, and to the Wellesley Road 100 feet. Apply to W. E. ORAM, 1, Wardrobe Place, Doctor's Commons, E.C.

TO BE LET, a NURSERY, FLORIST, and SEED BUSINESS—about 10 acres of Garden in capital cultivation (various Soils), Greenhouse, Pits, and Side Lights; the Residence if required. Stock comprises Roses, Fruit Trees, Forest Stuff, Evergreens, Flowers and Plants of descriptions. A few minutes' walk from a railway station (Mid-Sussex).

Apply to CHALLEN AND SON, Stowington, Pulborough.

Crown Lands, Stagsden, Bedfordshire.

TO BE LET by TENDER, from October 10 next, on Lease, WICK END FARM, in the Parish of Stagsden, in the occupation of Mr. Philip Hemman, comprising about 318 acres, and situated about 4½ miles from the town of Bedford. About 258 acres are Arable, and 57 acres Meadow Land. Mr. Samuel Odell, of Stagsden, the Woodreeve, will point out the Farm.

Particulars and Forms of Tender may be obtained on application to the Hon. CHARLES GORE, Office of Woods, &c., 1, Whitehall Place, Westminster, S.W.; or to Mr. JOHN CLUTTON, 9, Whitehall Place, Westminster, S.W.

Tenders must be delivered on or before Saturday, May 29.

FOR SALE, an Orchard and Plant-house SPAN-ROOF RANGE, length 65 feet, width 24 feet, heighth 13 feet, with 29 feet heating pipes and valves, Iron Ratchet-worked Ventilators, Shelves and Stages, all in excellent condition. Inquire of

Mr. WOOKEY, Heybridge Garden, near Maldon, Essex.

Victoria Estate, Kansas, U.S.—To Farmers and OTHERS.

FINE STOCK FARMS of 640 Acres and upwards, to be SOLD, Freehold, from 12s. to 50s. per acre. Grass in its natural condition unsurpassed for feeding Sheep and Cattle. For PAMPHLET containing full particulars respecting this Property,

ROBERT W. EDIS, Esq., F.S.A., 14, Fitzroy Square, London, W., Architect to the Estate.

OXFORD ROSE SHOW.—Prizes amounting to ONE HUNDRED and TWENTY POUNDS are offered.

C. R. RIDLEY, Hon. Sec.

THE INTERNATIONAL POTATO EXHIBITION will be held at the ALEXANDRA PALACE, Muswell Hill, on WEDNESDAY and THURSDAY, September 29 and 30, 1875, under the Presidency of Mr. Alderman and Sheriff Ellis, when Prizes exceeding ONE HUNDRED POUNDS in value will be awarded.

The SCHEDULE is now ready, and may be had on application to Mr. P. McKINLAY, Hon. Sec.

23, Upper Thames Street, London, E.C.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION, for the relief of decayed Farmers, their Widows and Orphans.

Patron—HER MAJESTY THE QUEEN.
President—HIS GRACE THE DUKE OF RICHMOND.

Allowances to Pensioners.

Married	£40	per annum.
Male	£26	"
Widow and unmarried Orphan Daughters	£20	"

Every information to be had of the Secretary, by whom Subscriptions and Donations will be thankfully received.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.—THE FIFTEENTH ANNIVERSARY FESTIVAL, in aid of the Funds of the Institution, will take place at Willis's Rooms on SATURDAY, June 5, at 6 o'Clock.

H.R.H. The PRINCE OF WALES, K.G., in the Chair.

Dinner tickets, 21s., application for which should be made to the Secretary not later than May 22.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.—The ANNUAL GENERAL MEETING will be held at Willis's Rooms, St. James's, on WEDNESDAY, June 16, at 11 o'Clock precisely, and the ELECTION of PENSIONERS will take place on the same day, at half-past 11 o'Clock.

All Subscriptions shall be deemed payable on January 1 in each year; and no Contributor shall vote in respect of an Annual Subscription while the same is in arrear.

Offices of the Institution—

No. 26, Charles Street, St. James's, London, S.W.

Hollies and Rhododendrons.

GEORGE FARNSWORTH has to offer 1-yr. and 2-yr. bedded HOLLIES, at 25s. per 1000. RHODODENDRONS, 3-yr. seedlings, Hybrid and Pontica, mixed, at 5s. per 1000; 3-yr. and 2-yr. bedded, 20s.; 3-yr. and 3-yr., 28s.; extra transplanted, bushy, 6 to 10 inches, 60s.; 8 to 12 inches, 80s. per 1000. BERBERIS AQUIFOLIA, 2-yr., 3s. per 1000. Also other NURSERY STOCK. Samples on application at The Nurseries, Matlock.

FERNS for SALE, fine specimens.—Fifty Todea superba, 3 to 4 feet through; fifty do., 1 to 2 feet through; fifty Todea pelucida, 2 to 3 feet through; fifty Todea pelucida and superba, 1 foot through. These plants are superb, perhaps the finest specimens in Britain, and will be sold at very reasonable prices for cash, as the house they are growing in is wanted for my Cut Flower Trade. Apply to

PETER MCKENZIE, Nurseryman and Florist, 1, Garden Street, Glasgow, and Bellfield Nursery, Paisley, N.B.

New Dwarf Silver Variegated Geranium, "LITTLE TROT."

WM. POTTEN is now sending out the above GERANIUM, which is the best and most distinct silver variegated variety yet offered. Its dwarf and free habit, and broad clear white margin, will make it invaluable as a bedder for edging or panel-work. Received a First-class Certificate from the Royal Horticultural Society, August 29, 1874. Price 2s. 6d. each, 24s. per dozen. The usual Discount to the Trade.

A Post Office Order, payable at Sissinghurst, must accompany all orders from unknown Correspondents.

Camden Nursery, Sissinghurst, Staplehurst, Kent.

Bedding Roses.

CRANSTON'S CRIMSON BEDDER: strong plants, in 5-inch pots, 30s. per dozen.

TEA-SCENTED, CHINA, NOISETTE, and HYBRID-PERPETUAL ROSES, in 4 and 5-inch pots, 9s. to 15s. per dozen.

Now is the best time for bedding-out the Tea-scented and China Roses, and Hybrid Perpetuals, on their own roots.

Address, CRANSTON AND MAYOS, King's Acre Nurseries, Hereford.

NEW CLEMATIS, to be sent out by JOHN STANDISH AND CO. on May 10:—

ASCOTIENSIS.—The flowers are considerably larger than Jackmanni, and are well shaped, containing six petals each; colour, a fine azure-blue; it throws a profusion of flowers the whole summer long, and is of a very vigorous habit. 10s. 6d. each.

MRS. QUILTER.—A magnificent white flower, containing eight petals; it is the largest, smoothest, and purest of all the whites, and a very free bloomer, with strong habit. 10s. 6d. each.

The above are decided acquisitions, and should be in every collection. Orders are now being booked for them.

Royal Nurseries, Ascot, Berks.

E. G. HENDERSON AND SON'S SEED CATALOGUE for 1875, containing over 200 illustrations of Flowers, will be posted, free, on application, and from which the following can be supplied, of first-class quality:—

CALCEOLARIA, in mixed colours, 1s., 2s. 6d., and 5s. per pkt.
CINERARIA, 1s., 2s. 6d., and 5s. per packet.
PRIMULA SINENSIS, fine strain, 2s. 6d. and 5s. per packet.
" " RUBRA FLORE-PLENA, 2s. 6d. and 5s. per packet.
" " ALBA FLORE-PLENA, 2s. 6d. and 5s. per packet.
AURICULA, 1s. and 2s. 6d. per packet.
CARNATION, 2s. 6d. and 5s. per packet.
CYCLAMEN PERSICUM, 1s. and 2s. 6d. per packet.
HOLLYHOCK, 1s. and 2s. 6d. per packet.
PINKS, 1s. and 2s. 6d. per packet.
MIMULUS, 1s. per packet. | PETUNIAS, 6d. and 1s. p. pkt.
PANSIES, 6d. & 1s. 6d. pkt. | VERBENA, 1s. & 2s. 6d. p. pkt.
SWEET WILLIAM, Perfection, 1s. per packet.
" from named flowers, 1s. and 2s. 6d. per packet.
AMERICAN TUBEROSE, double flowered, large roots, 20s. per 100.
LILIUM AURATUM, 12s. per dozen, good flowering size; extra size, of full growth, at higher prices.

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GIANT ASPARAGUS PLANTS, the best that money can procure, all certain to grow, 2s. 6d. per 100. This delicious vegetable does not require half the expense usually incurred in planting it. See RICHARD SMITH'S SEED LIST for 1875.
Extra strong SEAKALE, 2s. per dozen.
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New Pink Geranium "Mrs. Haliburton."

FRANCIS R. KINGHORN has much pleasure in again offering this favourite variety, sent out by him last season, and which gave such general satisfaction. On three occasions it has received the highest commendation from the Floral Committee at Chiswick, associated with all the best varieties grown there for trial. Good plants 9s. per dozen, 50 for 33s., 100 for 58s. Extra-sized cut-down plants, 2s. each.
Sheen Nursery, Richmond, Surrey.

VINES, extra strong leading sorts, close-jointed and well ripened; SEAKALE, ASPARAGUS, and RHUBARB, extra strong, for forcing; ROSES, FRUIT, FOREST, and ORNAMENTAL TREES, STOVE and GREENHOUSE PLANTS, &c.
Priced Descriptive CATALOGUE, post-free.
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CUTTINGS of GERANIUMS, &c. — 100 Geraniums, in forty choice varieties, including Tricolor, Gold and Bronze, Variegated, Zonal, Nosegay, and Ivy-leaf, for 10s., 50, 5s. 6d., 25, 3s.; 24 Fancy Pelargoniums, 3s. 6d., 12, 2s.; 24 Chrysanthemums, 2s. 6d., 12, 1s. 6d.; 24 Pompons, 2s. 6d., 12, 1s. 6d.; 24 Fuchsias, 2s. 6d., 12, 1s. 6d. All post free.
CATALOGUES one stamp.
J. COOMBS, The Ferns, Enfield.

Lawn Grass Seeds.

FRANCIS & ARTHUR DICKSON & SONS' Mixture of LAWN SEEDS is composed only of the FINEST and DWARFEST EVERGREEN GRASSES, and is very superior to mixtures generally offered, quickly forming a close velvety turf. For New Lawns sow 60 lb. to 80 lb. per acre. To Renovate Old Lawns sow 10 lb. to 20 lb. per acre. Price 1s. per lb. Orders over 20s. Carriage Free.
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FOREST TREES, ORNAMENTAL TREES, and SHRUBS, a large stock at moderate prices. CATALOGUES free on application.
THE LAWSON SEED AND NURSERY COMPANY (Limited), 106, Southwark Street, London, S.E., and at Edinburgh.

Cinerarias, Cinerarias.

MESSRS. JOHN STANDISH AND CO. have to offer SEED saved from their celebrated strain of CINERARIAS, 2s. 6d. and 3s. 6d. per packet. Also, PRIMULA SEED, 2s. 6d. and 3s. 6d. per packet. Post free on receipt of Stamps or Post Office Orders.
Royal Nurseries, Ascot, Berks.

Pelargoniums for the Million.

JAMES HOLDER'S unrivalled COLLECTION of Show, French, and Fancy Varieties, strong Plants, distinct sorts, at 40s. per 100; 25s. for 50; or 15s. for 25. Hamper and packing included. Extra strong plants at 9s. and 12s, per dozen. Cash. CATALOGUES free on application.
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Strong Verbenas.—Special Offer.

WILLIAM BADMAN offers the following VERBENAS, strong plants, from single pots:—
PURPLE KING
CRIMSON KING, best scarlet
LE GRAND BOULE DE NEIGE, finest white
GEANT DES BATAILLES, crimson
LADY COWLEY, rose, fine bedder
All healthy good stuff, 1s. 6d. per dozen, 10s. per 100, 80s. per 1000, package included. Terms cash.
Cemetery Nursery, Gravesend.

Hollies.

ANTHONY WATERER respectfully invites the attention of Holly buyers to the very fine Stock to be seen growing at Knap Hill. It comprises upwards of Thirty Thousand Plants, from 3 to 10 and 12 feet high, of the finer Gold, Silver, and Green-leaved kinds, affording a choice in size and variety such as can be met with in no other Nursery in Europe. Every Plant has been recently removed, and will be guaranteed.
The Stock of Common Green Hollies alone occupies 5 acres of land, and Purchasers will find them in large numbers of all heights up to 15 feet.
Knap Hill Nursery, Woking, Surrey.

Cheap Plants.

WILLIAM BADMAN offers the following plants for present pottings:—
VERBENAS, Purple, White, Scarlet, Crimson, and Rose, good plants, from single pots, 1s. 6d. per dozen, 10s. per 100; rooted cuttings, 1s. per dozen, 6s. per 100, 50s. per 1000.
PELARGONIUMS, Scarlet—Vesuvius and Jean Sisley, 1s. 6d. per dozen, 10s. per 100.
,, White—Madame Vaucher, 1s. 6d. per dozen, 10s. per 100.
,, Pink — Blue Bell, Mrs. W. Paul, Maid of Kent, &c., 1s. 6d. per dozen, 10s. per 100.
,, Crimson — Waltham Seedling, fine bedder, 1s. 6d. per dozen, 10s. per 100.
,, Rose—Master Christine, 2s. per dozen, 15s. per 100.
LOBELIA, speciosa (true), from cuttings, 3s. per 100, 20s. per 1000.
CALCEOLARIA, Yellow Bedding, from stores, 1s. per dozen, 6s. per 100; strong plants, 12s. per 100.
HELIOTROPIUMS, finest dark, rooted cuttings, 1s. per dozen, 6s. per 100; strong plants, 1s. 6d. per dozen, 10s. per 100.
AGERATUM, Imperial Dwarf, blue, makes a fine bed, 1s. per dozen, 5s. per 100; good plants, from single pots, 1s. 6d. per dozen, 10s. per 100.
STELLARIA, aurea, new golden edging plant, 1s. per dozen, 4s. per 100.
PELARGONIUMS, Silver-edge—May Queen, &c., 2s. per dozen, 15s. per 100.
,, Gold leaf—Crystal Palace Gem, 2s. per doz., 15s. per 100.
ALTERNANTHERA, magnifica, fine, also paronychioides, good plants, 2s. per dozen, 12s. per 100.
Package included. Terms cash.
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Suttons' Collections of Choice Flower Seeds, to produce a beautiful and continuous display during Summer and Autumn.

No. 1 Collection, Free by Post or Rail			..	£2	2	0
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Small and Useful Collections can also be had, from 2s. 6d. to 7s. 6d. Free by Post.

Complete Instructions as to the Cultivation of Suttons Choice Flower Seeds will be found in

"SUTTONS' AMATEUR'S GUIDE,"

The most practical work on gardening yet published, beautifully illustrated with 300 engravings.

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Best Garden Lawns and Croquet Grounds

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SUTTONS' LAWN GRASS MIXTURE,

Which forms a close velvety turf in a very short time. For making New Lawns or Croquet Grounds 3 bushels or 60 pounds is required per acre, or 1 gallon to every 6 rods (or perches) of ground.

For improving those already in turf, 20 pounds should be sown per acre.

March, April, and May are the best months for sowing.

Price 1s. per lb.; 20s. per bushel.

From Mr. J. MERRICK, *Gardener to* S. Forster, Esq., *Le Court.*

"The Seed you sent me last year turned out uncommonly well. Several gentlemen who came to Le Court could scarcely credit, from the appearance of the lawn, that it was only sown in May. In August it was as fine and thick as I have seen some lawns that had been laid down for three years."

Instructions on the Formation and Improvement of Garden Lawns and Croquet Grounds Gratis and Post Free.

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THE QUEEN'S SEEDSMEN, READING.

Verbenas for Sale.

S. BIDE can now supply, for cash:—
VERBENAS, spring-struck, strong, and free from disease of any kind, including Purple King, Scarlet, White, Pink, and many other varieties (of which a list may be had on application), at 8s. per 100, package free.
PELARGONIUMS, show and fancy, of the best varieties, 40s. per 100.
GERANIUMS, plain-leaved and zonal, strong autumn-struck plants, 10s. per 100.
,, Crystal Palace Gem, in single pots, 20s. per 100.
COLEUS VERSCHAFFELTII, 10s. per 100.
IRESINE LINDENI, 8s. per 100.
,, HERBSTII, 8s. per 100.
CENTAUREA CANDIDISSIMA, struck last autumn, and well established, in large 60-pots, 40s. per 100.
AUREA FLORIBUNDA and other CALCEOLARIAS, 8s. per 100.
HELIOTROPES, light and dark, 8s. per 100.
S. BIDE, Alma Nursery, Farnham, Surrey.

ORCHIDS.—Being a large importer of Orchids direct from their native habitats, Mr. WILLIAM BULL can make special offer of the following, at the extremely low prices annexed:—

	Each.	s.	d.			s.	d.
Odontoglossum Alexandræ ..	..	15	0	.. 3 plants	at	10	6
Bulbophyllum auricomum ..	..	5	0	.. 3 ,,	at	3	6
Limatodes rosea	..	3	6	.. 3 ,,	at	2	6
Odontoglossum hastulabium ..	..	10	6	.. 3 ,,	at	7	6
Houlletia chrysantha	..	10	6	.. 3 ,,	at	7	6
Dendrobium Devonianum ..	..	7	6	.. 3 ,,	at	5	0
Calanthe vestita	..	5	0	.. 3 ,,	at	3	6
Acineta Humboldtii	..	3	6	.. 3 ,,	at	2	6
Epidendrum vitellinum majus	..	15	0	.. 3 ,,	at	10	6
Cypripedium niveum	..	15	0	.. 3 ,,	at	10	6
Broughtonia sanguinea.. ..	..	10	6	.. 3 ,,	at	7	6
Odonto. Insleayi leopardinum	..	15	0	.. 3 ,,	at	10	6
Aerides crispum..	..	10	6	.. 3 ,,	at	7	6

ESTABLISHMENT for NEW and RARE PLANTS, King's Road, Chelsea, London, S.W.

New Alpine and Herbaceous Plants.

JAMES BACKHOUSE AND SON'S CATALOGUE of the above, for 1875, may now be had on application. It contains many new or rare species, of great interest and beauty, in addition to the general collection of approved kinds, with Descriptions and Cultural Notes.

Stove, Greenhouse, and Bedding Plants.

JAMES BACKHOUSE AND SON'S CATALOGUE of these for the present season is also ready, and will be sent to all applicants. The Collections of Orchids, Palms, and Ferns will be found specially rich and worthy of notice. Nurseries, York.

Pelargoniums, Fuchsias, Bedding and other Plants, all Established in Single Pots. Wholesale Prices.

WOOD AND INGRAM beg to offer:—
PELARGONIUMS, Show, Spotted, and Fancy, fine flowering plants, in 5-inch pots, good named sorts, 50s. per 100, 8s. per dozen.
CALCEOLARIA, Herbaceous, Neil's superb strain, extra fine plants, in 5-inch pots. 9s. per dozen, 1s. each.
FUCHSIAS, named, in 5-inch pots, 40s. per 100, 5s. per dozen.
PELARGONIUM, double white, Aline Sisley, 4s. per dozen.
,, single Zonal, Huntingdonian, the finest white, 6s. per doz.
,, ,, Harry King, 30s. per 100, 4s. per dozen.
,, ,, Master Christine, 25s. per 100, 3s. 6d. per dozen.
,, ,, Salmon Clipper, the freest flowerer of its colour 9s. per dozen.
,, Golden Tricolor, Miss Batters, 9s. per dozen.
,, ,, J. D. Bassett, 9s. per dozen.
,, ,, Peter Grieve, 15s. per dozen.
,, ,, Mrs. Dunnett (Carter), 6s. per dozen.
,, Silver Tricolor, Lass o' Gowrie, 9s. per dozen.
VERBENAS, Scarlet, Purple, and Crimson, 14s. per 100, 2s. per dozen.
ADIANTUM CAPILLUS-VENERIS, in 4½-inch pots, 9s. per dozen.
ECHEVERIA SECUNDA, 18s. per 100.
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SEMPERVIVUM CALIFORNICUM, 10s. to 16s. per 100.
AGERATUM, Imperial Dwarf, 12s. per 100.
IRESINE HERBSTII, 14s. per 100.
,, LINDENI, 14s. per 100.
HELIOTROPES, to name, 16s. per 100.
NIEREMBERGIA GRACILIS, 14s. per 100.
LEUCOPHYTON, Brownii, 16s. per 100.
PENTSTEMONS, to name, 20s. per 100, 3s. per dozen.
STELLARIA GRAMINEA AUREA, 12s. per 100.
The Nurseries, Huntingdon.

Cinerarias, Cinerarias, Cinerarias.

F. AND A. SMITH'S unrivalled Collection of the above is NOW in BLOOM, and will continue so for some time. Inspection is respectfully solicited, or flowers will be sent on receipt of two stamps. New Seed, in 1s. 2s. 6d. and 5s. packets.
The Nurseries, West Dulwich, S.E.

Exhibition of Azaleas.

F. AND A. SMITH'S splendid Collection of the above is NOW in BLOOM, which consists of the well known superb varieties raised at their Nurseries, and also of newer kinds introduced by Continental Growers. Inspection invited. The Nurseries, West Dulwich, S.E.

Lobelia Blue Stone.

F. AND A. SMITH offer the above, from cuttings off the original stock raised in their Nurseries, and which variety was planted last year in Hyde Park, being the finest dark blue in commerce.
The Nurseries, West Dulwich, S.E.

Bedding and Other Plants.

F. AND A. SMITH can supply large quantities of the undernamed, in well-established plants, at moderate prices:—

AJUGA, reptans rubra	COLEUS
AGERATUM, of sorts	DAHLIAS
CENTAUREAS	HELIOTROPES
FUCHSIAS	PETUNIAS, Single and Double
GERANIUM, Zonal, the best of each colour for bedding	PHLOXES [plenum
,, Zonal, the best for conservatory, in all shades of colour	PYRETHRUM, imbricatum
	STELLARIA, graminea aurea
	VERBENAS.

Also a fine stock of full-grown PALMS and DRACÆNAS in great variety, very suitable for decorative purposes.
The Nurseries, West Dulwich, S.E.

SATURDAY, MAY 8, 1875.

THE ROYAL ACADEMY.

IT is more than probable that the pleasures of our flower shows are relished with a much keener zest by practical horticulturists than by the ordinary public, because practical growers of flowers know the points to be observed, the difficulties of production, and the successes gained, better than any outsider. Any one who has been over a large nursery knows how the pleasure is enhanced if one is accompanied on his round of the houses by one of the firm. It is the same with pictures and painters: an artist takes a deep interest in the works of all other artists, he glories in well beating inferior men, and he should take it with good grace when he is well beaten by somebody better than himself. The opinion of a man who knows the difficulties of drawing and painting, and has striven and beaten others and been well beaten himself, should always be worth hearing. It is from this point of view that the following notes on some of the natural history and plant pictures in this year's Royal Academy are penned.

Passing by Nos. 7 and 16, "Chilworth Pond," C. Collins, and "A Quiet Spot," W. S. Lloyd—both small, but remarkably clever and natural pictures of a pond with boat and a lane with stick-gatherers—we come to 25, "The Right of Way," F. Walker, A., which is in every way one of the best pictures in the Academy: it is unlaboured and sketchy, but every touch of the brush shows that the artist had definite ideas in view. The picture represents a pasture in spring with a meandering brook and a sheep and lamb disputing with a child the path by the brookside: observe how the folds of the woman's drapery have been studied, the leaden, watery April sky, and the flowers in the meadow. The latter are mere touches of the brush in a small picture, but one sees at a glance that the pasture is dotted all over with Ranunculus Ficaria, and that the plants by the brookside are not the lesser Celandine but the Primrose. 40, "Apples," F. R. Stock, is a remarkably well-painted picture. 56, "Anne Page and Slender," C. W. Cope, R.A.: in this (of course a figure subject) are various flowers, as Tulips, Pink Primula, Camellia, Geranium, a Fern, a Tulip in the flower-bed, &c.; they are not well done, but in the next picture, 57, "Tell Him," C. E. Perugini, are an India-rubber plant and a Polyanthus Narcissus uncommonly well-painted. 63, "Old Neighbours," C. Green, is one of this artist's best pictures, irrespective of the figures: how remarkably well the Crocuses and the denuded branches of the trees as seen in early spring are done.

In 66, "Wild Roses," Miss F. Tiddeman, we have a poorly painted child's portrait with wild Roses in front as unlike wild Roses as possible. 73, "Gainsborough's Lane," E. Edwards, a notable and well executed painting of trees, all the tree stems slanting in a certain direction (so driven by the prevailing wind). 74, "The Fringe of the Moor," J. E. Millais, R.A., a bright picture of moorland, hills, distant heather, cattle, bushy foreground, with wild Roses in fruit, and fencing—a painfully true and staring picture, undoubtedly real, but with the naturalness of photography. 99, "Azaleas," M. A. Langdale, the flowers very poorly painted, but the vase perfect. 103, "Fruit and Still Life," E. Ladell, a picture of Walnuts, Grapes, Currants Plums, Raspberries, a Peach, and a glass of hock, is in its way perfect—every object is worthy of study: observe the effect of the rich green curtain beside the white Grapes. 105, "Where the Ferns Grow," E. Parton, appears to us monotonous, sunless, and dull. 118, "On a Voyage of Discovery," J. L. Pickering, is a well-painted picture of swans in a body of still, weedy, and overgrown water. 119, "Nemo me impune lacessit," J. MacWhirter, a roughly-painted picture of Thistles and Brambles, very bold, and well done, with a very rich general effect throughout, but the leaves of the Thistles are unsatisfactory and without perspective, and the flowers of Campanula rotundifolia are much too dark. It is no easy piece of work either to draw or paint a Thistle well. 123, "On the River Mole," Birket Foster: every one knows this artist's exquisite transcripts of Nature, but this picture, though thoroughly natural, is singularly quiet and flat. Compare it with Walker's rougher work, No. 25. M. Stone's powerfully painted "Sain et sauf" (130) should be well noted. 140, "Hopwas Wood: Winter," A. W. May—a picture of snow melting away amongst Birches—impresses us as not being very natural. 147, "Blenheim," John Faed, a very unpleasant subject, with a human skull obtruded in a most ghastly manner in the centre of the picture. 153, "Too Good to be True," W. Q. Orchardson, A. The colour in this delightful picture, in which is an abundance of vegetables and fruits, is a perfect study; omitting all notice of the well-painted figures we would call attention to the rich effect of colour in the Oranges and Lemons, the Carrots, Onions, Apples, Vegetable Marrows, and Broccoli, and how these objects are so disposed in reference to each other as to produce the happiest effect of colour. 155, "Charles Darwin, Esq., F.R.S.," W. W. Ouless. We think the friends of Mr. Darwin will consider this a most successful portrait of their leader, it is eminently natural and well-painted: the light and shade is thoroughly worthy of study.

In 159, "Evening," Birket Foster, we have a lovely picture of the country, with figures and a purple evening sky, but, like 123, it is dull; in both pictures Mr. Foster introduces the white dead Nettle, Lamium album, in the foreground. 166, "The Jolly Post-Boys," H. S. Marks, A. This figure subject, from its perfect drawing and colour, is one of the most notable in the exhibition. Without describing the subject, we will refer to the colour and background of flowers. The three post-boys who are sitting at the table are dressed in bright blue; now to produce rich and harmonious colouring orange must be freely introduced: see how the artist has done this by painting a good background of Sunflowers in full bloom; observe also the effect of colour in the glass of ale upon the table, and the yellowish pan on the right of the picture, and the red handkerchief and the waxed ends of the pipes, all trifles light as air in themselves, but how reverse of "jolly" the post-boys would be without all or any of them. This picture also includes some well-painted double Poppies. 169, "The Little Epicure," H. H. Couldery—kitten and fish, green leaves and a lobster—deserves special mention on account of its exact reproduction of Nature; nothing could be better than the group of fish. 170, "Nature and Art," J. Medland. The small vase which represents "Art" is well done, but "Nature," in the shape of Roses, Pansies, &c., in this picture, is very poor; it is much easier to paint a pot (however elaborate) than a flower, because the former is always the same, whilst the latter is ever changing in aspect. 182, "A Path of Roses," G. H. Boughton. This is an excellent figure subject, but of the Rose bushes which are introduced the less said the better, a rosarian would look on such

Roses with strong aversion; the other plants in this picture (though large) represent nothing in particular. 185, "A Lady and her Daughters," S. Sidley: one daughter is furnished with a pair of gardening scissors; the effect of the flowers in this picture is good, bold, and lifelike: the same, however, cannot be said for either 189, "Flower Girl," G. E. Hicks, or 195, "The Daughters of the Hon. James Bain," D. Macnee. In 191, "The Early Post," J. Sant, R.A. (a portrait group), are Azaleas and Crocuses, but they are not well done. 196, "School Revisited," G. D. Leslie, A. This is an excellent figure subject, thoroughly well-drawn and painted, but the Honeysuckle and white Roses on the walls are very poor; observe, however, the happy effect of colour in the bunch of Roses on the green seat. 199, "Convent Life," Mrs. S. Anderson, a picture of an interior of a conventual establishment, with a laughing country girl presenting a wreath of Orange blossoms for copying to an old abbess who is naturally and preferably engaged on the embroidery of a pattern of terrible dragons. The wreath of flowers is particularly well painted, as is the languishing young girl in the rear. 203, a picture by F. R. Pickersgill, R.A., illustrative of some lines by Tennyson, includes a large life-sized plant of Lilium longiflorum, with an Orange behind, remarkably well done.

"The Crown of Love," 214, J. E. Millais, R.A., a picture notable for its perfect drawing and rich bold colour. The original idea for this painting was published by Messrs. Bradbury & Evans in *Once a Week*, December 31, 1859, p. 10. 222, "Miss Eveleen Tennant," J. E. Millais, R.A. There is no other picture in the exhibition possessing such bold and startling colour as this, indeed very few painters would venture on such tints. Notice the effect of the black hat and the deep crimson dress with a black belt, the blue necklace, and the black velvet zone round the lady's neck appearing to cut her head clean off; the Oak leaves and the Ivy and Ferns in the basket are all well painted. 232, "H.M. Ship *Devastation*," E. W. Cooke, R.A., is a picture well worthy of study for excellent sky and sea; the latter is perfect as a study of water, bold and dashing, yet all the details of waves and wavelets worked up with the most truthful delicacy. 233, "The Festival," E. J. Poynter, A. This is a decorative painting, purposely kept low in tone, and containing a number of Roses, but neither well-drawn nor painted. Observe the happy effect of the orange and lemon-coloured band at the right hand of figure. 234, "The Children of Robert Barclay, Esq.," C. Bauerlé. In this Buttercups, Daisies, and Blue Bells are introduced, but they are all very queer to the botanical eye. 246, "Reposing on God's Acre," T. S. Cooper, R.A., a churchyard subject, with a capitally-painted Yew tree, but the spades and pickaxe in the foreground are disproportionately small. 250, "Les Coquettes, Arles," P. H. Calderon, R.A., a figure subject remarkable for its rich and harmonious colour. Observe the studied and fine effect of lemon, white, and black in the central figure, and the effect of the long, straight line of the scissors string. 256, "Wise Saws," J. C. Hook, R.A., is also notable for intensely rich colour. How true is the dark rich green of the river-side pastures, and how bold and striking the effect of the black raven on the white reflection in the water. 262, "No!" Millais. Remarkable for its rich colour. 265, A ruinous garden landscape, by Millais, illustrative of a few graceful lines by Campbell. 277, "Deserted," J. L. Pickering, is worthy of a notice in passing to 281, "Spring," S. Sidley, a group of pretty children with Primroses and Bluebells—Bluebells and young unfolding Ferns conspicuously figure in the distant early spring landscape.

(*To be continued.*)

New Garden Plants.

PHALÆNOPSIS CASTA, *Rchb. f.**

Take leaves of a thinly spotted P. Schilleriana, the spots finally disappearing in the oldest leaf, a flower-spike of P. amabilis, with the lip having the characteristic callus, and have the bases of the upper sepals and petals tinged with purple. This would be our plant: quite distinct from any P. Veitchiana, leucorrhoda, or intermedia, by its callus. I believe it is a natural mule; but if somebody should tell us it was a variety of P. amabilis with wrong roots, spotted leaves, and purplish paint on the flower, we could, indeed, not gainsay him by proofs. There can be no doubt that the days will come when there will be much more horticulture in the Orchid trade than now-a-days—viz., when the few remaining showy Orchids in Europe will be used for getting seedlings of the species, not only for obtaining new hybrids, as is now done at a very few places; then we — or those who come after us—will get much better views about constancy of character than we can possibly have now-a-days.

* *Phalænopsis casta*, Rchb. f.—Radicibus rotundatis paulo ancipitibus, raro asperis; foliis P. Schillerianæ, floribus P. amabilis, Lindl.; callo ejusdem; sepalo summo ac tepalis basi purpureis; sepalis lateralibus basi punctatis.—*P. Aphrodite-Schilleriana.*

To my taste, this plant bearing the splendid white of amabilis, with a little tint of blushing purple, is quite unrivalled in its chaste beauty. And we know only of two existing specimens, about which I will give prudently chronological statements. I saw this plant March 26 at Mr. Low's, and March 28 at Mr. Bull's; and I said farewell to the first-named specimen on April 8. Both plants are decidedly the same, though the roots of Mr. Bull's plant are a little rounder. *H. G. Rchb. f.*

MASDEVALLIA HETEROPTERA, *Rchb. f.**

This is a most remarkable new type, and a very pretty little thing, though by no means a grandiose plant. The chief feature is that the flower is totally open, and the upper sepal totally different from the lateral ones. The upper sepal is oblong, with a strong middle keel outside, yellow, with numerous blackish purple transverse narrow bars. It is extended in a yellow tail that is very different in length, shorter than the body in the

* *Masdevallia heteroptera*, Rchb. f.—Pedunculo unifloro; flore omnino aperto; sepalo superiori oblongo ciliato in caudam breviorem seu æqualem teretem attenuato; sepalis inferioribus basin usque fissis ligulatis apice in caudam teretem attenuatis; laminis retrorsum tubuloso-convolutis, muriculato-asperulis; tepalis cuneato-rhombeis apice obtuse bilobis, angulo superiori gibberoso; labello optime mobili, a basi oblongo subito angustato, ligulato, obtuse acuto; carinis geminis angulatis in parte anteriori, limbo antico minute crenulato; columna trigona apice acuta.—New Granada.

FIG. 121.—FREESIA LEICHTLINII.

Section of flower and ovary twice real size; the two spathaceous bracts of flower four times real size.

fresh flower I saw, equal to it in some dry specimens. The lateral sepals are much narrower, blackish purple, revolute, into a tube! with yellow tails of different lengths. The small petals are white, with purplish dots. The lip is blackish purple. The column is yellow, with dark spots. The upper sepal is minutely ciliate on its borders. The lateral ones are totally covered with small, distant hairs.

I have to thank for the inspection of this little gem the Rev. J. B. Norman, Whitchurch Rectory, Edgware, London, who kindly informed me that the plant grows in a dense tuft, has 1-flowered flower-stalks, and cuneate oblong leaves. When I saw the little neophyte I knew I had seen it before, though not published. And so it is. I find flowers of it, gathered in the environs of Medellin by Mr. Patin, the young Belgian traveller; and Mr. Norman's plant, too, may be of Patinian origin. I have with the flowers a dried plant with stalks bearing four flowers, all fallen off. Yet the bracts look different. It is much to be regretted that such assiduous travellers as Mr. Patin and Messrs. Klaboch, the modern Czechian discoverers, never take care to separate, by placing in a separate cover, what belongs to each species. I once put many such specimens, just forming one mass, in the fire, to avoid the most ridiculous confusion. *H. G. Rchb. f.*

Aerides Vandarum, *Rchb. f.* (*Gard. Chron.* 1867, p. 997).

I lately obtained a beautiful specimen of this rare plant from Mr. Edwin G. Wrigley, Broadoaks, Bury, Lancashire. It is the Aerides cylindricum of *Bot. Mag.* 1857, t. 4982, and it was well figured in the *Gardeners' Chronicle* (No. 69, p. 537). The true A. cylindricum, Lindl., may be seen in Wight's *Icones*, v., 1744. It has a totally different lip, with short side laciniæ, a blunt ridged middle laciniia, a short spur, and shorter leaves. I felt much pleased when I saw that Mr. Denning shared my feelings: he alluded to its being like a Vanda; I named it "Vandarum."

There is no doubt that the Editors of the *Gardeners' Chronicle* have made a grand progress in making the *Gardeners' Chronicle* a store of good representations of plants taken from fresh specimens. I may, however, be forgiven for wishing that only such things may be illustrated which have not been represented well before. This plant has already been so well figured in the *Botanical Magazine* that its very good new representation is totally superfluous. There are so many thousands of plants waiting with ambitious impatience for a good representation, that it is a misfortune to see these passed over in order to introduce once more an old acquaintance to our notice. *H. G. Rchb. f.*

ORANGE BLOSSOMS.

Although Orange blossom has, for an indefinite time in this country, been highly prized for its fragrance, still by many the Citrus family have hitherto been grown more as decorative plants for their fruit than their flowers; but of late years, with these as with flowers in general for cutting, the demand has been greatly on the increase. Time was when Orange blossom was simply associated with a bridal wreath or bouquet, but now, even in some private establishments, it is in general request. In bygone years the Orange, as a decorative plant, held the highest place, as is evident by the first efforts in the erection of plant structures in this country, with any pretensions to a decorative character, being principally confined to the orangery; these places, as is well known, being more of a protective nature for winter, than for the growth of the plants.

The Orange, under artificial cultivation in glass structures, when making its growth enjoys a moderate amount of shade from the direct rays of the sun, nevertheless, as may be supposed from the countries where it succeeds altogether in the open air, it is a light-loving plant. Neither, by any means, are the Citrus family difficult subjects to grow, rather, it may be said, they are, as compared with many things we cultivate, difficult to kill—to this may be attributed the indifferent condition in which they are often met with. For it is a common occurrence to see plants that will bear a good deal of bad treatment subjected to so much of it as to prevent the possibility of their succeeding well. As to soil, good fibrous loam, such as Camellias will grow in, does well for the Orange, or it will succeed in peat, or a mixture of peat and loam; the foliage is more ample and of a darker hue in peat, but the disposition to flower not quite so great.

In preparing the soil for Oranges—as for all other plants of an evergreen character which, from the amount of leaf-surface they possess, evaporate a good deal, and require a correspondingly large quantity of water—it is necessary to mix a liberal amount of sand with the soil, to keep it sufficiently open and porous, after the fibrous matter contained in it has become quite decomposed; want of attention in this respect frequently causes the trees to get into a bad condition. Healthy roots in quantity are the first essentials, the next thing of importance is, after the plants have flowered, to treat them so as to induce a good free growth; without this it is useless to expect anything approaching a satisfactory crop of flowers. When Orange trees get in bad condition at the roots it is almost impossible to bring them round without a good bottom-heat, and plants that are in a healthy condition equally enjoy it, although these will do without it if kept in a genial temperature, with a moderately moist atmosphere. The plants should have, whilst making their growth, enough air to keep them stout and strong; any deficiency in this matter will not be made up for by giving an unlimited quantity, with a drier atmosphere, after they have formed the wood, although they require this in plenty to ripen it and induce a disposition to flower freely.

After the season's growth is complete, the plants may be placed in a cool house, so as to keep them back until the time they are required to flower. One essentia lin their cultivation is to keep them clear of insects. They are much subject to scale, especially the brown species. If this insect is allowed to increase upon them to a considerable extent they cannot do well, for not only does it live upon the vital juices of the plants, but the coating of dirt it deposits upon the leaves and bark clogs up the pores, preventing them from performing their wonted functions. The continued use of the sponge and syringing with Fowler's insecticide, at 4 oz. to the gallon, will, if persevered in, free them. The leaves of the Citrus tribe cannot bear so strong an application of any insecticide as some plants, and the above strength will not kill the large insects, but such as are young it will, and thus, if the dressing is repeated often enough, the pest can be got rid of. Large trees with this, as with other things, produce the greatest quantity of flowers; but for keeping up a supply smaller plants are preferable, as they can be brought on in succession, and do not occupy so much room. Messrs. J. Standish & Co., the Royal Nurseries, Ascot, who grow large quantities for their London trade, use comparatively small plants, placing some in heat every fortnight through the winter and spring, to keep up a supply. The variety they use is one extensively grown about Paris; its name I have not been able to ascertain, but it is a much more profuse flowerer than the common sort usually met with in gardens. *T. Baines.*

FREESIA LEICHTLINII.*

This is a beautiful and sweetly-scented bulbous plant (fig. 121), native of the Cape of Good Hope, with a fibrous-coated bulb, crowded linear lanceolate glabrous leaves, sheathing at the base, and a central, somewhat angular spathe, bearing a one-sided curved spike. The flowers are funnel-shaped, white when they first open, buff-coloured subsequently. The full description is given by Klatt, the monographer of the Irideæ, in the *Gartenflora*. The plant was exhibited at the last meeting of the Royal Botanic Society, by the New Plant and Bulb Company, of Colchester, who have forwarded us the following particulars concerning it:—

"It is of very easy culture, potted in a mixture of two-thirds peat and one-third loam, with plenty of coarse sand. Our plants in pots were potted in October, and stood out-of-doors, with the protection of a hand-light, till the end of November. They were then removed to a cool house, where they have been flowering most profusely for the past month. The flowers, which are of great substance, are on their first opening quite white, with the two lower petals marked with orange streaks. After a few days they assume a primrose tint, and the orange markings become deeper in colour. They emit a very grateful perfume, which pervades the whole house—in the opinion of some like that of the Primrose and Auricula, but to our minds most like that of the Tea Rose. Our plant, which was exhibited at the Royal Botanic Society's show on Wednesday last, and obtained a Botanical Certificate of Merit, was composed of three bulbs. These bulbs had twelve spikes of bloom, four on each. We have others planted out in the open air during the winter, which are now just appearing above ground, from which we expect to gather bloom in June or July. We are of opinion that it will prove to be perfectly hardy."

* Freesia Leichtlinii, Klatt, in *Gartenflora*, 1874, tab. 808 = Sparaxis Thouberti, Hort.

THE CLIMATE FOR DORYPHORA.

I am personally acquainted with the Colorado Potato beetle, and I think he has been a little misrepresented. The *Tribune* expresses the idea that the insect would rather enjoy the temperate climate of England, and also that excessive heat is prejudicial to it. Now, on the latter point you are certainly mistaken, for when the weather is rather cool their eggs mature very slowly; they do not hatch in so many days, like hens' eggs, but remain without any perceptible change for weeks, and the old bug is as dumpish as a hedgehog. But when the weather is very hot—and the hotter the better for them—the eggs will hatch in a few days, and the old ones are as busy as bees from morning till night, and when the thermometer tells 95° to 100° in the shade we frequently see them flying, which they seldom, if ever, do in cold weather. Among Potatos planted adjoining a timber lot, where it is shaded a part of the day, they will not lay their eggs. This I have seen repeatedly; they want the hot sun from morning till night to hatch them. *D. L. Garver, Oceana Co., Mich.*

Comments by Professor C. V. Riley.—All insects breed and develope most rapidly during the hotter seasons of the year. But rapidity of development is not necessarily a sign of thrift and well-doing; and a pretty extensive experience with Doryphora has convinced me that it will enjoy the comparatively temperate clime of Southern England, and that, indeed, it will thrive in any part of the world where the Potato thrives. The native home of the insect is sub-alpine rather than tropical, and it has proved more injurious in the more Northern than in the more Southern States, and while it thrives best during a warm, dry summer, extremes of either heat, dryness, or moisture are prejudicial to it. Excessive heat, when combined with drouth, causes the death of the pupa in the ground; excessive dryness causes the eggs to dry up—an occurrence so constant 8000 feet above the sea level that Potatos are not affected by the insect above that level in the Rocky Mountains; excessive moisture drowns and rots the insect in all stages. It is argued by others that on the continent of Europe our Doryphora would not thrive if introduced, and, in a recent letter, received from M. Oswald de Kerchove, of Ghent, Belgium, author of an interesting pamphlet on the insect, that gentleman says, "I do not think that the Doryphora, awakened by our early warm weather, could resist the effects of the late cold which we are apt to have in these European countries."

The idea that the climate of North America is less extreme than that of Europe is rather novel to us of the Cisatlantic, and from a sufficiently long residence in England, France, and Germany, I am decidedly of opinion that they delude themselves who suppose that Doryphora could not thrive in the greater part of Europe, and that to abandon all precautionary measures against its introduction on such grounds would be the height of folly. An insect which has spread from the high tableland of the Rocky Mountains across the Mississippi Valley to the Atlantic, and that flourishes alike in the States of Minnesota, Wisconsin, and Connecticut, and in Maryland, Virginia, and Texas—in fact, wherever the Potato succeeds—will not likely be discomfited in the Potato growing districts of Europe. Some few, again, have ridiculed the very idea of the insect's passage to Europe in any state, arguing that it is an impossibility for any coleopterous insect to be thus transferred from one country to another. Considering that half the weeds of American agriculture, and a large proportion of her worst insect pests, including two beetles, viz., the Asparagus beetle (Crioceris asparagi), and the Elm-leaf beetle (Galeruca calmariensis), in the very same family as our Doryphora, have been imported among us from Europe, there would seem poor foundation for such argument. Moreover, a number of other insects, among them some beetles, of less importance, may be included in the number of importations, and the Rape butterfly (Pieris rapæ), whose progress westward has been simultaneous with the Doryphora's eastward, and whose importation dates back but a few years, bears witness to the fact that insects more delicate, and with fewer chances of safe transport, than Doryphora, may succeed in getting alive from one country to the other, and in gaining a foothold in the new home. *New York Tribune.*

ROCKWORK FOR ALL SEASONS.

During the last half year I have been trying much such a plan for a small rockery for succession of plants as Mr. Wilson (at p. 563) requests experiences of; and though my own is intended more for common garden favourites than for choice and delicate plants, it is possible he may like a note. The position is a border in front of a wall facing south, and I have endeavoured to give in the arrangement the suggestion of a low rocky bank with the plants appearing in it as they would group naturally.

The only materials at hand for the solid part were the masses of injured brick known near London as "burrs," which seem singularly well suited for this kind of work, the porous texture taking down air and water in turn into the substance of the bank in a way which suits the plants admirably, and, picturesquely considered, the dark purple, or yellow ochreous masses, and the varied shapes, can be grouped artistically so as to contrast with the vegetable forms and colours, and to suggest (even in the small scale of a

thing of this sort) the lines of geological formation, rather than a row of lumps set down side by side to keep the plants together. The plan of forming "pockets," as Mr. Wilson so aptly terms them, seems exactly to suit the plants, the little cliffs rising just a few inches above them, sheltering the growing leaves and keeping a damp atmosphere round; and beneath, for their roots, I have placed a thoroughly good supply of garden mould and partially decayed leaf-mould, and here and there (in places where the roots might presently find it, or at present benefit by the water washed through it) a supply of ordinary farmyard manure.

In forming the rockwork, I began at one end, placing some earth and burrs, and then (taking whatever seemed suitable) planted it with the greatest care where it might show picturesquely, as if in its natural habitat; and when this was satisfactorily arranged went on with burrs, earth, and plants alternately, building up the rockwork and its inhabitants together, and so insuring (by the section being exposed) that all beneath each plant was as wished. For picturesque effect I endeavoured to arrange the brick masses so that, besides the cavities, there should be little lines like miniature terraces, down which the plants should run as on rock ledges to the grass beneath, and in this way the common white Arabis makes a beautiful show, running, as it were, in little white streams, till it spreads itself in a little snowy lake below. The purple Aubrietia just now looks very pretty as a cap on the burr, with lines of Forget-me-not; and Foxgloves, which I moved as large plants in the autumn, have thriven perfectly (their delight in water making them of easy management), and are now throwing up strong flowering stems in the background. The single blue Hepatica also thrives better in a "pocket," with plenty of vegetable mould, than I have ever seen it elsewhere, even in the cottage gardens of the West of England, where it grows in great luxuriance; and such other matters as the little Cheddar Pink, the Erica carnea, some of the Saxifragas, and other favourites, all prosper.

The Clematis montana also promises well to mask the wall at the back, and for present succession where room was left I have put a few annuals. As summer advances, if the various rooted inhabitants do not give sufficient brilliancy, a few greenhouse plants, in or out of their pots, in the upper pockets would bring as much colour as is wanted; and plentiful watering, which the bricks absorb and gradually impart during the heat of the day, keeps the plants in excellent health. Meanwhile, though the few yards of rockwork have nothing to boast in the way of rare flowers, it answers the purpose fairly of a pleasantly grouped mass, with some point of constantly renewed interest and varied colour to catch the eye on its passage to the more general grouping of the garden. *O.*

THE BIRTHPLACE OF THE DUKE OF WELLINGTON.

The remains of Dangan Castle (fig. 122) stand in the centre of what was some three-quarters of a century ago a richly-wooded park, the undulating surface of which gives evidence of its former beauty. It consists of the ruins of a modern mansion, incorporating the old tower of Dangan, which has lost much of its original character in consequence. All are now totally ruined, and this, combined with the denuded surrounding demesne, are sad mementos of the decadence of Ireland. Yet here was born, on May 1, 1769—when the Castle of Dangan was in its palmy days, "bosomed high in tufted trees," with its terraced gardens and broad lakes and wide encircling park—the great Duke of Wellington, whose grandfather, Richard Colley, succeeding to the possession of the Castle and estate in the year 1728, by bequest from his cousin Ganet Wellesley, took the name of Wellesley, and was created, in 1746, Baron Mornington.

Dangan Castle was sold by the Marquis Wellesley to Colonel Burrowes, by whom it was sublet to a Mr. Roger O'Connor, during whose tenancy it was destroyed by a fire supposed to have been not altogether accidental. It stands about two miles from Summerhill, Co. Meath.

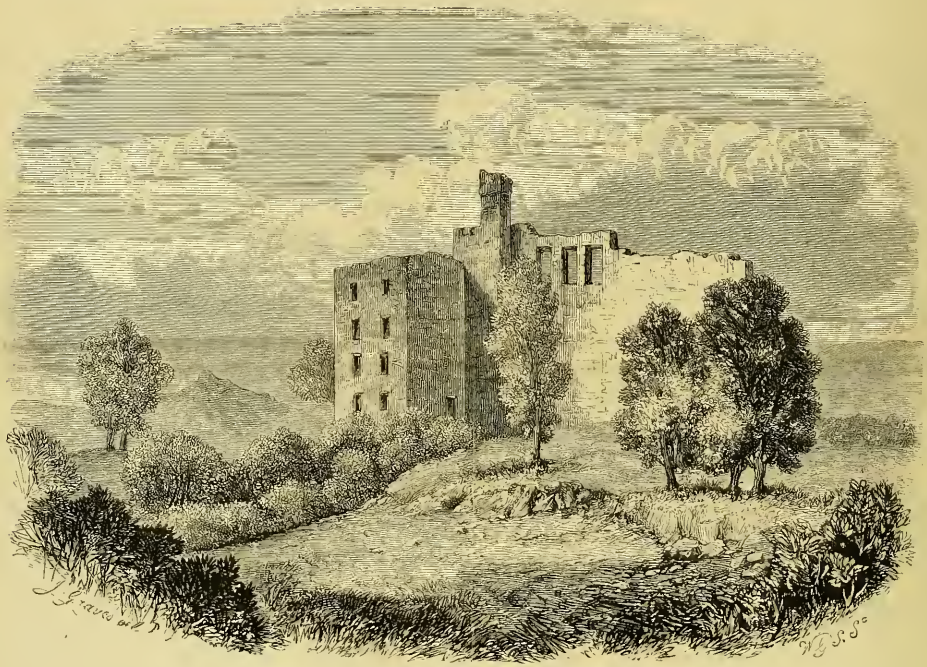

Fig. 122.—Dangan Castle, Co. Meath, Birthplace of the Late Duke of Wellington.

ST. HELENA.

A most interesting subject for investigation is afforded by the botany of the island of St. Helena. The plants growing there at the present time number about 1048; for the presence of the larger portion of these it is not difficult to account, they having followed through a period of 372 years in the track of man and civilisation; but a most interesting question as to their origin is dictated by the remaining seventy-seven species which form a remnant of that flora characteristic of the little lonely oceanic spot previous to man's first visit there.

This most wonderfully curious little flora, which has been aptly termed "a fragment from the wreck of an ancient world," was made a prominent subject in a very able and highly interesting lecture upon Insular Floras, delivered before the British Association for the Advancement of Science at Nottingham in 1866. In that lecture Dr. Hooker, in reference to St. Helena with its indigenous flora, says, "When discovered about 360 years ago it was entirely covered with forests, the trees drooping over the tremendous precipices that overhang the sea. Now all is changed, fully five-sixths of the island are utterly barren, and by far the greater part of the vegetation that exists, whether herbs, shrubs, or trees, consists of introduced European, American, African, and Australian plants. The indigenous flora is almost confined to a few patches towards the summit of Diana's Peak, the central ridge, 2700 feet above the sea."

The destruction of the Madeira forests, you will remember, was by fire. A much more insidious agency has operated with tenfold greater effect in St. Helena, viz., goats. These were introduced in 1513, and multiplied so rapidly that in 1588 Captain Cavendish states that they existed in thousands, single flocks being almost a mile along.

In 1709 trees still abounded, and one, the native Ebony, in such quantities that it was used to burn lime with. At this time, however, the Governor of the island reported to the Court of Directors of the East India Company that the timber was rapidly disappearing, and that the goats should be destroyed for the preservation of the Ebony wood, and because the island was suffering from droughts. He received the laconic reply, "The goats are not to be destroyed, being more valuable than Ebony."

Another century elapsed, and in 1810 another Governor reports the total destruction of the great forests by the goats, which greedily devoured the young plants and killed the old by browsing on their leaves and bark, and that fuel was scarce. Still even then so great was the amount of seed annually shed, so rich the soil and so rapid the growth of native plants, that the Governor goes on to say that if the goats were killed and the island left to itself, it would in twenty years be again covered with indigenous vegetation.

About this time the goats were killed, but another enemy to the indigenous vegetation was at the same time introduced, and which has now rendered it in all probability impossible that the native plants will ever

again resume their sway. Major-General Beatson, then Governor, an active and sagacious officer, proposed and carried out the introduction of exotic plants on a large scale, and from all parts of the world. These have propagated themselves with such rapidity, and grown with such vigour, that the native plants cannot compete with them.

The struggle for existence had no sooner begun than the issue was pronounced; English Broom, Brambles, Willow, and Poplars, Scotch Pines and Gorse bushes, Cape of Good Hope bushes, Australian trees, and American weeds, speedily overran the place, and wherever established they have actually extinguished the indigenous flora, which, as we have said before, is now almost confined to the crest of the central ridge.

Napoleon I. died on the evening of May 5, 1821, at Longwood Old House, and he was interred in a pretty green verdure-clad valley below Hut's Gate, somewhat more than a mile from his residence. It is said that when alive he frequently resorted to this secluded spot, and from a clear little spring of water which bubbled up through the moss-covered bank had the water for his own use carried up to Longwood, and that in accordance with his own expressed wish it was selected for his grave. On October 15, 1840, the late Emperor's body was exhumed, taken from the peaceful little "Vale of the Tomb," of which a view is given (fig. 123), and, amidst military funeral honours, placed on board *La Belle Poule* frigate, and carried to France.

The tomb where his body rested is, together with the little spring of clear water, carefully railed round and guarded, so that no ruthless hand now, as formerly, hacks and chops away the remains of two old Willow trees, which still hang over the tomb itself. These trees, although descended from, are not the original Willows; and it is commonly rumoured that more than one or two generations have been carried away piecemeal by visitors as relics. For more information about St. Helena, with its shady lanes lined on each side with bright yellow blossoms of Gorse, brilliant scarlet Pelargoniums, and the deeper tints of the Fuchsia mixing with the bluer foliage and orange blossoms of the Buddlea, its rich meadows, sunny hayfields, and bounded with bare, precipitous volcanic cliffs, we must refer our readers to the admirable monograph lately published by Reeve & Co., of Covent Garden. This work, entitled *St. Helena*, gives a full and complete physical, historical, and topographical description of the island, and is, moreover, well illustrated by Mrs. Melliss, the wife of the accomplished engineer, John Charles Melliss, the author of the volume.

The accompanying sketch was made on the spot by Captain S. P. Oliver, Royal Artillery.

Fig. 123.—Vale of the Tomb, St. Helena.

PLANT GOSSIP.

In describing a superb portrait of the Tea Rose, Catherine Mermet, given in a recent number of the *Florist and Pomologist*, Mr. Postans remarks that—

"In a recent election of Roses, Catherine Mermet was placed by a large majority of electors amongst the best twelve Roses known; and that it is one of the very finest varieties we have there can be be no sort of doubt. Probably, if all the good qualities it possesses are taken into consideration, it will be acknowledged to be the best of all the Teas. It is large, of the finest form, constant, and floriferous. As a pot plant it is a good healthy grower, and makes sufficiently strong though not large wood. Probably it would be a more robust grower in the open, budded on the Briar, which suits most Teas better than any other stock. Though the blooms vary more or less in depth of colour, the prevailing tint is flesh-coloured rose, with a dash of yellowish buff. On the whole, Catherine Mermet is, as the catalogues say, a 'superb' Rose, and ought to be in the most choice collection. There have been several fine additions to the Tea-scented section within the last two or three years. The cream of these are probably comprised in the following:—Amazon, Anna Ollivier, Catherine Mermet, Cheshunt Hybrid, Duchess of Edinburgh, Madame Bérard, Madame Camille, and Madame F. Janin. Amazon does not seem to be much known, but it is a good and distinct flower, with a long pointed bud, which opens well, and is fine, bright, clear yellow in colour; it is a good healthy grower as a pot Rose, and flowers freely. Anna Ollivier is a first-rate flower, of good size; the petals are creamy white, their base deep rose; it is most distinct and pleasing, and is a healthy grower. Cheshunt Hybrid and Duchess of Edinburgh are dark red Teas; the first has the better form, the Duchess is rather brighter in colour, but both are good and valuable additions to the Tea section. Madame Bérard may be shortly described as an improved Gloire de Dijon, which is not saying a little in her favour. Madame Camille is sometimes extremely fine, but it is a somewhat uncertain variety; if it could be always depended on, it would run Catherine Mermet very close. Perhaps one of the most distinct new Tea Roses we have had for some time is Madame F. Janin, a small Rose indeed, but most beautiful; in colour it is deep orange-yellow, inclined to coppery; in habit it is robust and healthy, and it is most floriferous; as a button-hole Rose it is *facile princeps*."

—— The inspection of a fine series of varieties of Early-flowering Rhododendrons, from the garden of the Hon. and Rev. J. T. Boscawen, is extremely suggestive of the desirability of growing these fine sorts for our spring exhibitions, since they may be had in splendid bloom by merely placing them under glass, instead of needing the forcing which is necessary in the case of later kinds. They furnish, too, the most gorgeous tints of colour to be found in the whole family, and as such are magnificent objects for the decoration of cool conservatories, requiring simply the protection of a glass roof in order to secure the most perfect development of their flowers, and which, produced under such circumstances, are much more durable than when exposed to the vicissitudes of our climate.

—— The names of the common Milkwort, Polygala vulgaris, as given in the old herbalists, are good examples of the class which sprung from some connection of a plant with a religious ceremony. These names—Crosswort, Gangflower, Procession-flower, and Rogation-flower, as well as the old Latin title, Ambarnalis flos—were bestowed upon it, as Gerarde tells us, "because it doth specially flourish in the Crosse or Gangweeke, or Rogation weeke; of which flowers, the maidens which use in the countries to walke the procession, do make themselves garlands and nosegaies." The Rogation days still hold their place in the prayer-book as the three days preceding "Holy Thursday," or Ascension day, which we have just passed; but the religious processions with which they used to be accompanied do not now exist, except, perhaps, in the form of "beating the bounds," a ceremony which in many places takes place on the last-named day. It would appear that in

old times the streets through which the procession passed were ornamented for the occasion. Gerarde speaks of the branches of Birch being employed in "beautifying the streetes in the Crosse or Gangweeke." Coles is inclined to believe that the Wood-sorrel received its name of Alleluia because it was met with by the people whilst taking part in the Easter processions; although Gerarde's explanation, that it blossoms at the time "when Alleluia is wont to be sung in churches," is probably the correct one.

—— A recent number of the *Revue Horticole* contains a figure and description of an AGAVE AMERICANA which flowered at the age of fourteen years, but, what is more remarkable, each of the lateral offsets which the plant produces when flowering also produced small panicles of flowers. What could have induced this extraordinary tendency to produce flowers? The plant was grown in the open air, the only heat being derived from dung.

—— M. Baillon, in a paper read before the French Association of Sciences at Lyons, in 1873, a copy of which has only recently reached us, made some interesting remarks on the BULB-LIKE SEEDS OF SOME AMARYLLIDS. It is now generally admitted that these bulb-like bodies, as in Crinum, for instance, are true seeds with their seed coats excessively swollen, but in Calostemma Cunninghami, according to M. Baillon, the ovules are actually transformed into bulbils. In this plant the ovules are at first ordinary pendulous anatropal ovules; presently, however, the base of the ovule itself lengthens into a radicle, and on cutting through the ovule vertically a small conical bud is seen projecting in the interior from the base of the ovule—this lengthens into a shoot, which passes out of the micropyle and then developes leaves. Here, then, we have the substance of the ovule itself developed into a bud, which produces a root and a shoot. Usually what happens is that within, and comparatively independent of, the ovule an embryo plant is formed, which forces its roots through the seed when it germinates, but here the substance of the ovule itself is developed into a bud. This is a curious confirmation of the theory of the essential identity of buds and seeds. M. Baillon, however, does not tell us whether the change from an ovule into a bud is the result of fertilisation or not. We rather expect not, and that if the ovule had been fertilised by the pollen in the ordinary way an embryo would have been produced as usual. Any reader having ripe seeds of Calostemma Cunninghami would oblige us if he would kindly forward some for examination.

—— The TULIP DISEASE, of which mention was lately made, seems to be prevalent to a degree which renders the case extremely serious. The bulbs are sound when planted, but sooner or later rot. At present we know nothing of the history and progress of the disease, we merely see its miserable result. Perhaps some of our Dutch friends may have watched its progress, and may be able to give us some information.

—— M. André de Vos, in recent numbers of the *Belgique Horticole*, has given a systematic enumeration of all the new or interesting plants described or exhibited in 1874, and mentioned in the various Continental and British horticultural periodicals. The usefulness of this enumeration, which is of no botanical but purely of horticultural value, would have been greatly enhanced by affixing numbers to the plants described, and especially by appending an alphabetical index to the genera at least. Surely Campsidium chilense does not belong to Aurantiaceæ.

—— It is proposed at the congress of botanists and horticulturists, which is to meet next year at Brussels, to discuss a plan for compiling a *Hortus Europæus*, or systematic CATALOGUE OF GARDEN PLANTS. The notion broached by M. E. Morren to the Federation of the Belgian horticultural societies is to allot particular orders to those botanists most conversant with them, and to leave the collation and editing of the lists so furnished to the Federation under whose auspices the catalogue would be published. We should gladly welcome any well-devised scheme of the kind, but we think a preferable course would be for the authorities at Kew to give us a new *Hortus Kewensis*. The facilities at that establishment are greater than any private individual could hope to command, and the reference to authentic wild specimens, so extremely important in a matter of this kind, could be better made at Kew than in any other establishment of the kind at home or abroad.

—— ROMANZOFFIA SITCHENSIS and R. UNALASCHENSIS are now in flower on the rockwork at Kew. The former is a native of North-West America, and was figured in the *Botanical Magazine* of July last year. It has a lax spreading habit, reaching a height of about 6 inches, is very succulent, and light green; the leaves are orbicular-reniform, and the flowers white and very Saxifraga-like. R. unalaschensis is closely related; it is, however, smaller, with reddish stems and petioles, and dark green leaf-blades, with the lobes pointed. It is a native of Unalaschka, in Russian America. The genus belongs to the order Hydroleaceæ, and "is closely allied to the majestic Wigandia," a relationship that could not be detected from a cursory glance. Both are well adapted for rockwork cultivation, and may be recommended to those who grow a select few. They are yet rare.

ELEMENTARY LESSONS IN BOTANICAL GEOGRAPHY.

(*Continued from p. 496.*)

VIII.—ON THE DISTRIBUTION OF ATMOSPHERIC MOISTURE.

ALL over the earth, the more largely where its beams reach the surface with the least diminution of heat, the sun is continually engaged in evaporating moisture from all exposed surfaces of water; this remains suspended in the atmosphere, and is carried about by the winds in the form of impalpable vapour or of clouds, till the point of saturation is reached, and the moisture falls again to the earth's surface in the form of rain, or snow, or hail. Air becomes lighter, and consequently expands and ascends when it grows hotter, and becomes heavier and falls with cold. The hotter it is the more moisture it is able to hold in solution. Between the equator and the poles there is a difference of 80° of average annual temperature. In the torrid zone the light warm vapour-laden air is ascending continually to the upper regions of the atmosphere, and there flowing outwards north and south towards the poles, and the cold heavy air from the polar regions comes rushing along the surface to fill its place. As the seasons change, the line of the greatest heat in the world gradually moves its position. At the equinoxes of spring and autumn it runs along the actual equator, or near it. In winter it lies south of the earth's equator, about midway between the equator and tropic of Capricorn. Not more than half as much of the tropic of Capricorn as of the tropic of Cancer runs over land, and this makes a material difference, because the more sea the more the intense heat is deadened and absorbed. In summer the great continental area traversed by the tropic of Cancer, a long line of which is removed from the ameliorating influence of the sea, becomes excessively heated, and from the great African Sahara, through Nubia and Arabia to the north of India, runs a tract of intense heat, in which the July average in the shade rises to 90°.

Zone of Periodic Winds and Rains.—It is to this changing line of the greatest heat that the main currents of wind are directed. Within a zone extending for about 30° on each side of the equator the winds blow with great regularity. When they leave the polar regions the tendency of the surface currents is due north and south, but in their course they become deflected longitudinally in consequence of the earth's motion, and reach the line of greatest heat as north-east and south-east currents. The tropic of Capricorn has its air rarified by heat in our winter, and this produces within the torrid zone what is called the north-east trade wind or monsoon. The tropic of Cancer has its air still more rarified by heat in our summer, and this produces the south monsoon. Through these causes this central belt of the world has its winds and rains perfectly steady and regular, and within it there falls the greatest quantity of rain which there is in any part of the world. The rainy season begins some time before the sun reaches the zenith of a place, and continues for some time afterwards. In a belt near the equator there are two rainy seasons, the main one, which lasts three or four months, beginning when the sun, in its progress to a vertical position, has crossed the equator, and a shorter one, which lasts four or six weeks, when the sun is coming again from the tropic to the equator. Nearer the two tropics the countries have only one rainy season, which begins when the sun approaches the tropic, and one dry season, the year being divided between the two. The rain pours down in torrents in a way of which we can form no notion from our experience in temperate countries. Our London rainfall is 2 inches a month, but in the tropics an inch a-day is not an uncommon average for the whole rainy season. On the banks of the Rio Negro Humboldt collected as an ordinary rain 1¾ inch in five hours. In Cayenne Admiral Roussin collected, between the 1st and 24th of February, 12½ feet, and in one night, between 8 P.M. and 9 A.M., measured 10½ inches. In the Himalayas of Khasia as much as 600 inches are said to fall in a single year. The rain, however, does not commonly pour down without intermission night and day, and day after day, as is sometimes the case in the English lake country. The ordinary succession of atmospheric phenomena is as follows:—The sun rises in a cloudless sky. Towards noon some faint clouds appear on the horizon, which increase rapidly in density and extent, and are soon followed by thunder and violent gusts of wind, accompanied by heavy rain. Towards evening the rain abates, the clouds disappear, the sun sets in a serene sky, and during the night no rain falls. The annual quantity of rain which falls upon any particular place depends greatly upon local circumstances, just as it does in the temperate zones, and is greatest where hill ridges are placed so as to catch the clouds, and smallest in tracts that lie to landward of such ridges. To take our illustrations from India, where the south monsoon blows laden with the copious vapours raised by the equatorial sun from the broad expanse of the Indian Ocean, we find that in the Eastern Himalayas the rainfall varies from 200 to 600 inches a-year, and that at Mahabaleshwar, where the clouds drift against the high ridge that lines the west side of the peninsula, it is 248 inches, but that at Courtallum it is only 40 inches, at Bangalore 35 inches, at Cape Comorin 30 inches, and at Bellary in Mysore 22 inches, which is as low as in any part of England.

Zone of Periodic Winds without Rain.—Outside the zone of periodic winds and rains comes a double belt, one girdling the world in the northern, and the other in the southern hemisphere, the breadth and area of which is greatly modified by local circumstances, within which no rain ever falls. These belts are estimated to include altogether an area of 5,000,000 square miles, but it is impossible to make any calculation that is at all precise, because round the tracts that are entirely rainless are regions in which rain falls but rarely, which again pass gradually into the two rainy zones, through countries like Southern Palestine and the Gangetic plain, which, though usually rainy, are liable at intervals to years of drought. These belts of rainless land near the tropics contain some of the most hopelessly dreary country which the world can show. Beginning with the west of the old continent we have along the tropic of Cancer in Africa, the Sahara or great desert, on the southern border of which the rains cease at 16° north latitude, and begin again on the north at 28°. Passing further east the southern rains cease in the countries on the banks of the Nile between 18° and 19°, and the northern begin between 27° and 28°. Passing into Asia, there is a great rainless tract in Arabia of which we do not know the exact bounds, and it reaches through Beloochistan over into the delta of the Indus, where it does not cover more than 4° of latitude. From this point the rainless zone turns to the north-east and extends to 30° north latitude. Crossing the great Himalayan chain it includes the high tableland of Tibet, but does not appear to reach into the Chinese empire. In South Africa there is a sandy desert rainless tract on the north of the Orange River, between 24° and 28° south latitude, and a great part of the interior of Australia seems to be nearly or quite rainless. In North America the rainless belt includes the Californian peninsula, and extends round the northern end of the Sierra Madre chain past Chihuahua and Monterey to the shores of the Gulf of Mexico between latitudes 24° and 26°. In South America it includes between latitudes 23° and 27° the northern province of Chili, and, through an extensive low tract in the interior of the continent belonging to the territory of the Argentine Confederation, rain is very unfrequent and small in quantity.

Zone of Variable Winds and Rains.—From about latitude 30° on each side of the equator to the poles extends a region of ever-changing and variable winds, and of rain that is irregularly distributed throughout the whole year. Sometimes in these middle latitudes, in Britain, for instance, we fall within the sway of the south-rushing polar current deflected to the east by the earth's rotation, and sometimes within that of the north-rushing current from the equator, deflected to west by the rotation which it shared with the earth at the zone from which it started. In Britain this south-west wind comes to us laden with vapour from the great mass of the Atlantic, and makes Ireland and our western shores unusually damp and rainy. The relative temperatures of sea and land in the temperate zones are continually changing with the seasons. In summer and autumn the Atlantic is colder than the European continent, and this has a tendency to produce a west current at the surface. In winter and spring the Atlantic is warmer than the continent, and this has a tendency to produce an east wind. Sometimes one of these varying tendencies gains the predominance and sometimes another, and the result is constant and often rapid change and variety. The heat and moisture which the wind brings with it depends entirely upon where it comes from, and what it has passed in its way. A west wind blows to us from the Atlantic, and usually brings rain; an east wind brings up the fog of the German Ocean; and in winter and spring the prevalent north-easter brings the cold and often the snow of Russia and Norway. At the seaside, unless it be overpowered by a general current, there is a breeze from off the sea during the day, and a breeze from off the land during the night. The quantity of rain that falls in this zone at different points is extremely variable, and depends upon the position of a place with regard to mountain masses and the seas from which the vapours come.

In England the rainfall is greatest in the west side of the island and smallest on the east. The difference within a short distance is sometimes very striking. There are 140 inches a year at Borrowdale, in the lake district, and not more than 20 inches at Shields and Sunderland, which are directly opposite on the east coast. But the habitual humidity of the atmosphere often varies but little between places the rainfall of which is very different. The number of days upon which more or less rain falls, varies in England from 100 to 300, but in the Mediterranean region the number of days is fewer, the quantity is smaller, and there is an almost regular period of entirely dry weather in summer. Taking the north temperate zone as a whole, there is, as a rule, least rain in places away from hills in the interior of continents, and most in insular and mountainous situations. The following list gives the annual rainfall in inches at the places mentioned :—

Zone of Periodic Rains.—Singapore, 97; Kandy, 52; Sierra Leone, 86; Madras, 44; St Helena, 45; Rangoon, 84; Bombay, 75; Calcutta, 76; Rio Janeiro, 59; Havannah, 91; Poonah, 25; St. Domingo, 107; Mahabaleshwar, near Bombay, 254; Cherra Pongee, Khasia, 592.

Zone of Variable Rains: Insular Climates.—Charlestown, 54; Madeira, 27; Coimbra, 118; Seathwaite, Borrowdale, 141; Cahirciveen, Kerry, 59; Westport, Galway, 46; Isle of Man, 37; Dublin, 29; Oxford, 26; Washington, 41; London, 24; Bergen, 88; Edinburgh, 24; Rotterdam, 22; Palermo, 22; Toulon, 18; Marseilles, 23; Padua, 36; Sitka, 87; Manchester, 36; Montpellier, 32.

Zone of Variable Rains: Mountainous Countries.—St. Bernard, 58; Geneva, 31; Berne, 46; Milan, 38; Lausanne, 40.

Zone of Variable Rains: Continental Climates.—Hobart Town, 18; Pekin, 26; Tiflis, 19; Paris, 22; St. Petersburg, 17; Upsala, 18; Prague, 14; Cracow, 13; Coblentz, 22; Nertschinck, 16; Gottingen, 26; Stockholm, 20.

THE GOVERNMENT GARDENS, HONG KONG.

The colony of Hong Kong, which is an island of about 15 miles circuit, situate off the mouth of the Canton River, was ceded to Great Britain by the treaty of Nankin in 1842. It possesses one of the finest harbours in the world, and, looked upon as a naval and military station, it dominates the whole coast line. "Public administration and private enterprise," it is said, "have done much to convert what a few years since was little better than a barren and unhealthy rock into a beautiful and salubrious city. As neither the one nor the other, however, avail much without something more material to depend upon, that support is found in the commercial importance of the colony as the depôt of foreign trade with China, and the head-quarters of the mail services of Great Britain and France, the United States and India." Hong Kong is, in short, the market of Canton, frequent and regular steamers plying between Canton and the island, which carry from 800 to 1200 passengers daily. Besides this traffic manufactures to some extent are carried on, a sugar refinery on a large scale, with all the modern appliances, having been established, which draws its supplies of sugar from the mainland of China.

Hong Kong has its civil, military, and naval establishments, with a governor and commander-in-chief at the head, and it has likewise its Government or botanic gardens, in which are some fine plants and trees, many of which, however, were destroyed, and others severely injured in the typhoon of September last. Amongst them were one or two large Banyans (Ficus indica), some Casuarinas, some good trees of Poinciana regia, a Sophora japonica, and some fine trees of Pinus sinensis.

Our engraving (fig. 124, on p. 597), which is copied from a photograph taken in these gardens, shows in the foreground on the right-hand side a fine plant of Rhodoleia Championi, a splendid shrub or small tree belonging to the natural order Hamamelidaceæ. It is remarkable, however, in having its flowers, which measure about 2½ inches in diameter, surrounded by several rows of imbricating sepals or bracts of a reddish yellow or brownish yellow colour, while the petals, which are rose-coloured, are arranged around the circumference in a double row, the sepals and petals thus forming a kind of outer and inner involucre. The stamens number from thirty to fifty in each flower, and have large brownish-yellow anthers. The leaves are bright green, similar to those of Camellia. Each flowering branch bears from six to eight or more flowers. The plant is a native of Hong Kong, and seeds of it were first received from Captain Champion, who discovered it in 1849, and he describes it as the handsomest of Hong Kong flowering trees. It is described in vol. lxxvi. of the *Botanical Magazine* for 1850, and is figured at t. 4509 of that volume. This figure, however, as will be seen from the engraving, as well as by comparison of original specimens, does not convey an idea of the size of the foliage and consequent habit of the plant. The tree shown in the engraving was about eight years old at the time the photograph was taken.

—— Thinking that anything relating to gardening in such a distant part of the world as China might interest some of your readers, I beg to send you photographs representing the third annual flower show of Hong Kong, which was held on one of the terraces in the Government gardens on the 19th and 20th of February last. The first horticultural show in Hong Kong took place in February, 1873, and was organised chiefly for the purpose of encouraging the growth of foreign kinds of vegetables for the supply of the market. Previously to 1873 foreign kinds of vegetables were scarcely procurable in the market at any price, but now, I believe owing to the influence of the horticultural shows, most of the kinds of vegetables which are desired by the foreign residents can be procured during the cold season at moderate prices. The cultivation of pot plants has also been encouraged by the flower show committee, and consequently the plants which have been exhibited have shown some improvement in cultivation, but the Chinese gardeners are very far indeed behind British plant growers as regards high cultivation, although they certainly excel in growing the dwarfed plants which they value so highly. I also send you a photograph of the rare and beautiful Rhodoleia Championi, taken from a tree in flower growing in these gardens; the tree is about 10 feet high. *Charles Ford, Superintendent of Government Gardens, Hong Kong, March* 17.

Notices of Books.

The contents of the last part of the *Journal of the Linnean Society* (botanical section) include notes on Indian Garcinias, by Dr. Hooker; on Aristolochias and Durioneæ, by Dr. Masters; and on Asparageæ, by Mr. J. G. Baker. In the latter paper, of which only the commencement is given, we observe that most of the brightly-coloured garden Dracænas now so common as decorative plants are considered to be varieties of Cordyline terminalis; D. erythrostachys of gardens is C. Banksii, Hk. fil, in *Gardeners' Chronicle*, 1860, 792; C. Haageana is retained; Dracæna lineata, Cordyline lentiginosa, and Dracæna Veitchii of gardens are all referred to Cordyline australis; Charlwoodia congesta is referred to C. stricta, and C. violascens to C. rubra.

—— The March number of the *Gartenflora* contains a coloured figure of Musa velutina, a species with beautiful pink bracts; of Primula algida var. cuspidens, and of Parnassia caroliniana, and some diagrams illustrative of the distribution and cultivation in the open air of Agave americana and Amygdalus communis.

—— The April number of the *Belgique Horticole* contains a coloured figure and description of a new Malvaceous plant, Pavonia Wioti (Ed. Mn.), with an epicalyx of numerous linear pink bracts, which give a very striking appearance to the flower, and link the plants producing them together. It is a native of Brazil, whence it was introduced to the nurseries of MM. Makoy & Co., of Liège, and received the 1st prize for a new plant at the recent exhibition at Antwerp.

—— The *Florist and Pomologist* for the present month contains a coloured plate of the flowers and fruit of the French Paradise Apple (Pommier de Paradis) which fruited last year at Chiswick, and a beautifully coloured illustration of the tuberous-rooted Begonia Model, which has large bright rose-coloured blossoms, remarkable for their perfection of form, and which was raised by Messrs. Veitch & Sons who gained a First-class Certificate for it in September last.

—— We have to announce with pleasure the long-looked-for publication of the fourth edition of Dr. Hogg's *Fruit Manual*. We shall take an early opportunity of commenting upon the contents of the work, which is much larger and more comprehensive than the last edition, published in 1866.

Florists' Flowers.

The large cultivators of the Dahlia—those who require great quantities of plants—will, by this time of the year, be in the very full swing of their Dahlia propagation; and already hundreds of nicely struck cuttings will be undergoing the hardening process in close cool frames. The rule of the trade is to send out new Dahlias on the first day of May—March and April are, therefore, busy months, when large quantities of Dahlias are required. There is nothing like having the use of a low lean-to house against an east or north-east wall, and if the floor of the house is beneath the outside level of the ground, so much the better. A gangway along the back leaves space for a bed between it and the front of the house, with a tank beneath it, through which hot-water pipes pass; or without a tank, for the matter of that. In such a house the bed will be up pretty near to the glass. The bed should allow of four or five roots being placed across it in lines; but the width of the beds depends in great measure on the size of the house. The tubers must be just or nearly buried in the soil, but leaving the collar clear. There should be at least 6 inches of a good, free, rich soil for the tubers to root into, and the soil must be kept well moistened, so as to give every encouragement to the growth of the tubers. Here, then, the young wood, out of which cuttings are made, is forced into growth.

Meanwhile, hot dung pits are also necessary to strike the cuttings after they are placed in the cutting-pits. These, in order to utilise and economise the heat of the dung as much as possible, should be sunken brick pits, so that the lining round them can be renewed as required, with holes in the brickwork through which the heat can pass to the cavity beneath the bed. Sunken pits of this character should be permanent erections; and as the manure is, to a great extent, below the ground level, there is not that evaporation going on that there is in the case of beds built up on the ground level, that are exposed all round to the drying action of the sun and the cooling influence of the wind. The interior bed is formed, in the first instance, of fermenting material, and over this is placed a layer of leaves, tan, or soil, in which to plunge the cutting-pots.

The cuttings are taken off when they are 3 or 4 inches in length, and are cut through nearly, but not quite, close to the tuber, and just beneath a joint. They are then put somewhat thickly into well-drained pots, firmly pressed, but not too deeply planted, in a rich, free soil. Each variety, if more than one be contained in a pot, is separately labelled; and the pots are then plunged nearly to their rims in the dung frame, and kept close. They soon strike roots and are as quickly as possible after potted firmly and singly into thumb-pots, and are then placed in another warm frame to become established, when they are removed to a cool close frame, and then gradually hardened off. This gives, in general outline, the propagating process applied by those who have to furnish Dahlias in large quantities. It may, however, be stated that the roots employed to produce cuttings are what is known as ground roots that flowered the previous year, and were lifted in October and November, and kept in a cool, dry place during the winter. The roots are lifted with some soil adhering to them, and stored away without shaking it off. Some break freely into growth and yield a large number of cuttings, others break only sparingly; a few will sometimes scarcely yield a cutting.

The amateur who every year raises a few cuttings does not need such elaborate arrangements to do what is requisite on his part. He has recourse to an ordinary dung frame, and in constructing this the dung should be well mixed, and turned and shaken out two or three times before it is finally put together, or there is danger of a foul atmosphere resulting, which is at all times detrimental to the well-being of the cuttings. When the dung-bed is made up, and the frame placed on it, a bed of soil 8 or 9 inches in depth must be laid over the manure; and when the tubers are placed in it care should be taken that there is sufficient soil between them and the soil forming the bed to keep the roots from coming into contact with the dung of the bed, as it is apt to rot them.

If there is a brisk bottom-heat to such a bed, in a short time there will be plenty of cuttings to take off. The heat can be maintained by placing some fresh dung round the bed when the temperature begins to fall off, and a brisk moist heat is indispensable to the well-being of Dahlia cuttings. If there be another frame at command, a second hotbed should be made up, so as to receive the cuttings taken from the first bed; and these should be put in pots, as before mentioned. Four inches of soil should be placed over the second bed, and on this the cutting-pots should be stood, having previously made the surface level. By standing the pots on the soil—not plunging them in it—the cuttings are brought near the glass. A 4-inch pot is the most convenient size to use; the cuttings should be firmly inserted round the edge of the pot, about an inch from each other. *R. D.*

HORTICULTURAL EXHIBITIONS, 1875.

MAY.

17 and 18.—Halifax Floral and Horticultural Society's Anoual Exhibition. Sec., Leonard Kershaw, 20, Gladstone Road, West Hill Park.
20.—Royal Horticultural Society of Ireland. Early Summer Exhibition. Sec., A. Balfe, 28, Westland Row, Dublin.
22.—Crystal Palace Great Flower Show. Sec., F. W. Wilson.
26.—Royal Botanic Society, Regent's Park. Summer Exhibition. Sec., W. Sowerby.
26.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.
31.—Coventry and Warwickshire Floral and Horticultural Society's First Show of the Season. Sec., Thomas Wigstou, 3, Portland Terrace, Lower Ford St., Coventry.
31 to June 4.—Bath and West of England Society's Exhibition at Croydon.

JUNE.

1 and 2.—Royal Western Horticultural Society's Exhibition at Plymouth. Hon. Sec., F. B. Bood, 16, Penrose Street, Plymouth.
2.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees. Great Summer Show.
9, 10, and 11.—Leeds Horticultural Society's Twelfth Annual Summer Show. Sec., James Birbeck, Delph Lane, Woodhouse, Leeds.
10.—South Essex Floricultural Society's Exhibition at Leyton. Sec., G. E. Cox, Leyton.
16.—Royal Botanic Society, Regent's Park. Summer Exhibition. Sec., W. Sowerby.
16.—Glasgow and West of Scotland Horticultural Society. Midsummer Exhibition. Sec., F. G. Dougall, 167, Canning Street, Glasgow.
16.—Royal Horticultural Society, South Kensiogton. Meeting of Fruit, Floral, and Scientific Committees.
17 and 18.—Lee and Blackheath Horticultural Society's Exhibition. Sec., C. Helmer, 5, Boones Road, Lee.
18.—Scottish Pansy Society's Exhibition at Edinburgh. Sec., W. M. Welsh, 1, Waterloo Place, Edinburgh.
19.—Crystal Palace Rose Show. Sec., F. W. Wilson.

THE
Gardeners' Chronicle.

SATURDAY, MAY 8, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY,	May 11.	Clearance Sale of Florists' Stock, at Guilford Nursery, Whitfield, near Dover, by Mr. H. Hayward.
WEDNESDAY,	May 12.	Royal Horticultural Society, South Kensington: Fot Rose Show, and Meetings of the Fruit, Floral, and Scientific Committees. Sale of Hardy Plants snd Bulbs, Wire Garden Hurdles, Lawn Mowers, &c., at Stevens' Rooms. Flower Show at Bath.
THURSDAY,	May 13.	Sale of Established and Imported Orchids, at Stevens' Rooms.
FRIDAY,	May 14.	Manchester Botanical and Horticultural Society's Annual National Exhibition at Old Trafford (until 21st).
SATURDAY,	May 15.	Sale of Bedding Plants at "The Vineries," Nightingale Road, Wood Green, by Protherce & Morris.

THE fortunes of the ROYAL HORTICULTURAL SOCIETY must surely have arrived at their lowest ebb. It is scarcely possible to imagine that they can sink lower. The new Council, which came into office with such vehement promises, especially as to financial matters, has been obliged to humiliate itself by deferring payment, even of the prize money fairly won in the last season. Some have even gone so far as to attribute to the governing body the intention to repudiate their obligations. This, however, we believe to be a mistake. A little charity toward a great Society fallen into misfortune sh ould have prevented such an insinuation. We feel assured that the Fellows of the Society, to say nothing of the Council, will not allow so dishonourable and damaging an insinuation to remain long without practical refutation; whether or no, it will be more profitable to look forward to the resuscitation of the Society on a more secure basis than to indulge in vain and irritating recriminations. Better to admit at once that all parties are more or less to blame—the local Fellows for a narrow selfish policy, which would degrade the Society into a sort of better tea-garden; the horticulturists for a want of unity of purpose and an equally selfish desire to use the Society for their own ends rather than the advancement of practical and scientific horticulture.

The Society was founded purely and simply for the latter purpose. The wider it has diverged from it the more signal has been its loss of influence, the deeper its humiliation. Is it possible to rescue the old Society from the slough? Some throw up their hands in despair at the thought. Such is not our view. We believe that the reorganisation of the Society, heavily burdened as it is, is still possible.

In the first place, we have a Society which, whatever its present low estate, has grand traditions. No Society of a similar kind has done so much—nay, even now, not one does so much pure horticultural work of the best character. Where will you find a Society whose officers and committees include so picked a body of practical and scientific members? Nowhere. Is it, then, likely that such a Society can entirely fall to pieces? It is incredible.

Other Societies, we doubt not, nay, we know, can and do get up as good and better flower shows. The provinces take the lead in this particular. But is this all? Are flower shows the be-all and end-all of horticulture? Unquestionably not. It is comparatively easy to get up a good flower show, but it is not an easy matter to create an organisation which shall promote the higher interests of horticulture. Such an organisation exists still in the Royal Horticultural Society. It has survived the disputes and misfortunes of the last few years, and this makes us confident that it will survive yet longer, and be the means of lifting the Society to its proper position. But how? To this we answer, by going back to first principles. The Society dates its present low fortunes from the time when it left its own proper sphere to pander to the fashion of the day. The Commissioners for the Exhibition of 1851, or rather their predecessors, the partners of the Society, as we are often told, were—not intentionally of course—the primary source of the troubles of the Society. They contented themselves with being the most indulgent of landlords; they did not, as might perhaps have been expected from a body expressly constituted, if we appreciate the matter rightly, to be the promoters and encouragers of art and science—they did not actively foster the higher interests of the art and science of horticulture. They stood by and allowed the Society to drift into a mere airing place for Kensingtonian nursemaids and a lounge for West End Dundrearies. At the best they looked upon the Kensington Garden as a pleasant *délassement* from the galleries of the annual exhibitions. The higher work of the Society at its several committees, and at Chiswick, received little or no countenance or support from the sleeping partners. It may be that, if they had done so, they would have exposed themselves to some accusation of interference, which might have been resented. It may be so, but, even if it be so, that would have been better than the underhand influence which people suspected was somehow or another exercised in the name, or under the shelter of the Commissioners' authority. Be this as it may, circumstances have made it apparent that, if the Society is to remain the Royal Horticultural Society, its persistence—shall we say its rehabilitation?—depend now upon the goodwill and active assistance of Her Majesty's Commissioners. They have the power—and, from all we hear, they have the will—to free the Society from its present desperate condition. As trustees for the public they cannot favour any sectarian party, be it local or be it commercial; but they would, we believe, actively help a Society which was true to itself—which was, before all things, horticultural.

To maintain a garden which is horticultural only in name, to divert the funds and energies of the Society to stock a conservatory which could probably be as well and more cheaply furnished by a contractor, to continue bands, to establish a skating rink—these are things not absolutely blameworthy, but they should be entirely subsidiary, if they must be tolerated at all, to the real work of the Society. The real work of the Society, as we understand it, should be to maintain and improve the work now done by the committees; to develope Chiswick into an experimental horticultural garden worthy of the age; to institute a school of practical and scientific horticulture which shall rescue us a nation from the disgrace of being beaten by Belgium, by Germany, by America; to hold exhibitions which shall be something more than trade advertisements—something which shall not tempt the less scrupulous amongst growers to indulge in something very like gambling; to raise the status and secure the proper position of gardeners; in a word, to promote the highest, most catholic interests of horticulture, and of horticulture only—such as we have the fullest reason to know was the intention of the enlightened Prince who formerly held the Presidential chair.

To do all this some arrangement must be made whereby the burden of the Kensington garden and its conservatory, and of the debenture dèbt, may be lightened, and the funds now expended on them spent in a manner more beneficial to the nation at large. The Royal Horticultural Society is, or should be, the national representative and embodiment of horticulture. It is impossible it can be so all the time it is kept simply as an appanage to the houses of the residents in South Kensington. We believe the Commissioners now recognise this truth, and we have sufficient confidence in them to believe that, taught by the lessons of the past and the dismal facts of the present, they would now willingly help the Society out of the mire. If they do not do so it will, we believe, be the fault of the present Council, or of the "local Fellow" element in it, and they must be prepared to bear the whole responsibility attaching to the fall and degradation of a great Society if they persist in their present exclusive and non-horticultural policy.

QUITE recently (pp. 176, 276) we have revived the subject of landscape gardening, with more especial reference to the peculiar characters of different TREES AND THEIR EMPLOYMENT IN FORMING PICTURESQUE AND HARMONIOUS SCENERY. Too little attention is given to the study of the varied beauties of trunk, mode of branching, foliage and flowers presented by the numerous species of hardy trees wherewith a bounteous and inexhaustible Nature has supplied us. Books devoted to the consideration of hardy trees and shrubs are not wanting, but they are, almost without exception, limited to mere technical botanical descriptions. A tree may be designated as noble, majestic or graceful, its foliage as handsome or elegant, and its flowers as brilliant or fragrant, but beyond this those who write for practical purposes rarely go. Poets, it is true, never tire of singing the praises of the forest and the field; but something between the dry descriptions of botanists and the fancies of the poet, is needed to awaken an artistic enjoyment and appreciation of the peculiar beauties and the proper use of different trees in landscape gardening.

No one, probably, possesses a more extensive knowledge of hardy trees and shrubs than Professor KOCH of the University of Berlin, and few persons have had better opportunities for studying landscape gardening as carried out in different countries. During the past autumn and winter the author of the *Dendrologie* has been supplementing that descriptive work by a course of lectures on the history of landscape gardening as a plastic art, and the history and spread of the various styles in vogue at different periods. In these lectures the tree element is the main feature developed, and, judging from the condensed reports which alone have as yet reached us, the veteran Professor has handled his subject in a masterly style. We are glad to learn that they are to be printed in full, and we have the author's consent to make what use of

them we please for the benefit of our readers. We anticipate a profitable and pleasurable addition to our literature on this subject, and, in the interest of diffusing as widely as possible a more correct taste in planting, we shall give them as much space as they deserve. In Berlin, these lectures at the University soon became so popular and so numerously attended that Professor Koch was induced to accede to a request to repeat them in a hall open to ladies and the general public; and the public class proved equally successful. We have little doubt that a similar course of lectures would be equally well supported in this country, and we heartily wish our horticultural societies would take up the subject in a popular spirit. Prizes are sometimes offered for designs for flower-gardens, but they are so inadequate to the labour involved, that the result is usually worse than useless. Without entering into any details here, we may remark that we are not credited by Professor Koch with progress in the art of landscape gardening in the natural or picturesque style, though it may be said to have originated and generally flourished in Britain. There may be a difference of opinion on this point, but he claims, as we have previously mentioned in this journal, an advance and an improvement of the "English" style in Germany. He confesses, however, that of the numerous foreigners conducted by him in 1869 through some of the most attractive of German gardens, few appeared to fully appreciate the peculiarly German features. Barillet Deschamps expressed his gratification with the details of the Muskau Park—regarded as one of the finest specimens of modern landscape gardening in Germany, but as a whole considered it to be wanting in the higher flights of imagination. But Prof. Koch observes that he thinks the Latin races will never fully comprehend the merits of the German style. This is doubtless true; moreover it is very desirable that each nation should develope its own artistic genius. As specimens of the first order in Germany the parks of Branitz, Muskau, Sans-Souci, Glienecke, and Babelsberg are cited. Those of our readers who have visited some of these places will better understand the force of the observation. Among collateral topics touched upon by Prof. Koch are landscape painting, and its influence on gardening, town planting, and more particularly the laying-out of public parks and the opening of private ones in the vicinity of large towns. Here we leave the subject until we receive the full report of these interesting and instructive lectures.

Fig. 124.—Rhodoleia championi, in the Hong-Kong Botanic Garden.

—— In the February number of the *Gartenflora* M. E. Mayer, Inspector of the Carlsruhe Botanic Garden, gives the results of a series of experiments, extending over several years, in Raising Ferns from Spores, more particularly the Gleicheniaceæ, Marattiaceæ, and Hymenophyllaceæ. He has succeeded in raising one species of Gleichenia, G. dicarpa, in large numbers; but, in the absence of spores of any other species, he could not extend his experiments. From the first beginning of the development of the prothallium until the appearance of the first frond, exactly five months were consumed. The dark green prothallium of Gleichenia dicarpa is nearly circular, and about half an inch in diameter. It is remarkable for its peculiar root-hairs, which are short, thick, bristly, of equal length, and of a lustrous metallic brown colour. The spores of the Gleicheniaceæ observed are of an almost sulphur-yellow colour, and may thereby readily be distinguished, even without a lens. Among the Marattiaceæ, also, only one representative was raised from spores, namely, Marattia latifolia. From the day of sowing until the appearance of the prothallium a month elapsed, and another month passed before the plantlets were sufficiently large that it was possible to prick them out. The first frond did not show itself for a period of six to eight months, and in some cases even a longer period was consumed. In this Marattia the prothallium is very large, and an experiment was tried to propagate some of them by cutting up. On each portion one of the deep sinuses was left, as the first fronds are usually produced in or near one of them. The experiment was perfectly successful, nearly all of the pieces producing fronds in a much shorter time than those imported. Every attempt to raise any of the Hymenophyllaceæ from spores proved fruitless, even although the spores were sown directly. The first stage of germination or vegetation of the spores of this group of Ferns takes place in the spore-cases before they are detached from the plant, and the shortest interruption in the vegetative process seems to be fatal to the vitality of the spore. Cultivators of Ferns, even those of some experience, are frequently perplexed with the results of their attempts to raise Ferns from spores. M. Mayer, in the article from which we have taken the preceding notes, treating of Ferns generally, points out some of the chief difficulties and the best means of surmounting them. The principal aim should be to exclude the spores and germs of other Ferns, Liverworts, &c., but this is no easy task; in fact M. Mayer, in the course of his experiments, found it impossible to do so altogether. The only thing is to abate the evil as much as possible, destroying the animal as well as the vegetable life contained in the compost used. This is most effectually done by boil-

ing or baking it for a short time, and using it immediately afterwards. But the greater danger is in the Fern-house itself, where there are spore-bearing plants of some of the exceedingly fertile species of Pteris, Gymnogramme, &c., the spores of which penetrate every nook and corner, and, being of much more rapid vegetation than many others, they take possession of the pots or pans, and effectually choke the species sown. The operation of sowing, then, should be conducted in a place where there is the least probability of the spores of other species being present floating about in the air. There is also a risk in sowing several different sorts at the same time, and in spite of every precaution intruders will make their appearance. The frame, or whatever they are put in, should be thoroughly purged with scalding water, and tobacco-smoke is as effective as anything in driving away insects and other noxious animals. Twenty years is about the limit, so far as M. Mayer's experience goes, up to which the spores of some of the freer-growing Ferns will germinate.

—— With reference to the project, at present visionary, of holding an International Horticultural Exhibition, in 1878, in London, like that of 1866, we are reminded that in that year the quinquennial exhibition at Ghent will take place. We merely notify the fact, for, in the present disturbed state of the Royal Horticultural Society, it is premature to speculate on what may be.

—— The following information for intending English exhibitors at the forthcoming International Horticultural Exhibition at Cologne, to be opened on August 25 next, has been sent to us for publication. The Netherlands Steam Navigation Company and the Belgian Company, whose steamers ply respectively between London, Rotterdam, Dover, and Ostend, as well as the Rhenish Railway Company, have reduced the freight on goods to be sent to the Exhibition by 50 per cent., and no duty will be charged on such objects unless they should be sold in the country.

—— Tacca artocarpifolia is flowering in the new Victoria-house at Kew. It combines the interest of the curious inflorescence of its ally, the Ataccia cristata, with foliage of a different type, and of very ornamental character. This specimen is growing in a 9-inch pot, and has four leaves, with petioles 5 feet in height, measuring about 4 feet across. The blades are trisected, and the stalked segments pinnatifid to nearly the base, with the pinnules opposite or alternate, five or six on each side. They are 1¾ inch in width, and taper to long points. The scapes, two in number, are over 6 feet in height, and bear many flowers, which in themselves are of more interest than ornament; some are passing into fruit, and from their similar form remind one forcibly of Luffa acutangula. The inner leaves of the involucre arch upwards, and form, as it were, a canopy over the young buds; the sterile pedicels are numerous, about 12 inches long, and pendulous. It was contributed to the Royal Gardens by W. W. Saunders, Esq., and flowered for the first time last year, when it was figured in the *Botanical Magazine.* We there learn that it is a native of Madagascar and Johanna Island, whence there are excellent specimens in the Hookerian Herbarium from Mr. Justice Blackburn, Dr. Lyall, and W. T. Gerrard. It is further said no doubt to be as full of starch and as wholesome as its nearest ally, T. pinnatifida, which yields the South Sea arrow-root, used as food in the form of puddings and cakes, and said to be the best of all in cases of dysentery. So far it has proved of evergreen habit, is easily cultivated, doing well with ordinary stove treatment; and by division is readily increased.

—— As an instance of the fluctuation of trade, we give the substance of two notes which lie before us on the cultivation and traffic in Canary Seed (Phalaris canariensis). Both notes were furnished by one of the principals of a firm dealing largely in the seed. The first, dated May, 1860, says:—"Canary seed is cultivated in some parts of England, chiefly in the Isle of Thanet and the county of Essex. It was formerly shipped from Spain, but has recently been neglected in that quarter. Holland exports large quantities of this seed, and very lately large shipments have been received from the Mediterranean, the Sea of Marmora having formed a new source of supply. The Greeks have purchased it in small lots from the surrounding districts, and from the activity of their collection they have succeeded in shipping to this country alone within a few months something like 12,000 bushels. As much as 10,000 quarters of this seed are annually consumed, principally by caged birds and chiefly in the manufacturing districts of Yorkshire and Lancashire; of this bulk England produces by far the greatest portion." In the second note, which bears date April 23 of the present year, we are told that there are no official statistics with regard to the traffic in Canary seed, but it may be safely assumed at 200,000 bushels annually. Of this quantity probably more than nine-tenths are derived from Barbary and Turkey; Holland and a few only of the English counties furnishing the remaining quantity. During the last eighteen months an unusual demand has sprung up from the United States, and this, coupled with an utmost total failure of the 1874 crops of both Barbary and Turkey, has created a scarcity almost unparalleled in the history of the trade. Prices in consequence have advanced to about 240*s.* to 250*s.* per quarter, the average price during the previous twenty years having been about 52*s.* per quarter. Its chief use is still for feeding birds, the great consumption in Yorkshire and Lancashire being attributable to the custom amongst the factory hands of keeping pet birds. Prior, however, to the advance in price Canary seed was used to a limited extent in the food of highly trained race-horses, its effect being to form muscle and not fat, the seeds being free from oil.

—— Some additional special prizes are announced by the promoters of the International Potato Exhibition, to take place at the Alexandra Palace on September 29 and 30. Messrs. B. K. Bliss & Sons, of New York, offer special prizes for three varieties of new American Potatos, distinct, that have been offered in commerce for the first time in the years 1874-75, nine tubers of each; and Mr. John Coutts, Potato salesman, Covent Garden, offers special prizes, also, for three varieties of English seedling Potatos, distinct, not yet in commerce, nine tubers of each. The sum of five guineas is given in each case. This recognises the claim of English seedling Potatos to consideration, while it also gives an opportunity of exhibiting the newer forms of American production. A supplementary schedule containing these prizes is now in course of distribution.

—— The following Special Prizes for Essays are offered by the Massachusetts Horticultural Society:—

For the best essay upon the Culture and Varieties of Roses; to be read during the Rose Exhibition, Thursday, June 17—25 dols.

For the best essay upon Grape Culture in gardens and on buildings, with a list of varieties best adapted to such purposes; the essay to be read on Saturday, October 92—5 dols.

For the best essay upon the Culture of the Cauliflower and other vegetables of the Cabbage family (Brassica oleracea); the essay to be read on Saturday, November 62—5 dols.

For the best essay upon the principles of Landscape Gardening as applied to small suburban estates; the essay to be read on Saturday, November 27—25 dols.

The essay upon Rose Culture must be submitted by the first Saturday in June; all others at least one month before the day for the reading of the essays. All essays must be in sealed envelopes directed to the Committee on Publication and Discussion, Horticultural Hall, Boston, and must be unsigned, but must be accompanied by the name of the writer in a sealed envelope. These prizes are open to general competition.

—— At a recent meeting of the Central Horticultural Society of France, Dr. Boisduval, unintentionally, no doubt, does us the injustice of stating that we reproduced his observations on the new Potato Disease in Algeria, alleged to be produced by a moth, without giving him credit for them. If Dr. Boisduval will turn to our columns for the present year he will find at p. 82 that we give chapter, verse, and author's name. We may add that some doubts are expressed by our entomologists as to the correctness of M. Boisduval's views.

—— In the current issue of the *Journal of Botany* Dr. H. F. Hance has a paper on some Mountain Plants from Northern China, from which we gather that at the commencement of last summer Dr. Emil Bretschneider paid a visit to a celebrated mountain named Po-hua-shan, or "Mountain of a Hundred Flowers," situated three days' journey west of Peking, in the midst of the hill country, which is believed to extend westward as far as the Yellow River. Some idea of this "Mountain of a Hundred Flowers" may be gathered from the following extract:—

"The mountain itself is separated from the neighbouring elevations by a deep and rugged valley, formed by a small tributary of the Hun-ho, which bounds it on the north, the west, and the south, whilst to the east, where also the descent is exceedingly steep, another tributary of the Hun-ho rises. Po-hua-shan is thus almost entirely isolated from the surrounding mountains, which it exceeds in height. Its actual elevation has not yet been determined, though Dr. Bretschneider took barometrical observations; but he estimates it as between 7000 and 8000 feet above the sea level. The mountain appears fully to deserve the poetical name it has received—

'Namque hic per frondes redolentia lilia pendent,
Hic rosa cum violis, hic omnis gratia florum.'
Reposiani, Concub. Mart. et Ven., 41.

The Chinese report that in July and August it is in its full glory, teeming with blossom; and it is then visited by the Peking herbalists, for the purpose of gathering the medicinal plants for which it is famous. It is wooded throughout to the very summit, the forest consisting of Betula (sp. 3), Populus (sp. pl.), Castanea, Juglandaceæ, Quercus, Acer, and many other trees, mingled with a thick underwood, and towards the foot—that is, still at an elevation of between 3000 and 4000 feet above the sea—masses of Syringa, exhaling a most delicious fragrance, are met with, whilst all the rocks are resplendent with the brilliant rosy blooms of Rhododendron."

—— The Rev. M. J. Berkeley, M.A., and Dr. Maxwell T. Masters, F.R.S., have been elected Examiners in Botany at the University of London for the ensuing year.

—— We are informed that the Horticultural Club will be opened for the use of members on Wednesday next, May 12. Dining, drawing, smoking, reading, and billiard-rooms, will be at the disposal of the members. The situation is central, and occupies one of the best sites in London, viz., Adelphi Terrace, overlooking the garden on the Thames Embankment, close to Charing Cross Station. Nothing now is wanting to complete success but an accession of new members. The entrance fee is fixed for the present at two guineas, with an annual subscription of two guineas. All communications should be addressed to the Hon. Secretary, 3, Adelphi Terrace, Strand, London, W.C.

—— The *Moniteur Horticole* recommends the following twelve Pears as pyramids on the Quince, on the ground of hardness of bloom, vigorous constitution, and ascending branches:—Ananas de Courtrai, fruit very good, ripe August and September; Beurré Dumont, excellent, October; Louise Bonne d'Avranches; Conseiller à (not "de," as so often written in this country) la Cour; Duchesse d'Angoulême, Beurré Durondeau, Soldat Laboureur, Doyenné du Comice, Thompson's, Sœur Grégoire, Passe Crassane, and Bergamotte Esperen. We do not doubt the propriety of the selection made by our contemporary; we would, however, remind the amateur of the enormous differences that local circumstances make in the quality of Pears, so that a selection applicable to one site or one soil is far from being appropriate to another even close by.

—— According to M. Duchartre, France has not much to fear from the introduction of the Colorado Beetle, inasmuch as she exports Potatos largely and imports very few. Last year, we are told, France exported 110,000,000 quintals, and imported only 9,000,000 quintals.

—— In many parts of Japan where the Tea Plant is cultivated, a very great deal of care and attention is given to the proper manuring and irrigation of the ground. For the finer kinds of Tea the leaves are gathered from the shrub when it is in what is known as the three-leaf stage, namely, when the three leaves at the ends of the branches are young and tender. When four or more leaves appear they get harder and drier, and, consequently, make Tea of an inferior quality. The finest, however, and most esteemed amongst the Chinese is what is known as Powder Tea; and this is a great luxury. Though the produce of the same plant as ordinary Tea, it is described as being cultivated in a different manner, "thus developing a leaf different in consistency and flavour." Two kinds of this Tea are known, one under the name of "koicha," and the other as "resucha;" both are made from the leaves of very old shrubs selected from the best grounds or plantations. These shrubs are described as being very freely manured some ten times in the year for "koicha," and some six times for "resucha." "About the end of March or beginning of April," it is stated, "they are surrounded on all sides, in addition to being covered with a Bamboo screenwork, so as to protect them from frost. This screenwork is removed as soon as summer has well set in. After the leaves have been picked they are steamed for about half a minute, spread out on matting, and cooled. Then follows the same process as with ordinary Tea, namely, firing—first over a quick then over a slow fire, the only difference being that the leaves are turned about with a stick, and not with the hand. When about half dried the leaves are placed on trays, and dried gradually over a light fire, after which they are passed through Bamboo sieves; finally they are spread out on sheets of paper, each leaf being picked out singly. Great care is shown in the mode of storage of this particular kind of Tea. The leaves are placed in tin or white metal jars, which again are enclosed in wooden boxes and packed with a certain quantity of common leaf. This preserves the scent and flavour for a long time. When about to be used for drinking, a sufficient quantity is taken out of the metal jar, placed in a small hand tea-mill, and slowly ground into a very fine powder. This powder is then removed with a feather and placed in an air-tight jar. Boiling water is then got ready, and when just at boiling point about one quarter of an ounce of Tea powder is put into a tea-cup and boiling water poured on to suit taste. The whole is then rapidly stirred with a Bamboo stick especially made for the purpose, until a good froth is produced, when the Tea is fit to be drunk, much ceremony being observed in its drinking."

Home Correspondence.

Transmutation of Wheat into Brome (pp. 112, 115, &c.).—I have been anxiously hoping that Mr. Meehan would kindly communicate to your paper some account of the "trick" by which so many scientific Americans were "taken in," and for so long a period. It would be a useful contribution to our knowledge, and would be the means of protecting young gardeners and others from being deceived in a similar manner. I intended to wait a little longer, hoping that the information would have found its way into your journal without any suggestion from me; but your notice of Mr. Clare Sewell Read's remarks recalls my mind to the subject, and induces me to beg of Mr. Meehan to tell us what he knows about it. I remember, when the subject was last discussed in your columns, it was stated, with respect to the other popular belief as to snakes swallowing their young (Jan. 23, 1875, p. 115), that Professor Goode's authority consisted of "replies from over eighty persons residing in twenty-four different States and Territories, all being written by farmers and persons in rural life, of sufficient intelligence to subscribe to an agricultural journal." Now, Mr. Clare Sewell Read occupies a far higher position than this. He is a "farmer," it is true, and he is "a person in rural life of sufficient intelligence to subscribe to an agricultural journal;" but he is far more than this—he is a most intelligent man, and one who would be found not only subscribing to an agricultural journal, but contributing to its columns valuable papers on agricultural subjects with which he was practically acquainted. Mr. C. S. Read has earned such a character for intelligence that he has been sent by his brother tenant-farmers to represent their interests in the Commons' House of Parliament. He is, moreover, a prominent member of the Central Chamber of Agriculture and the London Farmers' Club, and whenever he makes a speech on any subject within the limits of his own personal experience he brings to it an amount of strong, shrewd common sense, which makes it a delight to read and study his most valuable observations. Mr. Read is reported to have said, "If Oats were sown and kept constantly cut as they grew, it would be found next year that they produced, not Oats, but something else. He knew an instance where this had been tried in a garden, the Oats being kept cropped with a pair of shears, and covered from the first with a little straw in the winter, and the next spring they produced a crop of Wheat. In other cases, Barley and Rye had been the result. It was only Oats, however, which thus varied—other grain always reproducing itself." But although Mr. Read is reported to have said all this, and that "he knew an instance" of Oats treated in the above manner having produced Wheat, I will venture to say that if he uttered the phrase at all it was used in a very loose sense, and that Mr. C. S. Read will not tell the scientific world that he made the experiment himself, nor that the experiment, if made by anybody else, was conducted with that amount of care which is requisite in a critical investigation of so much importance, involving, as it does, the well-settled belief of scientific men in the stability of our common cereals. I may add that the recent experiments by Mr. A. S. Wilson on Wheat and Rye hybrids (referred to in your number for the 17th inst., p. 496), afford no support to the transmutation hypothesis, but, so far as they go, make directly the other way. *W. Marshall, Ely, April* 26.

The Royal Horticultural Society.—It would be interesting to know on what grounds Mr. Burnley Hume based his belief when, acting as chairman of the meeting at South Kensington on the 21st ult., he stated that at the next show, on May 12, "they hoped to put before the Fellows a fine display of pot Roses." Certainly, if Mr. Hume really hopes so much, he must have greater faith than is possessed by most mortals. If the March show was a comparative failure, that of April 21 was a lamentable failure; and judging by what is seen as well as by what is heard, it seems probable that the May show will be, "to use a stronger adjective," a miserable failure. And such will be all the remaining shows of the year—as far as the Society's schedule is concerned—unless some change in the present mode of doing business is speedily made. Are the Council aware that many of the principal exhibitors have resolved not to exhibit for half prizes, and that many others are equally resolved never again to exhibit until the Society's financial engagements towards them are discharged; whilst the few that do exhibit do so only at considerable loss, and are moved to show only from motives of pity, lest the exhibitions should utterly collapse? It is disheartening to be told, in excuse for the non-payment of the previous year's prizes, "that the Fellows are so behindhand with their present year's subscriptions," as this is a tacit avowal that the prizes of the past year are to be met out of the present year's income. The acknowledgment is alike discreditable to the Council and to the Fellows. In your report of the recent show, you allow a margin of £5 for extra prizes. It is most probable that 20*s*. or less will pay these, as it is notorious that when at the March show several of our leading nurserymen staged very fine collections of plants, to which extra prizes (silver medals, according to the prize cards) were awarded, these prizes were by the Council converted into cheques for 15*s*. each—a display of meanness so extreme as to be almost beyond belief, but which received complete verification on the 21st, as neither of the firms in question sent collections of plants on that occasion. I believe now that things have advanced so far at South Kensington as to be absolutely beyond reform. The Society is drifting on rapidly to destruction, and not a hand will be stretched out to help it. The horticulturists are either indifferent or antagonistic, and a strong power, in the shape of the outside public, is beginning to inquire as to the right of the Commissioners of the Exhibition of 1851 to dispose of the site of the Horticultural Gardens for its present exclusive and comparatively useless purposes. It is rumoured that the Council and the Commissioners are gradually coming to terms, but that sheds no ray of hope. Doubtless 'twere better that the Society should expire, if a new and rejuvenescent one could arise like the Phœnix from its ashes. *Hortus.*

Notes on Stapelieæ.—Having just completed the examination of a small collection of Stapelieæ preserved in spirits of wine that were sent to Kew partly in June, 1874, and partly in March last, by Sir Henry Barkly, the Governor of the Cape of Good Hope, I now make these few notes upon them in hopes they may prove interesting to some readers of this paper. Among them are several new species, and some of those rare and almost unknown forms discovered by Francis Masson about eighty years ago. A few of the specimens were collected in Namaqua-land by Sir Henry Barkly, the rest are from various parts of South Africa. The most noteworthy species among them are Stapelia pulvinata, Masson, remarkable for its very large central cushion of soft hairs; two curious Piaranthi, one of which is very like Piaranthus pullus, Mass., but the angles are bolder, the spines more robust, and the flowers differently coloured; the other species appears to be a variety of P. incarnatus, Mass. A new species of Huernia; an Obesia, which is probably O. decora, Mass.; Tridentea moschata, Haw.; and a curious new and small species of the same section, with greenish yellow flowers, the edges of the corolla lobes being turned back, as in Obesia and Stapelia Asterias; also the interesting and strange-looking Caruncularia pedunculata, Masson (not of other authors). But the most remarkable of all is a new species of Stapelia, that seems to be a natural hybrid between a true Stapelia and Haworth's genus Orbea, to which S. normalis, bufonia, &c., belong. The stems are like those of an Orbea, but having the pubescence and stoutness of a Stapelia; the flowers are about 6 inches in diameter, and coloured something like S. hirsuta, L. In the centre is a raised orbiculus, as in Orbea, but thicker and more fleshy; the outer corona resembles that of Stapelia, the inner corona being intermediate between Stapelia and Orbea; the orbiculus at its base, both outside and inside, is fringed with long reddish hairs, as are also the corolla lobes, a character which specially belongs to Stapelia. From the above it will be seen that the characters belonging to the two sections are pretty equally combined in the present plant. This interesting species was discovered by the Rev. Mr. Morris in Little Namaqua-land, and a living plant of it is, I believe, in cultivation at Kew. Besides the above mentioned there is a very curious abnormal specimen of what I believe to be Stapelia (Orbea) marginata, Willd., in which the peduncle has become fasciated, and bears two flowers that are much contorted. Premising that the normal number of parts in each whorl in any Stapelia is five, I will call the flowers A. and B., and contrast the number of parts in each whorl of the two flowers:—

A.	B.
Calyx—6-parted	Calyx—6-parted
Corolla—6-lobed	Corolla—7-lobed
Orbiculus—6-angled	Orbiculus—7-angled
Ligulæ (outer corona)—5	Ligulæ (outer corona)—6
Inner corona, consisting of the 2-horned processes called rostra and alæ—5, but all the rostra have a tendency to be doubled	Inner corona, &c.—6, 5 normal, and the sixth with two rostra and two alæ
Stigma—pentagonal	Stigma—hexagonal
Pollen masses—5 pairs	Pollen masses—6 pairs

N. E. Brown, Kew.

Covering Primula Seed.—How often do we hear complaints about the inferiority of Primula and other seeds, and the blame thrown on the nurserymen, who are often subjected to the annoyance of letters complaining that such a packet of choice seed they had supplied had never made its appearance, when I fear that the fault often rests with the sower in the mode of covering the seeds. Take Primula sinensis for instance, and what a number of failures we see, and how often the sowing has to be repeated, causing loss of time and cost of extra seed—no mean item when you may give 5*s*. for a packet that will lie in the hollow of your hand. I have tried a great number of materials for covering, but have found nothing better than to make the surface of the soil in the seed-pan smooth, sowing the seed and covering with freshly-gathered moss. The merit I claim for moss over peat or sand is that it does not bake hard and hot, and so destroys the vitality of the seeds before they can germinate, but keeps the seeds cool and moist until germination takes place, as will be seen by gently moving the moss a few days after sowing; the seed, too, will be up in half the time that would be taken if covered by soil. I sowed two packets of seed in the end of March. Placed in a Cucumber frame they began to germinate in a week, and in another I moved the moss and gave them a top-dressing of fine soil, and they look now, to use the words of some gardeners that saw them, like pans of Mustard and Cress. I do not believe one seed was lost. *Joseph Murdoch, The Gardens, Green Heyes, Warwick.*

Nemophila insignis and Cats.—I find an effectual mode of protecting Nemophila beds from being rolled by cats is to surround them with rabbit netting when sown in the autumn. Being rather disfiguring, I have it removed when the plants are coming into bloom, as at the present time, and find the cats do not attack it so violently as when more tender. The netting is also useful when protection from frost is needed during the winter. *A. Grubb, Glenam.*

Sweet Nancy.—At p. 471, in the paragraph about "Sweet Nancy," "B. M." speaks of an ancient provincial name of Narcissus as "Lanstibi," and questions its meaning. I think it has been a misprint for "Laus tibi," judging from the analogous name, "Gratia Dei," given to some medicinal plants, particularly (as mentioned in the *New English Botany*) from its being possessed of properties making it useful for medicinal purposes. *A. Rawson, Bromley.*

Strawberry Culture in Pots, &c.—Most people in possession of a garden devote part of their time to the cultivation of the Strawberry, and the few remarks which I am about to offer are intended for the information of amateurs, and are based on my own experience. For early forcing Black Prince and Keens' Seedling are the best. Sir Charles Napier, Sir Joseph Paxton and President, make a very good succession, and are put to work in the order named. The first runners that show should be layered in pots (60's) filled with good loam (for the Strawberry delights in a stiff soil), and plunged to the rim to prevent them drying up too quickly, and a stone placed upon each runner to prevent them being blown off; when dry they receive a watering, which should be repeated when necessary; and when the pots have become partly filled with roots, they should be detached from the parent plants, and the Black Prince shifted into small 32's, and the others into large 32's and 24's. The pots should be well crocked—say 2 inches of crocks. We use our best loam with a little road-sweepings added. Previous to potting, the plants should get a thorough soaking, for be it understood that if potted when dry the chances are that they remain so for several weeks afterwards, that is, until the whole soil has become one mass of roots. In potting the soil should be well pressed by a rammer; they should then be placed in a situation fully exposed to the sun (we find the Vine border walls to answer admirably), but not too closely together, for if otherwise placed they would become drawn. This done they receive a watering, after which a little judgment will be required in the application of water until they have caught hold of the soil. When the pots get pretty well filled with roots liquid manure may be applied in a diluted state three or four times a week. But at no time while growing should they be allowed to suffer for want of water, and all runners should be kept pinched off during their growing season. When the plants have completed their growth by making nice solid and well ripened crowns, they should be put to rest, and the earlier in the season this can be accomplished, the more satisfactory the results, which, with proper treatment, may be anticipated in early forcing. With regard to the time to commence forcing the Strawberry much depends on circumstances, but there is not much use in putting them into heat before the turn of the day, but we always try, and therefore put a batch into our first early vinery, which we start on November 1. Sometimes we are successful, and manage to gather a dish about the middle of February. But much depends on the weather, for in the absence of bright weather, when the Strawberry is in flower, it is difficult to get them to set. Night temperature from 50° to 60°; day temperature, with sun, from 85° to 90°. From the time the berries are set we use saucers, which every Strawberry forcer knows the value of, as they retain part of the water that passes through the pots, which the plants ultimately absorb. So soon as the fruits are set, they thould be thinned out, and not allowed to remain for a week or more before doing so, as is too often the case; ten or twelve berries (much depends upon the size and condition of the plants), and those as near the same size as possible, will be sufficient to leave on each plant, and which will weigh as much as if thrice the number were left on the plants.

The reason for leaving so many berries of equal size on the plants is that each batch of plants in their respective stages ripen their fruits at one time, when they can be gathered, and the plants turned out-of-doors or into some pit to be hardened off before they infect the other plants with red-spider, which would be the case were each batch of plants allowed to ripen a successional crop. These plants should be placed as near the glass as possible where they can have plenty of air and sun—the former to set, and the latter to ripen and give flavour to the fruit. Liquid manure in a diluted state should be applied three or four times a week, from the time the berries have set until they begin to colour, when it should be withheld, and clear water used. We force 1400 pots of Strawberries every year, and of these, when forcing is over, we make a fresh plantation every year, destroying an equal quantity of the old plants. These plants bear a good crop the first year after planting, and after the third year they are destroyed. The ground should be trenched and well manured previous to planting, when they should be planted in rows 2 feet apart, and at the same distance in the rows. They should get a thorough soaking the evening previous to planting. *H. W. Ward, Longford Castle, Salisbury.*

Apple Stocks.—I send you by this post specimens of early flowering Apples, for the purpose of showing their resemblance to one another, as well as to prove that the sort marked Scott's Pommier de Paradis is earlier in coming into flower than the sort marked as having been received from Mr. Barron, of Chiswick Gardens, as their earliest flowering Paradise stock. I wish to call your attention to the difference between the two as to earliness, as at p. 541 of the *Gardeners' Chronicle*, 1874, it was stated that the Chiswick variety was the earliest and best stock. [It was so there. Eds.] It may have been the earliest at Chiswick, but it is very different here. I possess all the sorts of Paradise stocks that are obtainable, and have plenty of Apples growing upon them all, but I fail to find amongst them any one sort that is equal in all respects to what I call Scott's Pommier de Paradis. [This at Chiswick is much given to develope knots or burrs, which the French Pommier de Paradis does not. Eds.] I send a piece of a branch cut from the Apple called Flower of France, to show you how well and how strongly Apples succeed upon my stock. There is no Apple in my collection, numbering 1400 sorts, that flowers earlier than my Paradise excepting the Irish Peach, but the Oslin comes out nearly as soon. You will be able to note the similarity of the sorts sent. I looked over my collection this morning to see how many sorts were in flower, and excepting the kinds sent to you there are none else expanded, although several kinds are fast advancing. Our Apple orchards, as a rule, will hardly be in full flower before the middle of May. Our Pears, Cherries, and Plums, are a sight worth seeing. I never have seen such a sight, and I suppose shall never see such another. Should May prove propitious fruit will not pay for gathering, such is the present appearance of the trees in this part. We had a mild winter and warm summer, and now a cold dry spring with but little frost in April, from 3° to 5° on three nights during the month, and this did little damage; altogether the season has been a favourable one as far as it has gone, but now a good rain would much accelerate things. *J. Scott, Merriott, April* 28.

Fruit Prospects.—So far as the season has advanced we have every reason to expect a heavy return. For many years past we have not experienced such congenial weather during March and April. Occasionally for a few days we had cold biting winds from the north and north-east, but fortunately the atmosphere was dry, and consequently no damage occurred. Compared with the spring of 1874 the state of vegetation in 1875 is at least two weeks later—an advantage, as the increase of solar heat will, to a great extent, counteract the effect of the May frosts. It does not follow that an escape in one place or locality is a guarantee that the fruit crops are everywhere safe. There are intervening circumstances which bring about very different results—such as altitude, a cold subsoil, or an excess of water. Water, as most of us know, stands at the head of all radiating substances, and consequently solar heat penetrates through it very slowly; while on the contrary, where water passes off too freely, the damage is equally severe during the warmth of summer, which reduces the size of the fruit and deteriorates the flavour. The quantity of Apple blossom is great, giving promise of an abundant crop, and the same may be said of Pears. Peaches and Nectarines have set well, so much so that at least three parts must be removed. Apricots are a moderate crop. For this we cannot blame the weather; owing to some cause which I do not quite understand the flowers were feeble and small, producing a slight amount of pollen. As a rule Apricots have never succeeded well with us, so much so that a large part of the wall has been covered with glass. Under protection the Moorpark, Hemskirk, Large Red and Kaisha fruit freely, while the Royal is a shy setter and guilty of dropping its fruit, still it is an excellent kind, and very desirable where Apricots succeed on the open wall. The crop of Plums will be, unless by some mishap, excessive. Cherries are by no means out of danger; they are sometimes difficult to manage, even on the open wall, as the crop is as often lost by a blazing sunshine as by too much cold and wet. The prospect of small fruit is very encouraging—beyond what we usually experience. *Alexander Cramb, Tortworth.*

The Past Winter.—Mr. Ellacombe's interesting list of plants which have withstood or succumbed to the severity of the past winter, tempts me to send you a note of what I have experienced in a small way. It must be remembered that my garden is at least 700 feet above the sea, the soil wet and sticky, and many of the plants not well established. All things considered I have lost wonderfully little, though perhaps the damage done is not yet fully discovered. I hope Mr. Maw and others will give us a similar list of gains and losses, as they are of great value to all gardeners in this country. Plants alive, mostly uninjured, though some are killed to the ground level:—

Bomarea acutifolia	Libertia pulchella
Bobartia aurantiaca	„ grandiflora
Bouvardia Rauwolfi=Leontice Chrysogonum	Xiphion caucasica
Bambusa Metaké	Iris Kempferi (many varieties quite unhurt, only one or two killed)
Aspidistra lurida (protected with a little straw)	„ iberica
Cistus laurifolius	„ acutifolia
„ albidus	„ cretica
„ corboriensis (foliage and young wood mostly killed, but plants breaking well)	Ceanothus Veitchii (against a wall)
„ lusitanicus (foliage and young wood mostly killed, but plants breaking well)	Fremontia californica (against a wall, somewhat injured, but breaking well)
Primula erosa	Bignonia radicans
„ amœna (crowns above the soil quite uninjured by 20° of frost)	„ grandiflora (somewhat injured, but breaking well)
Tricyrtis macropoda	Abelia rupestris
Ophiopogon spicatus	Akebia quinata
Ornithogalum arabicum	Smilax aspera
Oxalis cernua	Cupressus orientalis (seedlings brought in a bottle from Smyrna last year).

Plants apparently killed:—

Eryngium bromæliifolium	Leontice leontopetalon (perhaps only dormant, as it must be certainly able to stand severe cold
Calluhoe involucrata	Iris tectorum.
Iris sinensis = fimbriata	
Solanum jasminoides (on a wall, not established)	

Ophrys and Orchis, many species from Southern Europe, though in a frame and covered with cocoa fibre and mats during frost, have lost all their foliage, and are probably dead. This is, I believe, solely the result of frost, as all those I brought into the house in November are well and flowering splendidly. *N. J. Elwes, Miserdine House, Cirencester.*

Wireworm and Vine Roots.—I should be glad to believe, if I could, with Mr. Pearson, that the wireworm will not attack the Vine. Hitherto I have had a conviction that it did, at certain stages at least. One year I lost a few young Vines, just when coming away from eyes. I did not find the wireworm actually at work, but something had bored into the soft neck of the young plants, just at the eye, and otherwise so eaten into them that they died; and in breaking up the pieces of turf in which the eyes were inserted I got the wireworm in the vicinity of the roots, and thought the evidence sufficient to convict. That season the turf we used was very much infested with the worm. I have little fear, however, of it attacking Vine roots after they get woody; but when Vine eyes are just beginning to grow, and those soft callosities which are the forerunners of roots are forming round the edges of the bark where the knife has passed through, I think it will be found destructive enough. *J. S. W.*

Erythronium giganteum.—This distinct and charming Dog's-tooth Violet forms quite a gay feature in the herbaceous grounds at the York Nurseries. It has been in full flower for some weeks past, and, to all appearance, will continue so for ten or fourteen days longer. As many as five flowers are frequently produced on one stem. In its native habitat it is said to produce as many as nine flowers on a stem. They resemble the flowers of Lilium colchicum in colour. The form of the flowers, and the way in which they hang upon the stem, suggest a miniature form of the beautiful Lilium excelsum. The plants are growing in deep spongy peat mixed with sand. This Erythronium when cultivated in pots is very handsome, as the plants can then be elevated so as to cause the flowers to be seen to greater advantage; for when the flowers are merely looked down upon a great portion of their beauty is lost, the centre of the flower being particularly beautiful. *R. P.*

Paper Protectors.—I think it a pity that what I did say respecting the trial of paper protectors over the tops of a few trees should have been misunderstood by Mr. Lee of Hounslow, and I object to the use of the words "simply ridiculous" as being beyond the subject, which I thought was the discovery of the reason why the Plum trees in question should suffer such losses in shoots and leaves. We may differ in opinion without being uncourteous. What I attempted to advocate was the greater use, or rather the introduction, of paper as a protecting material of immense power, as is well known in Japan for instance. The difficulty of application is obvious—but here was a case where a few trees could have had stout paper applied only to their tops. This would have tested both the value of the protector, and done something to ascertain whether spring frosts—I am no believer in October frosts as capable of injuring a tree at its best time for defence—were the real cause of injury. After all, if the Plum in question is tender, there are others which are not so. I have at this moment, on the lawn, three valuable specimen trees of fair size, just planted, which, from having been too long coming here, are looking very miserable. These I have covered with stout newspapers sewed together, and I hope to save the trees yet. Neither the wind nor the rain has, as yet, damaged the paper. We had no trouble whatever in winding this long roll of paper round the trees, nor did it tear in so doing. What I desire to call attention to is the use of this material, as yet untried, for horticultural subjects. A little experience will modify all our ideas on this, as it has on many similar things. It is also certain that the original communication in the *Gardeners' Chronicle*, recommending its use for early Potatos, has been copied into many other journals, so that Mr. Lee will find himself in a minority as to his idea of its value. *T. C. Bréhaut.*

Co-operative Gardening.—I read many years ago in a horticultural magazine an account of a co-operative garden for gentlemen. The plan seems well adapted for this place, and I should be much obliged if any of your readers could afford particulars of any similar system in actual practice. About ten or fifteen gentlemen purchased an acre or more of ground, towards which each contributed his quota, say £100 apiece. The ground was then walled, leaving a slip all round, a lodge for gardener built at the main (south) entrance, and a conservatory at the top; walks were laid out and the inner portion lotted into as many plots as there were proprietors. The gardener protected and swept the garden, for which he had the use of the lodge and slip, and also earned money by managing the plots of those disposed to engage his services. *W. H., Brighton.*

The Double White-flowered Cherry.—Herewith I beg to send you a spray of double flowers from a Cherry tree 25 feet high, which may now be seen in this square, covered to its very top with these lovely white flowers. Horticulturists will appreciate the sight when they are informed that this tree has not been worked or grafted. Gardeners have greatly admired this large specimen, nor do they lose sight of the taste displayed by the late Sir Joseph Paxton in mapping out the garden, which for its undulating grass and serpentine walks remains unsurpassed in London squares. *F. J. B., Ampthill Square, N.W.*

May-Day in Cornwall.—Will you allow an old Cornish woman to say a few words on the subject of May-Day and its former observance in that county? In "the part which fetches furthest west" it was kept in times long past as so entire a holiday that any thrifty person who on that day attempted to pursue his usual calling was subjected by his neighbours to various ludicrous penalties. "About the springing of the day" the younger members of every family and of all degrees set forth in large parties to "bring home the May," thereby meaning the Hawthorn, if it was to be found. But as Nature did not always choose to send forth that lovely blossom so early, they were obliged (as I suppose) to give the name in that case to some other plant, and used instead to gather the clear red shoots of the Sycamore, not the flowers. Our name for the Lilac is Prince's Feather; in Devon only have I found it usurping the place of the true May. Perhaps it may be worth while to add, in reference to a late discussion, that I brought a few plants of the exquisite Narcissus poeticus in its single form a few years ago from a Cornish garden into a light and most productive soil, and that being planted in a clayey loam they are quickly becoming double, fat, and heavy. *Commelina.*

The Primrose Changing Colour.—I have for many years carefully observed the behaviour of the common Primrose in the cultivated and half-cultivated state, and have the strongest doubt, though I concede the possibility, of any artificially produced change of colour in this plant where the individual was born a real pure primrose-coloured or white Primrose. This, however, I know, that coloured blood, so to speak, can exist, and remain latent in a normally coloured cultivated subject, only showing its presence occasionally in a purple streak, or more strongly in a petal, or even an entire blossom. Old women, old gardeners, intelligent, too, in their way, declare that the wild Primrose treated with cow-dung in its strongest and freshest state will produce the change, but none of those with whom I have conversed ever came well out of a properly conducted cross-examination. I may add, that the last witness I examined

was a believer, and, according to his own account, an eye-witness of the adder phenomenon. Would your Eton correspondent kindly say how long he had known his Primroses in the uncoloured state? Also, whether he cultivates coloured ones in his garden or in the vicinity? Also, again, whether the coloured individuals are old plants (judging from habit and appearance), or seedlings flowering for the first time this spring? The Primrose intercrosses naturally as freely as the Brassicas; it will also breed as freely with the florists' Polyanthus, which seems from this to be a strain, though a distinct and remarkable one, of the species in question. I have resumed the cultivation of my old nice strain of this plant, and have made, I hope, a little advance this spring. Among other things, I have at last succeeded in reproducing the curious "blue Primrose," a little less distinct in colour but of good form, and in all probability fertile. I have also raised a fine double lilac one, stalked. As I distributed both plants and seeds to various friends a year or two since, I hope they, by the aid of their own breeds and that of mine, will soon raise this very charming plant to the rank of a practicable florists' flower. *R. T. Clarke, Northampton, May* 2.

Duke of Edinburgh (Daniels') Cucumber.—This is truly a magnificent Cucumber, so far as size goes. To-day I have cut several from plants growing in 12-inch pots, the largest of which measured 27 inches long, 7¼ in circumference, and weighing 5 lb. I do not know whether this is an unusual size for this variety to attain (with several growing on the same plant) when grown in pots. I may state that they were watered with liquid manure, as well as having the pots top-dressed with short dung. Last year I cut one of the Marquis of Lorne Cucumber, which was grown in the same-sized pots, and which received the same treatment as above stated, which measured 27 inches long, and weighed 4¼ lb. The skin of the "Marquis" is more spiny and finer than that of the "Duke;" the appearance of the latter is rather coarse, but, nevertheless, it is a fine Cucumber. *H. W. Ward, Longford Castle, Salisbury, May* 3.

International Potato Exhibition: a Suggestion.—Many Potato-growers are very much pleased to see that the "noble tuber" is now likely to be raised to the position it deserves, thanks to Mr. McKinlay and the other gentlemen who have framed the liberal and complete schedule of the exhibition to be held at the Alexandra Palace in September. There can be no doubt but the show will meet with the encouragement it deserves, and that it will be continued yearly with such alterations as may be found necessary. Could it not be managed to have a medal struck in commemoration of this the first show devoted entirely to Potatos, and let one be awarded to the exhibitor of the best dish of round, and another to the exhibitor of the best dish of kidney Potatos in the whole show, to be picked out of the exhibits in all the classes, the medal to have the Alexandra Palace on one side, and on the other a wreath of Potato haulm, with the name of the exhibitor, and also the name and native country of the Potato—thus: Awarded to A. B. for American kidney Potato Snowflake, or to C. D. for English round Potato Model; and to give the show more of an international character, in the event of the best dish in either class being an American variety, let us pay the cost of the medal, but if an English variety, let our American cousins pay for it, and as they are now enthusiastic Potato growers they would readily do so. If this was done every year it would show at once the best round and the best kidney Potato in cultivation [Not necessarily, if they are judged by form, which is no guide to flavour; and besides, the tubers which may make up the handsomest dish on an exhibition table might perhaps be selected from a second-rate cropper. Eds.], and stimulate the rivalry in the production of improved varieties (between the Fenns, &c., on this side and the Bresees, &c., on the other side of the water), which has been a chief reason for getting up this international Potato exhibition. *C. R.*

Primula denticulata.—In the garden attached to the residence of Mr. Samuel Barlow, Stoke Hill House, Chadderton, Manchester, and where there is a constant battle going on between the smoke deposits on the one hand and bright flowers on the other, one of the most surprising of several pleasant features was a line of Primula denticulata, growing in the open border, and fully exposed as the other hardy flowers about it. Nice established tufts of it, planted out two and three years, bore from seven and eight, to thirteen, and even sixteen trusses of bloom, and was even striking in front of a line of smoke-begrimed evergreens. Mr. Barlow states that though he lives some eight miles from the centre of Manchester, he has considerable difficulty in getting the common Primrose to exist in his garden, while this Nepaulese species, amid surroundings one would imagine of a very different character to those of its native mountains, flourishes unprotected, notwithstanding that noxious deposits of sulphuric and muriatic acids are constantly being made from the great chemical works that surround Manchester. *R. D.*

BRITISH GARDENERS.—XVII.

ANTHONY PARSONS.

In Mr. Anthony Parsons, whose portrait we now publish, we have one of the comparatively few professional horticulturists who, to a thorough knowledge of practical gardening in all its departments, adds a well-trained acquaintance with the culture and merits of florists' flowers. In consequence of this extended range of information, no less than for his uncompromising and unswerving integrity, his services are much sought for and appreciated as a censor at the metropolitan exhibitions. He was born in 1810, at Merton, in Surrey, his father, whom it was his great misfortune to lose while he was yet young, being a small farmer, and carrying on also the business of a hay and corn dealer.

"To a passion for flowers, which possessed me from my very earliest days," writes Mr. Parsons, "I trace the impulse which caused me to follow horticultural pursuits to gain a living. I used to save up my pence to purchase Primroses, Daisies, and such plants. As I grew my ambition increased, and, among other things, I purchased a Pelargonium called Commander-in-Chief. This purchase I shall never forget, my delight in its possession was so great that it determined me in my future career. Shortly after this period a friend of the family, Mr. Lee, entered the service of the Earl of Chichester, at Stanmer Park, near Brighton, as gardener, and, knowing my desire, he offered to take me into the gardens. I readily accepted his offer, and was duly installed in the office of kitchen boy, filling up my spare time in the houses under the late James Cuthill, who was foreman. After two years' service I left, and shortly after entered the employ of Mr. Charles Robinson, of Thames Ditton, where I worked hard, and learned much. I remained here one season, a considerable part of which time I was employed in the houses. I left Thames Ditton to accept a situation offered by Mr. Hugh Fenton, gardener to J. Berens, Esq., Keventon, St. Mary's Cray. At this place there was a very fine collection of herbaceous plants, made by the former gardener, Mr. R. Sim, now of Foot's Cray, and I used to spend hours of my spare time in studying these plants, and learning their names. While here I first took an interest in British Ferns, in search of which I made frequent excursions about the neighbourhood, where in those days many fine species as well of Ferns as of British Orchids were to be found. Here, also, I made myself acquainted with the Kentish system of Filbert and bush pruning, there being many hundreds of acres of these under cultivation in the locality.

"I left Keventon in 1831 to take the foreman's place at the Retreat, Battersea, where I stayed but six months, when I left to take charge of the gardens of J. Ricardo, Esq., in whose service I remained until his death.

"My friend, Mr. William Andrews, Pine and Grape grower, of Vauxhall, then recommended me to A. R. George, Esq., of Ponder's End, into whose service I entered in February, 1833. The experience I had been gathering up now began to bear fruit, and I exhibited for many years with great success at Chiswick and the metropolitan shows, Pines, Grapes, Roses, and many other things. I also turned my attention to the improvement of various florists' flowers, one of my first achievements being to raise the Dahlia known as Metropolitan Wonder. Great numbers of Pansies raised by me were introduced to the floricultural world by May and others. The Verbena Enfield Scarlet was another of my productions; and I also had considerable success in raising new varieties of Petunias. Later on I made Hollyhocks my chief study, with very satisfactory results—letting out, through Mr. Chater, twelve fine varieties in one season, 1851. My employer died in August of this year, and my unbloomed seedlings passed into the hands of Messrs. Paul, who, I believe, found them to be a very fine lot.

"From Ponder's End I came to Danesbury, where I now am. Since I came here I have had to carry out improvements in the pleasure-grounds, involving the making of new roads and of a new kitchen garden, and I have also had to make a hardy fernery, which now contains a magnificent collection of British Ferns, and is well known to many admirers of these truly lovely plants. The Grapes, Peaches, and fruits grown here have always been of first-rate quality. Nor have florists' flowers been altogether neglected by me since I came here, although I have had much besides to occupy my attention. My later experiments have been with Achimenes, in which I have been eminently successful, having obtained among others Mauve Queen, Aurora, Williamsii, and Fire-fly, which are not yet approached by the production of any other raiser. Besides thus devoting my attention to the improvement of flowers, I have found opportunities from time to time to attempt the amelioration of vegetables, several of which I have had the satisfaction of improving."

Reports of Societies.

Horticultural of New South Wales: *Feb.* 24.—We abstract from the *Sydney Morning Herald* the following particulars of the autumn exhibition of this Society, which took place on Feb. 24 in the Botanic Garden. The weather was delightful, a fresh breeze from the sea moderating the warmth of the sun, and affording a delicious coolness. The exhibition was thrown open at 1 o'clock, and during the afternoon it was inspected by a very large number of visitors, most of whom were ladies. A great improvement was noticeable in the appearance of the gardens, the late rain having imparted a freshness to everything around. The exhibition of plants was good, but little support was given by the growers of fruit and vegetables. One of the principal objects of the Society should be to encourage the introduction of new and valuable products in this department, and to promote a high degree of culture; but the prizes awarded do not appear to tempt growers. The plants shown were not so numerous as on some former occasions, but, as a whole, they were better grown; and the collection from the Botanic Garden was about the best and most attractive which has been shown for some years. On the stage opposite the entrance were placed twenty plants grown by Mr. Brown, whose plant of Alocasia metallica was the best yet shown by an amateur, and whose specimens of Hibiscus Guilfoylei were well grown and richly coloured; an Ixora covered with a magnificent head of reddish flowers, and the pretty purple spikes of the variegated plant called Ophiopogon Jaburan variegatus were much admired, as were the Croton Mortii and Dracæna Baptistii, both well known to frequenters of flower shows. The plant of Cyrtoceras reflexum was well worthy of remark. In another collection, shown by the same exhibitor, Croton undulatum appeared to be the best; while the double-flowered white Azalea secured attention, for it is an unusual thing to get these beautiful spring blossoms in autumn. Among the other plants exhibited by Mr. Brown were three good Crotons, some of them new; three Marantas, and a specimen of Angelonia grandiflora, whose numerous spikes of light purple flowers make it a valuable addition to any outdoor collection at this season of the year. Mr. Joseph Graham's collection of Dracænas, Crotons, and miscellaneous plants challenged admiration by the diversity of their colours and the beauty of their form. Some of the Dracænas were new to the colony; but, irrespective of that, Queen Victoria will be generally esteemed the best. Of the half-a-dozen Crotons, C. volutum was the only one named; two were long narrow-leaved varieties, in one of which light green and yellow predominated, the foliage of the other being dark green blotched with red. The dark variety of Phyllanthus has its variegation richly developed, and the habit of the plant was good.

The exhibition of plants from the Botanic Garden, if not the most numerous was certainly the best collection shown from that establishment for some years past.

The specimens, taken as a whole, were splendidly grown, and we should have hardly thought that such magnificent growths could have been housed with the very inferior accommodation at command. The collection consisted of about eighty plants, the topmost row comprising some very handsome Palms. The clear bright yellow flowers of the different varieties of Allamanda were very conspicuous; but not more so than the massive richness of a new twisted leaved Croton, from Fiji, the upper portion of which is pure yellow, the foliage at the base being dark green, mottled with red. The halberd-shaped Croton, named Disraeli, which was first shown by Mr. Maccafee, improves on acquaintance, and with age has developed a richness and variety of colour which could scarcely have been anticipated. The Fijian Croton Harwoodianum was also another admirable variety, and nothing could well exceed the vivid tints of gold and crimson which illuminated the midrib and veins of the leaves. Among other Crotons of great merit, C. undulatum was much admired on account of the richness of its bronze and crimson markings. The Marantas in this collection included several old favourites; we may name M. Porteana, M. zebrina, and M. regalis as being the largest and best grown specimens which have been exhibited for some time. M. pulchella, similar in habit to M. zebrina, though of smaller growth and lighter foliage, was much admired. The collection of Dracænas included two new sorts from Samoa; and of the Palms, two of the most interesting were an unnamed one from the Royal Gardens at Kew, and Pritchardia Martiana. Caladiums are always a principal feature in the autumnal exhibitions of the Society, and those exhibited this year possessed great beauty if they lacked the charm of novelty. There were some new introductions, but none which surpass the old favourites. In this collection was a nice little plant of Erythrina Parcellii, or E. picta, whose golden midrib and veins make the foliage of this South Sea Island Coral-tree so rich; and the bronze-coloured Passiflora-shaped foliage of the new Fig, Ficus Cannoni, introduced by Mr. Walter Hill, of Brisbane, is another admired curiosity from that vast field of vegetable wonders—the South Sea Islands. There were some very beautiful Ferns in this collection, among the rest Adiantum farleyense (which is quite new here) and A. concinnum, which is but little known, and whose graceful habit and perfect development make them coveted.

Mr. Graham showed three of the new Allamandas, two of which were well flowered; a specimen of Begonia carminata, which, although not new, is still far from common, and as seen on this occasion a show plant of rare excellence and beauty. Mr. Graham was also great in Caladiums. The collection of plants from Mr. Piper included some interesting exhibits. The light-coloured Phyllanthus was a very pretty shrub. Mr. Kippax showed great skill as an amateur; and an exceedingly interesting collection of Palms and Ferns were sent by Captain Broomfield, who at former exhibitions has earned a reputation for the rarity and excellence of his Carnations and other spring flowers; they were all grown in a bush-house, and many a professional might well envy the wonderful success which has rewarded Captain Broomfield's horticultural efforts.

Mr. Piper was almost the only exhibitor of fine-foliaged Begonias, but he well filled up this section, and among his miscellaneous plants we would call particular attention to the specimen of Coprosma Baueriana variegata, which will form a very handsome shrub for the border.

Near the centre was placed a large and very interesting collection of novelties, many of which were the fruit of Mr. Charles Moore's visit to Europe, and although the plants had as yet attained only a small growth they were all shown in fine condition, and will be much sought after for greenhouse decoration. Among many others we may enumerate Eugenia Ugni variegata and Daphne elegantissima, which will be very valuable for outdoor cultivation; Curmeria picturata, Phyllotænium Lindeni, Kæmpferia Roscoeana, Higginsia macrophylla, Maranta orbifolia, Aphelandra nitens, Campylobotrys discolor, Martinezia granatensis, and several handsome Alternantheras and Ferns.

Lady Robinson exhibited a number of very beautiful Ferns, as well as choice specimens of Sanchezia, Diplazium esculentum, Rhapis flabelliformis, and Musa vittata, a plant quite new to the exhibition. In the collection of Mr. Woof, gardener to Henry Prince, Esq., there were some excellent exhibits of Croton, Caladium, Dracæna, Maranta, Æchmea fulgens, Lilium speciosum, Marattia, Cissus discolor (Java), and a number of very handsome Lycopods. The exhibits of the Hon. T. W. Smart included a choice lot of Ferns; Areca sapida, a fine Palm; the very pretty Maranta tubispatha, Dicksonia squarrosa, a fine Tree Fern; Hypolepis tenuifolia, Cyathea dealbata, and Alocasia macrorrhiza, the last mentioned being especially good, and of large and perfect growth. Mr. R. Piper, gardener to the Hon. Henry Moore, exhibited a fine collection of Ferns and cut flowers; the latter consisting principally of Verbenas and Gloxinias of fine form and careful nurture. Mr. Saxby's cut flowers included some pretty Zinnias, Verbenas, Antirrhinums, Asters, and Phloxes; those of Mr. Brown, some finely formed Dahlias and Verbenas. Mr. Brown also exhibited some large and remarkably well grown Figs.

Royal Botanic.—MESSRS. JACKMAN'S CLEMATIS EXHIBITION.—In this exhibition, which was opened on Saturday last in the glass corridor leading to the large conservatory in the Royal Botanic Society's Garden, Regent's Park, we have one of the most novel displays that has been seen for a very long time, and which is truly of surpassing excellence. All who have attended the spring shows of this Society will know that the larger exhibits are placed on a somewhat elevated stage running the length of the back wall, some 200 feet long, and the dwarfer growing subjects and cut blooms on a lower stage of the same length in front of the glazed side. To give an idea how the Messrs. Jackman have arranged their show, we may mention that all the staging before alluded to has been removed, and a temporary structure along the back wall has been substituted, this being arranged in three tiers, the highest of which does not carry the plants above the line of sight. The tallest plants are placed at the back, and the smaller ones in front, according to their size, the outside row of plants, about 18 inches high, completely hiding the staging. Some 350 plants are thus dealt with, and, with few exceptions, these, consisting of the varieties named below, and a host of unnamed seedlings, are in nice flower, but not yet quite at their best. The bright coloured are relieved here and there by suitable-sized specimens of Retinosporas and other choice Conifers, pyramidal Hollies, &c., the whole furnishing a floral *tableau* of sparkling brilliancy and rare interest.

The varieties in flower of the patens type during the past week are:—Fair Rosamond, blush-white, with a somewhat indistinct wine-red bar, and very prominent rosette of stamens—a very fine flower, with the additional attraction of being delicately scented; Lady Londesborough, deep mauve or bluish lilac, with a purplish red bar; Albert Victor, deep lavender, with pale bar; Miss Bateman, white, with chocolate-red anthers; patens floribunda, French-white; Sophia plena, lilac-purple, double under ordinary cultivation, but, being forced for the purpose of this display, the flowers have very singularly all come single; Standishii, light mauve-purple; Mrs. S. C. Baker, French-white, with claret bar, very fine; the Queen, pale lavender, or mauve-lilac, and primrose-scented, very fine; and Stella, deep mauve, with well-defined reddish plum-coloured bar. All the above are more or less well known.

The following new varieties, not yet in commerce, and belonging to the same type, are also represented: Miss Crawshay, eight-sepalled, 6 inches across, delicate rosy pink, a novelty as regards colour, and a free grower; Edith Jackman, blush-white, with a purplish rose or wine-red bar, which is not shown in plants that have been forced; Lord Derby, eight-sepalled, 5 inches across, pale lavender or bluish mauve, very fine; Lord Mayo, 5 inches across, deep rosy lilac, darker towards the base, and especially down the bar, sweet scented, and very fine; Countess of Lovelace, double, with bluish lilac guard sepals, and a rosette-like deep lilac centre, in the style of John Gould Veitch, but a much superior flower, and a more vigorous grower; Maiden's Blush, eight-sepalled, delicate blush-white, bright rosy lilac at the base of the bar, and marked by a creamy stain; Vesta, dead-white, with a creamy tint over the central bar, form very fine, the best white yet raised; Ada, lavender-blue, with mauve edges, flowers 4 to 5 inches over, and very freely produced; Aureliana, a Continental variety, scarcely distinguishable from Standishii; and Sir Garnet Wolseley, rich plum colour, with a shaded red bar, distinct, and a very free bloomer. The florida type is represented by the well-known C. Fortunei, Lucy Lemoine, a very great improvement on the first-named; and John Gould Veitch.

Of the lanuginosa type we noticed only the following new varieties:—Princess of Wales, deep bluish mauve, seven-sepalled, and about 5 inches over; it has good foliage, is a very free grower and flowerer, and remarkable for the great depth of its colour; Robert Hanbury, six-sepalled, mauve-lilac, shaded red up the bars, a very fine flower of good substance and grand foliage; Morikata Oke, bluish lilac, with a well marked deeper coloured margin, pretty, and very free; and Angelina, eight-sepalled, 4—5 inches over, bluish lilac, with edges of a deeper colour, very fine, and free blooming.

Three only of the Jackmanni type are represented, viz, Lady Stratford de Redcliffe, eight-sepalled, 6 inches over, of a delicate and peculiar tint of mauve colour, Rubella, rich claret-purple; and a new one, not yet sent out, named W. E. Essington, six-sepalled, of a reddish violet hue, deeper towards the base. This is a great acquisition, the plant flowering twice during the year, and though it belongs to the summer and autumn blooming sections, it comes into flower naturally with the patens type.

Thomas Moore, pucy violet, with white stamens, is the only member of the viticella type yet in flower.

MR. WILLIAM PAUL'S ROSE SHOW.—Mr. Paul's annual display of pot Roses, &c., which was last year held at the Crystal Palace, and the year previous at the large exhibition tent at South Kensington, has this year been transferred to the well-known Rhododendron tent in the Royal Botanic Society's garden at Regent's Park. As at South Kensington, Mr. Paul has had to fight against the difficulties incumbent upon the want of accessories in the way of bold clumps of dark-foliaged trees and shrubs to relieve or set off the bright colours of the grand blossoms on his giant Rose trees. At South Kensington the plants, though very fine, were dwarfed to an appreciable extent by the height of the structure, and their thinness on the ground. This defect Mr. Paul has attempted to remedy at Regent's Park by planting, in the more conspicuous points of view, suitable clumps of pictorial trees, such as the variegated Acer Negundo, the golden and silver-leaved Elder, the Purple Nut, the Sea Buckthorn, &c.; but the fates have been against him, and, the season being late, the planted trees have refused to clothe themselves in their parti-coloured foliage, and, instead of a striking and effective display, which the ground favoured, there is nothing to catch the eye but blossoms upon blossoms of Roses, and the result from a pictorial point of view is disappointing. Horticulturally speaking—that is, from a grower's point of view—Mr. Paul's Roses, as usual, leave nothing to be desired; they are there in hundreds,' old sorts and new ones, and in all sizes, from those in an 8-inch pot to trees 6 feet high and 4 feet through, and all superbly flowered. It is needless to repeat the names of the varieties which Mr. Paul shows, for he shows all that are worth growing, and, excepting the newer ones, the names are familiar enough. The new Star of Waltham is shown very fine, as also are Princess Christian, Princess Beatrice, Marie Van Houtte, Madame Hippolyte Jamin, Captain Christy, Marquis de Castellane, Catherine Mermet, Madame Lacharme, and Peach Blossom.

Forestry.

NOW is the time to prosecute with all diligence the peeling or tan-flaying of Oak, Larch, Alder, Willows, and all other descriptions of wood and timber, whether for the sake of the bark itself or in order to improve the wood by making it more suitable for a variety of rustic and other purposes. At one time it was believed that if Larch trees were peeled in the growing position, and allowed to stand six or eight months before cutting down, the timber of such trees would not, on being manufactured and seasoned, warp or twist, as it is liable to do when cut in the usual way. Experience has, however, proved that such is a false belief, and now the dangerous and expensive mode is departed from both as regards Larch and other timber.

According as the price of labour increases and day wages rise, the tendency on the part of employers is to resolve as much work as possible into contract or piece-work, and the peeling or tan-flaying, which at one time was invariably done by day-work, is now almost universally done by contract, at least upon all properties of large extent where such work is extensively carried on.

It is imperative that all curious, fancy, and fantastic growths, whether roots, stems, boughs, or branches, which are intended for careful preservation in their natural nude state, should be peeled on the first rise or flow of the sap, or at least before the cambium has begun to form into alburnum; otherwise, when the latter operation takes place, the transparency of the wood is destroyed, the fine, delicate convolutions and intricate network is obscured, and the smooth glossy surface abraded in such a way that no subsequent manipulations of art can restore it to its original beauty and elegance. For the sake of those, however, who are more engaged in plain practical work than fancy, ornamental and artistic kinds, I would give the following direction as the result of my own experience in different parts of the kingdom.

In the North of Scotland the following transaction took place in 1866:—The plantations thinned were from eighteen to thirty years old, composed principally of Larch, with a small mixture of Scotch Fir and Norway Spruce, together with a few hard woods, chiefly Oak, Elm, Sycamore, and Birch. The trees were all marked by the forester previously, and shown to the contractors in the usual way, and the conditions were —1. To cut and peel all the Larch trees (except such as were bark-bound). 2. To carry all the bark out of the plantation, erect stages, and dry it thereupon. 3. To chop, bag and put upon trucks at railway station.

The whole quantity of bark peeled was 27 tons,

which realised £87 2s.—£3 4s. 6d. per ton delivered. The various items of expense stand thus—

	£	s.	d.
Cutting trees, peeling and carrying bark	26	3	1
Chopping and putting into bags	9	5	11
Carting to railway station, from 1 to 3 miles ..	7	0	0
Railway carriage to market, about 50 miles.. ..	19	8	2
Incidental expenses	1	15	0
Discounts	2	12	9
Total expenditure	£66	4	11

The clear profit is thus £20 17s. 1d., which would have been considerably greater but for the distance and expense of conveyance to market—an item essentially variable.

Amongst other experiments I have found 50 cubic feet of medium-size Larch trees yield 16 stone imperial of green bark, equal to 9 stone 7 lb. dry. One superficial foot of Larch bark, taken off one foot above-ground, gives 1 lb. 14 oz. green, or 1 lb. 4 oz. dry; one superficial foot of Larch bark from middle of tree gives 1 lb. 3 oz. green, or 12 oz. dry; one superficial foot of bark from top of tree, 1 lb. 2 oz. green, or 15 oz. dry.

The operation of Oak-barking begins in the South of England about the middle of April, and in Scotland about the middle of May. Some localities, and also some trees, are much earlier than others, and it requires the practised eye of the forester to discern when the trees are in the most proper state for operating upon, the size and form of the bud being the principal index to such a state.

In Sussex the operation of tan-flaying, as it is there termed, is much in advance of any I have seen in any other part, nor can any better evidence be sought or given of the superior management, and specially the harvesting of the bark in England as compared with Scotland, than the fact of its commanding 10s. or 20s. per ton more in the market.

In contracting for peeling Oak it usually lets at about 30s. per ton, including felling the trees, drying or harvesting, 2s. per ton extra, and 9s. per ton for chopping and putting into bags. Wood merchants make a calculation of 4d. worth of bark to each cubic foot of Oak timber, including the bark upon the branches, up to 2 inches diameter.

The following extracts from my note-book are taken as they occurred at random in Scotland:—A man in one day peeled 6 cwt. of green bark, equal to 3 cwt. 6 stone dry. Fifty cubic feet of Oak timber produces 8 cwt. green bark, equal to 5 cwt. 4 stone dry. One superficial foot of bark taken from the trunk of the tree near the ground weighed, when green, 3½ lb., and when dry, 2 lb. 4 oz. One superficial foot from near the middle of the tree weighed 2 lb. green, and 1 lb. 4 oz. dry. One superficial foot of bark taken from a large branch weighed 1½ lb. green, and 12 oz. dry. Young fleshy bark is the best and most valuable, but loses most in weight during the harvesting. Care should be exercised in stripping the bark to take it off in lengths of 3 feet, and as broad as possible; and no mallets should be used if possible, as thereby the tanning properties of the bark are much deteriorated. In harvesting, the bark should be set on end in long double ranges, and not laid or built upon stages as is generally practised, to its very serious detriment and depreciation of value. *C. Y. Michie, Cullen, May 4.*

The Villa Garden.

Watering.—Dry weather is a visitation that perplexes the soul of an elementary Villa gardener, and after two or three days of bright sunshine he commences watering, at all hours and at all times, as if the act were as essential to his own existence as to that of his plants. He rarely waters wisely or effectually, and he had a great deal better not do it at all. But you cannot force him to take your advice, and it is very difficult to persuade him he is wrong. Still it is well to reason with him, and in doing so let us observe that though the soil may be dry on the surface it is yet nice and cool and moist about the roots of the plant; and though the action of the noon-day sun may cause a plant to flag, the refreshing dews of the evening will soon bring it right again. If our Villa gardener will note a few of his plants, he will find, notwithstanding the apparent drought, which gives him so much uneasiness, that they gradually attain size and make a vigorous growth. Let him set himself to stir the surface soil about the plants, not descending deep enough to disturb the roots, for in dry weather there is nothing like a loose soil frequently stirred on the surface to mitigate the effects of drought. He will be certain to demur to this, and deem it paradoxical, but it is a fact notwithstanding.

Only a few days ago we observed a neighbour, who, without being a very intelligent, is at any rate a most assiduous gardener, taking advantage, as he thought, of the cool of the evening to water his garden, and he was casting about him in every direction a fine spray from a rose watering pot, as if he, at least, enjoyed it. He watered nothing thoroughly, but he moistened everything in his way. As the evening advanced the air grew chilly and cold, the wind had the eastward position, and the early morning saw a white frost, and the sun rising bright and clear over the blossoms on which it was deposited, last night's sprinking having assisted the mischief. One or two very simple principles will serve to explain how watering in such a way at such a time may do mischief. The temperature about the blossoms was fast falling as the shades of evening came on, and the application of the water at that time only served to augment the cold. The moisture deposited on the flowers was seized on by the frost, and converted into ice, and a greater body of cold was thereby created, and there was a heavier deposit of frost. The lighter the deposit of frost on the flowers, the less danger is there when the rising sun strikes it ere it is thawed. Thus it is that gardeners, when they are calculating the chances of frost overnight, say, "Well, the air is nice and dry, and so it may not do much harm after all." Then the sprinkling given to the soil about the trees only served to cool the surface, without descending to the roots and moistening them. Heat was thus drawn from the soil that it were better should have been retained.

And there is another point worth bringing out a little more clearly, for we have already slightly touched upon it. It will often happen that, when the soil about the roots is damp enough to keep the plants doing well, that they will flag under the effects of a bright sun following close, cloudy weather. Roots and leaves alike have been acting in perfect harmony in promoting the well-being of the plants, when a bright hot sun breaks out suddenly, and, to put a physiological effect into plain words, "the quickened activity of the leaves in evaporating cannot at once be met by the action of the roots, though moist enough, and flagging and signs of distress follow." Those who are not well informed on the matter at once proceed to pour water over the soil that was moist enough the night before, and which leaves it afterwards much too wet. As that fine gardener, the late Mr. Robert Fish, put it, "the result is that the soil is cooled inordinately by evaporation, and thus frequently pailful after pailful of water is used without redressing the evil, when a few quarts thrown as a sort of mist over the foliage would prevent all the mischief and most of the labour, and leave the soil in a more healthy condition. In a bright sun the leaves would soon dry, and therefore no danger would ensue from the foliage being left in a damp state at night. Such a slight syringing will most commonly be required during the forenoon. A slight shading would often answer equally well." This last sentence contains a wholesome truth. When we see a plant with drooping leaves our practice is to invert a flower-pot over it for the sake of shade; or if it should be too large for the pot, then it is shaded by sticking a few sprigs of an evergreen shrub about it.

Now let us apply this matter of watering to the greenhouse also, for it applies with as much point there as to plants in the open ground. During sunny bright weather, especially if it be accompanied by a breeze, plants in pots dry rapidly under glass. Our Villa greenhouse is open to the south, and the sun shines on it for several hours during the day. We have a tank in a sunny corner, and thus the water is to some extent chilled. Now, as a rule the water should be as nearly as possible as warm as the atmosphere about the plants. If there is no water in the house, use rain-water; but if rain-water is not at hand, then let that used, whether from pump or cistern, have the benefit of the sun shining on it during the day. The Villa gardener should have a tub placed in the open air in a sunny place during the summer months, so that the water may become warmed before it is applied to the plants. To take cold hard water from a pump and apply it at once to plants is injurious, and it is a practice that should be avoided.

In cloudy, dull weather plants do not dry nearly so rapidly as in sunny, drying weather, therefore less water at the roots is required. Our practice is to look over our plants every morning before breakfast, and not to water any unless the soil on the surface is beginning to dry or has become dry. If the plants are strong and growing vigorously apply water two or three times, if weakly only once. If the day is hot and sunny, some will want water again in the evening. We also syringe occasionally during the day, or distribute a fine spray through the fine rose of a watering-pot over the foliage of the plants, and even the flowers, unless it is something whose flowers might be injured. When thus syringed in sunshine there is always a free current of air passing through the house; and we never realise among our plants, though we cultivate a rather miscellaneous collection, those evils of burning, spotting, and blotching of the leaves, which are so much enlarged upon as the consequence of the sun shining on damp foliage.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
For the Week ending Wednesday, May 5, 1875.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Mean of 18 Years	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 60 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
April 29	In. 29.96	In. +0.18	° 66.0	° 45.8	° 20.2	° 54.2	+ ° 5.1	° 43.0	68	WNW: WSW	In. 0.00
30	29.87	+0.10	70.6	45.5	25.1	57.2	+ 7.8	43.8	61	WSW: S.S.W.	0.00
May 1	29.73	−0.04	54.2	47.8	6.4	49.5	− 0.3	48.4	96	ENE: E.S.E.	0.33
2	29.78	+0.01	58.5	48.5	10.0	51.6	+ 1.5	49.0	91	W	0.08
3	29.76	−0.01	67.4	45.2	22.2	55.4	+ 5.0	47.0	74	WSW: S.S.W.	0.00
4	29.82	+0.05	67.0	47.2	19.8	54.7	+ 4.0	51.3	88	E.S.E.: S.: S.S.W.	0.00
5	29.80	+0.04	69.8	46.4	23.4	56.0	+ 5.9	48.7	74	S.S.E.: S.	0.00
Mean	29.82	+0.05	64.8	46.6	18.2	54.2	+ 4.1	47.4	79	variable	sum 0.41

April 29.—Fine, bright, warm, and nearly cloudless throughout.
— 30.—A fine, bright, mild day.
May 1.—Overcast, dull, cold, and rain fell throughout.
— 2.—Overcast, dull, and gloomy in morning; fine and bright afterwards.
— 3.—Fine, bright, nearly cloudless, and mild.
— 4.—A fine, bright, partially cloudy day.
— 5.—A fine cloudy day. Fog in early morning.

—— In the neighbourhood of London the reading of the barometer at the level of the sea increased from 30.28 inches at the beginning of the week to 30.31 inches by the morning of the 25th, decreased to 30.02 inches by the afternoon of the 27th, again increased to 30.18 inches by the morning of April 29, then decreased to 29.90 inches by the afternoon of May 1, and was 29.91 inches at the end of the week. The mean reading for the week was 30.11 inches, being 0.05 inch above that of the preceding week. The highest temperatures of the air at 4 feet above the ground varied from 70½° on April 30 to 54½° on May 1, the mean for the week being 64¼°. The lowest temperatures of the air ranged between 30° on April 25 and 47¾° on April 28 and May 1; the mean value for the week was 42¾°. The mean daily range of temperature in the week was 21½°, the greatest range being on April 25, 29½°, and the least on May 1, 6½°. The mean daily temperatures of the air, and their departures from their respective averages were as follows:—April 25th, 44°.1, —4°.2; 26th, 48°.3, —0°.1; 27th, 56°.4, + 7°.8; 28th, 57°.4, + 8°.6; 29th, 54°.2, + 5°.1; 30th, 57°.2 + 7°.8; May 1st, 49°.5, —0°.3. The mean temperature for the week was 52°.4, being 3°.5 higher than the average of sixty years' observations.

The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in sun's rays, were 125½° and 131° on the 27th and 30th of April, but on the 1st of May 64½° was the highest reading. The lowest readings of a thermometer placed on grass, with its bulb fully exposed to the sky, were 27½° and 32½° on the 25th and 26th of April, but the lowest reading on May 1 was 45½°. The mean for the several low readings was 38°.

The direction of the wind was W.S.W., and its strength very gentle. The weather during the week was fine, bright, and mild, with the exception of Saturday, which was dull, cold, and the sky overcast throughout. Rain fell on one day; the amount collected was 0.33 inch.

In England, the extreme high temperatures observed by day ranged between 74° at Sunderland and 59½° at Liverpool, the generat average over the country being 67°. The extreme low night temperatures varied from 43½° at Liverpool to 28½° at Norwich, with a general average of 35½°. The mean of the extreme ranges of temperature in the week was 31½°, the greatest range being at Blackheath, 40½°, and the least at Liverpool, 16½°. The mean high day temperatures ranged from 64¼° at Blackheath to 57¼° at Liverpool, with an average value of 61½°. The mean low night temperatures varied between 46¼° at Liverpool and 40¼° at Bristol, the general average being 43°. The mean daily range of temperature in the week was 18½°, varying from 21¾° at Blackheath and Manchester to 11¼° at Liverpool. The mean temperature for the week was 50¾°, being ½° lower than the value for the corresponding week in 1874. The highest in the week occurred at Blackheath, Wolverhampton, Leicester, and Sunderland, 52° respectively, and the lowest at Bristol, 49½°.

Rain fell on one day in the week at most stations. The amounts varied from four-tenths of an inch at Sheffield, Liverpool, and Truro to three-hundredths

of an inch at Bradford and Hull. The average fall over the country was two-tenths of an inch. At Bristol, Birmingham, Norwich, and Nottingham no rain fell.

The weather during the week was fine, bright, but the sky cloudy at times. Showers of rain fell generally on Saturday, May 1.

In Scotland the extreme high day temperatures ranged from 67¼° at Aberdeen to 59¾° at Glasgow, the general average being 63°. The extreme low night temperatures varied between 41½° at Dundee and Aberdeen, and 34½° at Paisley; with a general average of 38°. The mean of the extreme ranges of temperature in the week was 25°. The mean temperature of the air for the week was 50½°, being half a degree lower than that of England, and a quarter of a degree higher than the value for the corresponding week in 1874; the highest in the week was at Dundee, 50¾°, and the lowest at Paisley, 49¾°. Rain fell at Glasgow to the amount of seven-tenths of an inch, at Paisley one-tenth only was measured; the average fall over the country was four-tenths of an inch.

At Dublin the highest temperature was 65¼°, the lowest was 36¼°, the mean 52¼°, and the rainfall 0.67 inch.

JAMES GLAISHER.

Garden Operations.

(FOR THE ENSUING FORTNIGHT.)

PLANT HOUSES.

PLANT STOVE.—*Gloxinias* are amongst the most useful summer decorative plants we possess, standing for weeks in a conservatory that is kept a little closer than an ordinary greenhouse, but to make them of use in this way they must not be grown in their early stages too hot, or where they receive an insufficiency of air and light by being crowded amongst plants of larger growth. To prepare them for removal to cooler quarters as the season gets further advanced they should now be kept where the night temperature is not much over 60°, with plenty of air, and on a shelf either up to the front lights, or, still better, over the paths, with their tops a few inches from the roof glass. The flowers of these plants are very useful for decorating the base of March's stands or similar appliances when grown as above indicated, but, as often seen, they are so soft and flabby as to become bruised with the slightest touch, and so are comparatively useless, for nothing in its way can be more objectionable than bruised or flagging flowers, a very few of which completely destroy the appearance of what otherwise would be a pleasing arrangement. *Achimenes* and *Tydæas*, in either pots or baskets, should be similarly grown where required for decorating cooler houses during the summer; by being so treated their duration in flower will be double that of weakly soft-grown plants, to still further prolong which, as soon as they show bloom give them manure-water, not too strong, once or twice a week: applied at this time it will be found much more effectual than if withheld until the plants are partially exhausted by flowering. *Neriums* (Oleander) now in heat must be plentifully supplied with water, to enable them to open their flowers. They are profuse rooting, water-loving plants, that cannot endure to become dry. They are not so much grown as from their easy culture and general usefulness they should be. Where prepared in 6 or 8-inch pots in sufficient numbers they will furnish a succession for many weeks, and are equally useful for general decoration, in the shape of blooming plants, or for cutting. For the latter purpose they are little inferior to Carnations, especially the white varieties.

Nepenthes will now be commencing to grow freely; they should be kept quite close to the glass, slightly, but not too much, shaded, with abundance of water at the roots, giving it to them once a day, and syringing overhead in the afternoons. This is necessary, as if any thrips, especially the small yellow species, exists, it will establish itself upon them, injuring both leaves and pitchers, so as to cause their decay long before their allotted time. Any that require more root-room should be potted without delay, but on no account overpot, or the soil will be liable to become sour—a condition from which they rarely recover. They do well in an equal mixture of chopped sphagnum and good fibrous peat, with all the earthy matter sifted out; add to this a fifth part of crocks or charcoal, broken small, and a sprinkling of sand. When in active growth weak manure-water twice a week will benefit them.

Ardisia crenulata and *A. crenulata alba* should now be in a nice growing temperature, with sufficient light to keep them short-jointed and stout. When in flower they must not be kept too hot and moist, or their berries will not set freely, which so much reduces their value as decorative subjects. These Ardisias are much the most useful in a small state, with single stems, in 6 or 8-inch pots. If not already done seeds should now be sown in well-drained pans, filled with fine sandy peat, covering the seed with a fourth of an inch of soil, and placing in heat. When large enough to handle pot them singly in thumb-pots, in similar soil to that advised for sowing the seed in. The highly-perfumed *Clerodendron fragrans* will now be pushing up its flowers, as also *C. fallax* and *C. Kæmpferi*. These should be liberally supplied with manure-water. With quick-growing plants of this description, that will bear, at the time of potting, much of the old soil removing, it is not necessary to use nearly such large pots as they are often grown in, providing they are regularly fed with manure-water after their flowers are formed. This treatment has the effect of producing a larger head of bloom, proportionate with the size of the plants, than if all the manurial sustenance they receive were put in the soil at the time of potting; it also has the desirable effect of restricting the size of the leaves in such plants; which if potted in rich soil with a deal of root-room are apt to get too large. *Amaryllis* that have done flowering and require more root-room may now be potted; this should be attended to as soon as the flowering is over, for if the young growth has made much progress it will not derive the full benefit of the new soil. Do not over-pot, as they are not plants that need a deal of room; they cannot endure over-light soil or light potting. Good yellow loam, to which add a little sand, more or less according to the quantity it contains naturally, is the best soil to grow them in; soil of this description will require that the pots be well drained, for if it gets at all sour the bulbs will decrease in size instead of getting larger. These beautiful decorative plants do not like their roots disturbed, and should never be potted or in any way interfered with unless they absolutely need it. As the solar heat increases and recently potted plants get better furnished with roots, they will be benefited by a corresponding rise in the temperature of the house. *T. Baines.*

FLOWER GARDEN, &c.

PARTERRE AND MIXED GARDEN.—Lawns will now require constant attention in sweeping, rolling, and mowing. Grass grows rapidly at this season, and it will be necessary to use the machine over it at least once a week, as a close-bottomed velvety turf can only be had by keeping it closely cut. Coarse weeds will show themselves in a manner too conspicuous to require much looking after, and nothing tends to disfigure a lawn so much as these. Daisies especially are most troublesome, as they are in bloom again a few hours after the machine has passed over them, and are a great disfigurement: but by a little perseverance they may soon be got rid of. There is no better or more expeditious way of effecting this than by grubbing them entirely out, and this is easily accomplished by using a sharp spud-like tool for the purpose. Should their removal cause any disfigurement to the turf, a slight top-dressing of soil containing a few seeds of Dutch Clover and fine grasses, rubbed into the holes with the back of a rake, will soon set matters right. Any verges or grass edges that have not yet been trimmed with the edging knife should now receive that attention. After rain the turf will be found in a soft state, when the operation can be performed in a neat and satisfactory manner. Verges generally squeeze out under the roller, and extend sufficiently during the year to allow of a small portion being taken off every spring; and by so doing the edges can be gone over much more expeditiously with the edging shears during the summer, and always look sharp and well defined. Gravel walks soon become sadly infested with weeds at this season if not frequently looked over, and time spent in their removal now will be very profitably employed, as if left they will soon get into a seedy state, and lead to endless labour hereafter. Choose showery weather for extracting them, as then the gravel is in a comparatively soft state, when they can be easily uprooted and much time saved. Any walks that are showing a discoloured surface, or that contain too many small weeds to be removed by hand, may with advantage be broken up with a hoe to the depth of an inch or so, and have the surface kept stirred occasionally with a rake during dry weather. This will effectually destroy any moss or seed weeds, and has a very cleansing and brightening effect on the gravel, in some cases equalling in appearance a fresh top-dressing. After being well exposed to the sun and dry air for a time, carefully rake over, and take advantage of rain to roll down again. Recently transplanted shrubs will be greatly benefited by a slight syringing overhead, should the weather set in dry, so as to counteract the exhausting effects of rapid evaporation. See that all have a good mulching, and are securely staked, as this is of the greatest importance.

The great business of the past month or two has been to increase and multiply all kinds of plants to be used for the summer's display, and all glass structures in most places will now be full to overflowing. It will be necessary to transfer most of these from the warm atmosphere of houses to cold pits and frames, and other temporary places, in order to gradually harden them off. Many of the hardier varieties may now with safety be placed under walls or other sheltered places where they can receive temporary shelter, so as to set glass room at liberty to receive such things as *Coleus*, *Iresine*, *Alternantheras*, and other tender things that will require that kind of protection for some time longer. These should all be turned out of their cutting pots, and planted thickly in old rotten leaves or spent Mushroom dung, in which they grow rapidly, and lift with large balls. *Lobelias*, *Verbenas*, *Heliotropes*, and indeed most of the fast-growing bedding plants, conform to this treatment readily, and make far better plants than they would do in pots, without taking up the same amount of room or involving a third of the labour. The beautiful little *Mesembryanthemum cordifolium variegatum* is a very indifferent thing to transplant, and should not be attempted in this way, as it makes but little fibre. *Roses* will now require watching, to prevent that insidious little enemy, the Rose maggot, from destroying the bloom-buds. They should be looked carefully over, and any leaf that looks at all likely, from its curled appearance, to contain one of these destructive pests in its folds should have a slight squeeze between the thumb and finger. This will be found quite as effectual in ridding the plants of their presence as opening the leaves and picking them out, and is not so likely to injure the young growth. The Rose maggot in its young state is a very soft insect, and a slight pressure suffices to rupture its skin and destroy it. The cold weather has greatly retarded the growth, and insect pests are sure to be rife and more troublesome on that account. Greenfly is the most troublesome of these that the Rose-grower has to contend with, and all sorts of insecticides are brought into requisition. These require much care in their use, as such tender foliage as that of the *Rose* is easily injured. Tobacco-water is, perhaps, the safest and best, and as soon as the shoots are of sufficient length they should be dipped in this to save waste. Pooley's tobacco-dust is quite a boon to gardeners and all who are engaged in horticultural pursuits, as it is easily and quickly applied by using one of the distributors, and it is very destructive in its effects if used while the leaves are damp, as occurs on a dewy morning. *J. Sheppard, Woolverstone Park.*

FRUIT HOUSES.

MELONS.—It is presumed that both the amateur and the student as well as the young beginner are diligent readers of what is advised from time to time, not only in this, but in every department of the Calendar, which will save the trouble and cost of much needless repetition. That being so, I may refer to the last Melon Calendar as expressing nearly all by way of cultural detail that is requisite to be done just now. To secure a full crop of fruits remember what has been advised in regard to securing a number of fruits on individual plants of a simultaneous stage of growth. After the fruits begin to swell off give them a good earthing-up with a rather strong rich compost, ramming it down fairly tight, at the same time place a little freshly slaked lime round the collars to guard against canker. The first batch of fruits are becoming heavy beneath the trellis, and are being supported by means of tables, 6 inches square, made of half-inch deal, with a goodly-sized hole bored through each corner, through which is passed two pieces of string from the top, and coming underneath are then passed again through to the top, and finally are looped up to the trelliswork in such positions as will carry the fruits and relieve the vines of their weight. The weather is now nearly all that can be desired for plants setting their fruits. Do not shade for the present. Sow for succession and pot off as occasion requires. Train out the growths in pits and frames, one leader towards the back, one towards the front, and the laterals at right and left angles from them. Use but few pegs until after the final earthing-up, which should be directly the fruits begin to swell off, and avoid overcrowding the growths. Still maintain a good bottom-heat by means of good linings. *T. Simpson.*

PINES.—Be cautious in applying new materials to fermenting beds at this season, as the heat in such is quickly stimulated. Unless absolutely required, any interference with them should be avoided beyond adding new materials, when it is necessary, to the surface, or between the pots, as the case may be. As the roots of all Pine plants should now be very active, and consequently in a very tender state, it is necessary to beware lest too much heat should affect those vital parts, and thereby materially check the progress of the plants. If the space cannot be spared to afford accommodation to the stools after the fruit is cut, they should be removed to a light or two elsewhere, keeping the suckers on them until about the end of the present month, when, with the small ones already in reserve from last March, potting should be started. To hold over suckers on the stools in this way, and then starting them in moderate succession at suitable times, facilitates and simplifies matters in this respect considerably, and is far preferable to inserting them in pots in twos or threes, as the case may be,

when the fruit is cut, entailing as it does attention to almost individual requirements, and necessitating also in a corresponding manner a constant series of potting. Fixed dates for starting these may be disregarded, but defined periods are reasonable. Those which we have proved to be most suitable for the purpose of obtaining a constant supply of ripe fruit throughout the year are about March, June, and September—the plants of course being subject to the condition of treatment as from time to time indicated for them in the Pine Calendar, to which reference will again be made. Under such favourable conditions as those which are now afforded by natural means, the progress of Pine plants will be rapid, providing the roots be in a proper state. See that no check results from inattention in the way of watering; go over the plants at least once a week, and plentifully supply weak guano-water in a tepid state when it is required. Syringe the plants overhead two or three times every week at the time of closing the house, and take every advantage of solar heat, attending to the ventilation, &c., in the manner before advised. *Geo. Thos. Miles, Wycombe Abbey.*

VINES.—The weather during the past three weeks has been all that Vine-growers could possibly desire; and truly they have benefited by it, for foliage which, previous to the advent of sun, was looking a sickly yellow, and akin to tissue-paper in texture, is now a healthy green, with much more substance in it. Now that we have sunshine, the most should be made of it, first by increasing the ventilation which it allows, and, secondly, by closing early, not only to economise fuel, but to prolong the health of the Vines. Excessive firing is most injurious in several ways, and not unfrequently ends in a full crop of red-spider and a thin crop of Grapes. The remarks and directions as to thinning, disbudding, stopping, and tying, in last fortnight's Calendar, are still applicable. Especially let all superfluous bunches be cut off as soon as the number to be left on a Vine is decided, for every hour they remain is just so much loss of benefit to the bunches that are to ripen. Where the Grapes are ripe, the dung, leaves, and litter that were put on outside borders for warmth may be removed, leaving sufficient to serve as a mulching in dry weather, for though the Grapes are ripe, attention to the welfare of the Vines ought to go on as usual, remembering that next year's crop depends in no slight degree on the treatment given from now until the fall of the leaf. Stop laterals just the same as on Vines in earlier stages of growth, unless they have become infested with spider or thrips, and then it is desirable to let them remain, in lieu of which, the worst infected old leaves may be picked off, and as soon as the fruit is cut thoroughly wash the Vines with the garden engine. Examine the borders of succession houses at least once weekly, and water copiously when dry. Inside borders if well drained will take almost any amount of water at this season of the year, and, the Vine being a gross feeder, manure-water should be given every alternate watering. Having had a good rainfall since the beginning of the year, outside borders, if well mulched, will not yet require artificial watering. Newly planted Vines should be closely watched, that they do not suffer from over-dryness. Usually these are planted in close contact with hot-water pipes, consequently are dried up quickly. In training them let all the wood and spray remain that can be exposed to light, but supernumeraries intended for fruiting next season should be closely pinched and confined to one rod. *W. Wildsmith, Heckfield.*

FIGS.—The earliest forced in pots will now be ripe, and when so, watering at the roots and syringing overhead must now be gradually diminished to secure flavour. For the colouring process a free circulation of warm air is required, and the top ventilators may be left a little open at night as the weather gets warmer, the highest coloured fruit being the best flavoured at this early period. As soon as the first crop is gathered commence again to syringe the trees twice a-day, watering also at the roots with weak guano-water, which will enable the trees to produce a more vigorous second crop. If the second crop of fruit shows very abundantly, they must be thinned out so as not to over-tax the trees for early forcing next season. The trees in the houses where they are permanently planted out in the borders, will still want constant attention in pinching out the tops of the young shoots, and thinning out the too rampant unfruitful ones to prevent the fruit from being shaded much from the sun and air. Attend daily to syringing the trees, and water their roots twice or thrice a-week with manure-water, especially when the borders are circumscribed, and the trees of a good size; and more air must be given as soon as the fruit shows signs of maturation. *William Tillery.*

CUCUMBERS.—The importance of maintaining a clean growth cannot be over-estimated, and if green-fly makes its appearance fumigate at once. Red-spider, however, is the greatest enemy we have to contend with, and it is just at this season that it may be expected to put in an appearance. Directly it is perceived, take it as a bull by the horns, and remove it forthwith. I have no faith in sponging, for, besides being a very tedious task, the construction of the Cucumber leaf is of such a nature as to render it almost or quite impossible to penetrate all the interstices without much injuring the leaf. It is better, therefore, to remove it entirely. I have ever striven to enforce the necessity of a close and regular attention, for the Cucumber is of so jealous a nature, that if it be neglected it will speedily exhibit a bad temper in the shape of stunted fruits and many other evils. Remember what was said in the last Calendar about maintaining a good root-action. An old adage says that if you take care of the roots the head will take care of itself, and the adage is true so far as it goes. The blinds will now require to be rolled down for an hour or two at mid-day on houses having a southerly aspect, houses facing east or west, however, will not require shading. Little or no fire-heat is now requisite by day; the valves should be shut off about 8 A.M. and opened again about 5 P.M. Keep plenty of moisture in houses all day long. Maintain previously advised temperatures, and sow for succession. As fast as pits and frames become cleared of bedding stuff and the like, let them be turned to account forthwith; a fair bottom-heat should first be secured. Keep a good degree of warmth in pits and frames wherein the plants are already established, and beware of canker at the collar, and of slugs. Prepare to turn out ridge varieties under handlights as soon as they are well hardened and the ridges ready. *T. S.*

HARDY FRUIT GARDEN.

Where *Apricots* have been duly attended to, sufficient foliage has been made to efficiently protect the fruit, which is generally abundant, and the coverings may now be removed except in low or damp situations, where it may be necessary to continue it on a few days longer, but in such cases it is well to uncover in fine days so as to harden the trees previous to final exposure, otherwise it is possible the foliage may be injured by sudden exposure to bright sunshine. Thinning the fruit where necessary should also be attended to in good time; we have already commenced on a warm wall, and hope to gather a considerable quantity during the next week. Where the trees are young and healthy the fruit may be thinned to 9 inches apart, but if old or unhealthy a larger number should be left until the stoning process has fairly commenced; otherwise during this period a portion may fall off, and so render the crop lighter than intended. The great evil in the cultivation of the Apricot is allowing the trees to carry too much, and too late, in fruitful seasons; the consequence being that they are so much exhausted as to be unable to perfect the bud for the following season, and the result is a state of barrenness every alternate season. If thinned early the young fruit is available for many culinary purposes, and that remaining on the trees is both fine and well-matured, and, what is still more important, the trees are enabled to perform annually their functions in due season without loss of crop or impairing the vigour of the tree. *Peaches* and *Nectarines* are now fairly set. The trees being generally clean at present here, the coverings may be left on a little longer, but advantage must be taken to uncover on fine days, and at the same time to partially disbud the more forward growths, so as not to check the action of the sap by disbudding the whole of the tree at once. This is an operation requiring some little care and judgment as to properly supplying the tree with young shoots for next season, it being borne in mind that the Peach and Nectarine bear principally upon the growth of the previous season only, and that consequently it is necessary to replace the bearing wood of this season by the young growth for the next, the most important point being to retain a well-placed bud at the base of the bearing shoot, and another at its extremity, in order to secure to the fruit the full benefit of the sap action. The latter growth above the fruit may be stopped when a few inches long, unless required to extend for filling up the wall, as in the case of young trees, &c., so as to allow more space for the growth of the shoot from the base which will replace it next season. Very little aphis has yet made its appearance, but it must be watched for, and the usual remedies applied as soon as possible. *W. Cox.*

Obituary.

WE greatly regret to hear of the death of the excellent botanical collector, M. ENDRES. We are promised an account of his career from Prof. Reichenbach.

Answers to Correspondents.

BRIDGE: *T. E.* Cover the arch with a layer of asphalte made of lime, gravel, and coal tar, and then put a layer of gravel over all.

DECOMPOSING LEAVES: *J. O.* Turn them over frequently, and well water, so as to get them to heat; and to assist in this mix with them the grass mowings, stable litter, or even soil.

FIG TREES: *J. O.* We are of opinion that you would succeed better with young plants. Take up the old stools, and secure some of the suckers with roots, which plant. They ought to fruit in about three years if properly attended to. Confine the young plants to one stem—*i.e.*, allow no suckers to be produced. The trees will fruit earlier and better when grown so.

FUNGUS: *W. M., Ely.* The substance sent is merely a mycelium, common on old boughs cut up for firing. It may belong to some Polyporus, as P. ignarius, but we have never been able to trace it to any perfect plant.

GOLDEN HAMBURGH VINE: *R. T. T.* The flowers are not properly fertilised, otherwise set; you must do this artificially with a small camel's-hair brush, or draw the hand gently down the bunch on a bright day, when the Grapes are in flower.

INSECTS: *J. P. M.* Your small beetle is Malthinus biguttatus. *I. O. W.*—*J. G.* The soil in which you planted your pot Roses must have been swarming with the eggs or white maggots of the beetles, found upon the trees after dark, of which you have killed as many as 300 in one night. Lay down a white cloth under the trees, and search for the insects as before, with a light, which frightens them, and causes them to fall to the ground. *I. O. W.*

MELONS: *A Subscriber.* The leaves are affected by scald.

NAMES OF PLANTS: *R. P.* A garden variety of Anemone hortensis.—*W. Lewin, Ashe.* Lathræa squamaria. Not particularly rare.—*Cor.* The numbers were unfortunately shifted before we received your plants. The Narcissus with white flowers and a yellow cup is N. Tazetta, var. lacticolor; the pure white, sweetly-scented Narcissus, is N. papyraceus; the onion-scented violet-coloured flower is Triteleia uniflora.—*P. W. J.* Claytonia perfoliata. It is an introduced plant, which has become partly wild.—*Edward Stepney.* Spermannia africana.—*A. D.* Rhododendron Thomsoni, a Himalayan species.—*A. B.* Odontoglossum triumphans.—*Ignoramus.* Rubus spectabilis.—*Clarke.* Alonsoa incisæfolia.—*J. Falconer.* Primula verticillata, and Sedum lydium.

PELARGONIUM LEAVES: *J. K.* The leaves are affected by spot, the result of disturbed root-action, probably arising from excess of moisture in the soil.

PHORMIUM TENAX: *W. F. G.* The flower stem will rise to a moderate height above the leaves, and will be an interesting subject for your local show. Probable duration, two or three weeks.

*** Correspondents are specially requested to address, post-paid, all communications intended for publication to the "Editors," and not to any member of the staff personally. The Editors would also be obliged by such communications being posted as early in the week as possible. *Letters relating to Advertisements, or to the supply of the Paper, should be addressed to the Publisher, and* not *to the Editors.*

COMMUNICATIONS RECEIVED.—Westbury.—E. Gilman.—W. M., Ely.—R. D.—W. H. F.—F. L. & Co.—Camjee—G. Smith.—A Constant Subscriber.—J. G. B.—L. H. G.—R. D.—J. B.—W. B. H.—W. C. T.—A. B. M.—C. P.—J. A. H.—W. Sowerby.

Markets.

COVENT GARDEN, May 6.

Early produce is now being consigned, and also brought to market in very considerable quantities, Asparagus from the open ground becoming very general. Broccolis and rougher goods in fair demand. The bright sunny weather has also had a marked influence on such produce as is raised under glass; Gooseberries and Rhubarb have now almost closed the demand for kitchen Apples; good dessert varieties, however, still command a fair price. *Thos. Taylor, Wholesale Apple Market.*

—— The choicest descriptions of fruit and vegetables in the retail markets may be quoted as follows:—Tomatos, 6*s.* per doz.; Peaches, 42*s.* and 63*s.* per doz.; Grapes, 10*s.*, 15*s.*, and 20*s.* per lb.; Figs, 18*s.* per doz.; Strawberries, 10*s.* to 16*s.* per lb.; Gooseberries, 1*s.* 6*d.* per quart; Apricots (green), 2*s.* per punnet; Peas, 2*s.* 6*d.* to 4*s.* per quart; Potatos (new), 6*d.* to 2*s.* per lb.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, per ½-sieve	3 0	4 0	Oranges, Malta, doz.	2 0	3 0
Grapes, English, per lb.	..	6 0–15 0	Peaches, per doz.	.. 15 0	24 0
— foreign, do.	.. 1 6	4 0	Pears, p. doz.	.. 4 0	12 0
Lemons, per 100	.. 8 0	12 0	Pine-apples, p. lb.	.. 6 0	10 0
Nuts, Cob, p. lb.	.. 2 0	.. 0	Pomeloes, each	.. 0 6	1 0
Oranges, p. 100	.. 8 0	12 0	Shaddocks, each	.. 2 0	3 0
— Tangierine, doz.	1 6	2 6	Strawberries, per oz	1 0	2 0
			Walnuts, p. bush.	.. 16 0	..

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, Fr., doz.	4 0	..	Leeks, per bunch	.. 0 2	0 4
Asparagus, English, per bundle	.. 5 0	6 0	Lettuces, per doz.	.. 1 6	..
— French, p. bund.	4 0	15 0	Mint, per bundle	.. 1 6	..
Beans, French, p. 100	2 6	..	Mushrooms, per pott.	1 0	2 0
— broad, p. ½-sieve	10 0	..	Onions, young, bun.	0 4	0 6
Beet, per doz.	.. 1 0	2 0	Parsley, per bunch	.. 0 9	1 0
Cabbages, per doz.	.. 1 0	2 0	Parsnips, p. doz.	.. 0 9	1 0
Carrots, p. bundle	.. 0 6	0 9	Peas, per quart	.. 8 0	..
— French, do.	.. 2 0	..	Radishes, per bunch.	0 2	0 4
Cauliflowers, per doz.	2 0	6 0	Seakale, per bundle	1 0	1 6
Celery, per bundle	.. 1 6	2 0	Shallots, per lb.	.. 0 3	..
Cucumbers, each	.. 1 0	2 6	Salsify, per bundle	.. 1 6	..
Endive, per doz.	.. 1 0	2 0	Sprue, French, bund.	1 6	..
Herbs, per bunch	.. 0 2	0 4	Turnips, per bundle.	0 6	..
Horse Radish, p. bun.	3 0	5 0	— French, p. bund.	2 0	..

Potatos:—Early Shaws, 110*s.*; Regents (early), 120*s.*; best, 160*s.*; Early Dons, 120*s.*; and Victorias, 160*s.* per ton.

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Azaleas, p. 12 sprays	0 6–	1 6	Lily-of-the-Valley, 12 sprays ..	0 6–	2 6
Camellias, 12 blooms	2 0–	6 0	Mignonette, 12 bun.	4 0–	6 0
Carnations, 12 blooms	1 6–	3 0	Narcissus, per doz...	0 6–	1 6
Cineraria, p. bunch..	0 9–	1 6	Pelargoniums, 12 spr.	0 9–	1 0
Cyclamen, 12 blooms	0 2–	0 6	— Zonal, do. ..	0 4–	1 0
Deutzia, per bunch..	0 6–	1 0	Primula, dbl., p. bun.	0 9–	1 6
Eucharis, per doz. ..	6 0–12	0	— single, do. ..	0 4–	0 9
Euphorbia, 12 sprays	1 6–	6 0	Roses, indoor, p. doz.	2 0–	6 0
French Lilac, p. bun.	3 6–	5 0	— French, do. ..	1 0–	2 6
Heliotropes, 12 sprays	0 6–	1 0	Spiræa, 12 sprays ..	2 0–	4 0
Hyacinths, per bunch	0 9–	1 6	Stephanotis, 12 sprays	4 0–	9 0
— Roman, per 12 spikes	1 0–	2 0	Violets, per 12 bun...	1 0–	3 0

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Azaleas, per dozen..	24 0–	60 0	Hyacinths, per doz.	6 0–	18 0
Begonias, do. ..	6 0–	12 0	Lily of the Valley, 12 sprays, about ..	1 6–	3 0
Bouvardias, do. ..	9 0–	18 0	Mignonette, do. ..	6 0–	9 0
Calceolarias, do. ..	9 0–	18 0	Myrtles .. do.	3 0–	9 0
Cineraria, do. ..	6 0–	15 0	Pelargoniums, dble., per doz.	6 0–	12 0
Cyperus, do... ..	6 0–	12 0	— Scarlet, do. ..	6 0–	9 0
Deutzias, do. ..	8 0–	18 0	Roses, do. ..	12 0–	60 0
Dracæna terminalis	30 0–	60 0	Solanums, do. ..	6 0–	18 0
— viridis, per doz.	12 0–	24 0	Spiræa, do. ..	12 0–	24 0
Ficus elastica ..	1 6–	7 6	Stock, do. ..	6 0–	9 0
Fuchsia, per doz. ..	6 0–	18 0			
Gardenias, do. ..	24 0–	60 0			
Heaths, in var., doz.	12 0–	30 0			

SEEDS.

LONDON: *May* 5.—The consumptive demand for Clover seeds appears to be drawing to a close. Occasionally orders for small quantities drop in, which are executed at full prices. It is a long time since, at the close of the season, the stocks remaining on hand have been so light as they are now. Spring Tares continue in some request at the extraordinary high rates now reached. Agricultural Mustard and Rape seed meet an active inquiry at enhanced currencies. The impression prevails that a large demand will be experienced for these descriptions. Good samples of either sort are scarce. In Canary seed a further movement upwards must be noted of fully 10*s.* per quarter. Hemp seed is also dearer. White Millet and English Linseed keep steady. *John Shaw & Sons, Seed Merchants*, 37, *Mark Lane, E.C.*

CORN.

At Mark Lane on Monday trade was influenced by the fine weather and the satisfactory condition of the crops. For Wheat previous prices were obtained. Barley was very slow of sale, and in some instances rather cheaper. Malt was difficult to move, and easy in value. For Oats the demand was quiet, and prices were hardly so firm. Maize was slightly lower. Beans were dull, as were also Peas. Flour barely maintained the rates of last Monday. Canary seed was scarce and considerably dearer, the quotation being 22*o.s.* to 25*o.s.* per quarter.—On Wednesday the market was quiet. The show of English Wheat was small, but that of foreign rather large, and factors had again to submit to some reduction in many of the sales effected. Barley also was slightly easier in some instances, and little inquiry prevailed for malt. Oats were steady, and late rates were about supported for Maize, Beans, and Peas. Flour was rather weak.—Average prices of corn for the week ending May 1:—Wheat, 42*s.* 10*d.*; Barley, 38*s.* 10*d.*; Oats, 30*s.* For the corresponding week last year:—Wheat, 62*s.* 1*d.*; Barley, 46*s.* 6*d.*; Oats, 29*s.* 1*d.*

CATTLE.

At the Metropolitan Market on Monday there was a fair demand for beasts at last Monday's quotations. Trade in sheep was not very brisk, but prices advanced for all kinds. There were a few more calves, and a demand for them at fully late rates. Choicest lambs were freely sold, but second-rate met with a dull sale. Quotations:—Beasts, 3*s.* 6*d.* to 4*s.* 6*d.*, and 5*s.* 6*d.* to 6*s.*; calves, 4*s.* 6*d.* to 5*s.* 8*d.*; sheep, 5*s.* to 5*s.* 8*d.*, and 6*s.* to 6*s.* 8*d.*; lambs, 7*s.* 4*d.* to 8*s.* 4*d.*; pigs, 4*s.* 4*d.* to 5*s.* 4*d.*—At Thursday's market trade in beasts was active, and Monday's quotations were well maintained throughout. For sheep the demand was good, and prices were not lower. Choice lambs were scarce, and rather dearer. Quotations for calves remained unaltered. For milch cows business was more active, at somewhat higher rates.

HAY.

Whitechapel Market reports a moderate supply of fodder, which changed hands steadily on former terms. Prime Clover, 100*s.* to 130*s.*; inferior ditto, 85*s.* to 95*s.*; prime meadow hay, 90*s.* to 120*s.*; inferior ditto, 55*s.* to 75*s.*; and straw, 35*s.* to 40*s.* per load.—Cumberland Market quotations:—Superior meadow hay, 120*s.* to 130*s.*; inferior, 90*s.* to 110*s.*; superior Clover, 126*s.* to 135*s.*; inferior, 105*s.* to 114*s.*; and straw, 40*s.* to 44*s.* per load.

POTATOS.

The Borough and Spitalfields markets report fair supplies on sale, and the trade as slow at the subjoined currency:—Regents, 75*s.* to 125*s.*; Victorias, 105*s.* to 145*s.*; flukes, 110*s.* to 155*s.*; rocks, 65*s.* to 75*s.* per ton.—The imports of foreign Potatos into London last week amounted to 17,896 bags from Antwerp, 5328 sacks and 1218 tons from Dunkirk, 1052 barrels and casks from Malta, 149 tons from St. Valery, 734 bags from Boulogne, 33 barrels and 4 boxes from Gibraltar, 52 cases from Valencia, and 22 packages from Lisbon.

COALS.

In the market on Monday house coals gave way 1*s.* per ton. On Wednesday the top price for best coals was unchanged, but a clearance was effected at 6*d.* per ton ower.

PARTNERSHIP.—Owing to the decease of the Proprietor of an Old Established Nursery Business, the Executors are desirous of meeting with a person possessing moderate capital, who would be disposed to take the whole or a portion of the business.—Address, EXECUTOR, care of Messrs. Protheroe & Morris, 98, Gracechurch Street, E.C.

WANTED IMMEDIATELY, an UNDER GARDENER (not under 20 years of age). Must understand Hothouses and Lawn-mowing. Wages 18s. per week.—HEAD GARDENER, Cranford Hall, Kettering.

J. LAING is in WANT of a young MAN thoroughly up in Rose Budding. State age and experience, &c.—Nurseries, Forest Hill, S.E.

WANTED, a young MAN, thoroughly experienced in Growing Soft-wooded Plants for Covent Garden Market. Must have testimonial from present or late employer as to qualification required. None need apply unless having filled a similar situation. Liberal wages offered.—Application personally at the office of Mr. WRIGHT, Dacre Road, Lee, S.E.

WANTED, a sober and industrious MAN, to Grow Greenhouse and Bedding Plants and General Nursery Stock.—Apply, stating age, wages required, and references as to character, to EDWARD THOMAS, Harold Nursery, Sittingbourne, Kent.

Isle of Man Lunatic Asylum.

WANTED, as GARDENER ATTENDANT, a strong, active, and willing Man, well accustomed to Kitchen Gardening. Wages to commence at £25 a year, with uniform, and board and lodging in the Asylum. Also an ATTENDANT, with a knowledge of Flower Gardening. Wages to commence at £24, with uniform, board, lodging, &c. —Dr. HARRISON, as above.

WANTED, a MAN used to Budding, Grafting, Training, &c., and to make himself generally useful in a Small Nursery. Liberal wages to a steady Man.—HIRAM SHAW, Richmond Hill Nursery, near Sheffield.

OSBORN AND SONS are WANTING a first-class PACKER, preferring one accustomed to Fruit Trees.—Particulars of experience, references, &c., to be addressed to The Nursery, Fulham, S.W.

WANTED, a MAN and WIFE, without children, to take Charge of House, and Grounds of two acres. Woman must be first-rate Housemaid; Man, active Gardener. Wages, £40 to Man, £24 to Woman. Only first-class references accepted.—Apply by letter only to A. C., Frederick L. May & Co., Advertising Agents, 160, Piccadilly, W.

WANTED, a respectable MAN, to Milk a Cow and Work in the Garden.—G. WHEELER, St. John's Lodge, Regent's Park, N.W.

WANTED, a TRAVELLER, to represent an extensive and well-known Provincial House in the Nursery and Seed Businesses. A thorough practical knowledge of both departments indispensable, and one who has held a similar appointment preferred. None need apply who cannot give thoroughly satisfactory references as to character and ability.—Apply by letter to D. C., *Gardeners' Chronicle* Office, W.C.

OSBORN AND SONS are in WANT of a BOOK-KEEPER, and will give a liberal salary to a thoroughly competent Man.—Testimonials and particulars of experience, &c., to be addressed to The Nursery, Fulham, S.W.

WANTED, IMMEDIATELY, in an old-established Business, an OUT-DOOR ASSISTANT in the Seed and Corn Trade. Would be required to Assist in the Shop and Keep the Books; must be thoroughly trustworthy. To take the place of a Son who is serving home. Apply in own handwriting, stating age, experience, and salary required, &c., to J. C. AND SON, Seedsmen, 133, High Street, Cheltenham.

Junior Clerk

WANTED, a young MAN as above, with good references from last employer.—CLARK BROS. AND CO., Seed Merchants, Carlisle.

WANT PLACES.

B. S. WILLIAMS, having at the present time several very excellent GARDENERS upon his Register, is desirous of placing them in Situations where great experience and trust are required. B. S. W. would at the same time beg to intimate that when a Gardener is applied for that the filling of the situation should be left with him, as that would prevent unnecessary correspondence and delay.—Victoria and Paradise Nurseries, Upper Holloway, London, N.

Head Gardeners.

JOHN LAING can at present recommend with every confidence several energetic and practical Men, of tested ability and first-rate character. Ladies and Gentlemen in WANT of GARDENERS and BAILIFFS, or GARDENERS for First-rate Establishments or Single-hand situations, can be suited, and have full particulars by applying at Stanstead Park and Rutland Park Nurseries, Forest Hill, London, S.E.

To Gardeners in Want of Situations,

WHOSE CHARACTERS WILL BEAR STRICT INVESTIGATION.

THE PINE-APPLE NURSERY COMPANY devote special attention to this important matter—proper Men to suitable Situations. For a GARDENER, or for a SITUATION, please send full particulars to Mr. JOHN BESTER, the Pine-Apple Nursery Company, Maida Vale, London, W.

Gardeners and Under Gardeners.

WM. CUTBUSH AND SON beg to state that they have at all times on their Books MEN of VARIOUS QUALIFICATIONS, whose characters will bear the strictest inquiry. Any Gentleman making application would save time by clearly stating the duties to be undertaken, wages offered, &c., so that suitable Men may be selected.—Highgate Nurseries, London, N.

GARDENER (HEAD).—J. MASON, fifteen years Head Gardener to the late Jesse Watts Russell, Esq., Ham Hall, Staffordshire, is at liberty to engage with any Nobleman or Gentleman requiring a practical and persevering Man.—Ham, Ashbourne, Derbyshire.

GARDENER (HEAD).—J. W. LAURENCE, Gardener to the late Right Rev. Bishop Sumner, Farnham Castle, is at liberty to engage with any Nobleman or Gentleman requiring the services of an experienced Man.—Prospect Cottage, Upper Hale, Farnham, Surrey.

GARDENER (HEAD), where three or more are kept.—Age 35, married, one child; thoroughly practical; fourteen years' experience, gained in three Noblemen's places. Four years' good character in present situation. —J. SMITH, Marshall's, Romford, Essex.

GARDENER (HEAD) where two or three others are kept.—Age 33, married. A GENTLEMAN can recommend the above to any one requiring a competent Man. —C. J. F., Esq., Redcliffe, New Brighton, Cheshire.

GARDENER (HEAD), to any Nobleman, Lady, or Gentleman requiring the services of a thoroughly experienced Man (married).—D. J., Post Office, Ulverston.

GARDENER (HEAD, WORKING), where a Second is kept.—Age 30, married; has had good practical experience in all branches. Good character from past and previous employers.—J. WILSON, High Street, Orston, Nottinghamshire.

GARDENER (HEAD, WORKING).—Age 35, married, three children; thoroughly understands the Forcing of Fruits, Flowers, &c. Good Superintendent of Stock, Land, &c. Long and good character. Shall be disengaged in three weeks.—B., 73, Hampden Road, Upper Holloway, N.

GARDENER (good HEAD, WORKING), to any Nurseryman or Market Gardener requiring the services of a good practical Man.—Age 25. Ten years' experience in all branches.—A. B., 1, Keswick Villa, Hither Green Lane, Lewisham, S.E.

GARDENER (HEAD, or SINGLE-HANDED). —Age 25, married; ten years' experience in large gardens. Good references.—H. A., Post Office, Streatham, Surrey.

GARDENER.—Thoroughly conversant with Gardening in all its branches; would undertake Game Preserving. Excellent references. Five and a half years in last situation. Permanent place desired.—GARDENER, Mr. Sim, East Surrey Seed Warehouse, Croydon, S.E.

GARDENER.—Age 47, married, no children; practically understands Garden Work in all its branches, is a first-class Grape Grower, and would Superintend a Farm. Wife could take care of a Dairy. Good testimonials and references.—C. M., 77, St. John's Wood Terrace, N.W.

To Clergymen.

GARDENER (SINGLE-HANDED).—Age 52, one boy (age 12); steady, experienced; well up in mixed Farming. Good testimonials and references. Wages, if with board and lodging, 8s. per week.—J. DOWNS, Thedle, near Wells, Somerset.

FOREMAN, in a good Establishment.—Age 24. One and a half years in last situation.—V. Z., Mrs. Southern, 31, High Street, St. John's Wood, N.W.

GARDENER (SECOND or THIRD), in a Gentleman's Garden, where four or five Men are kept.—Age 23. Three years' good character from present employer, and five years' previous. State particulars.—J. LITTLE, The Gardens, Valentines, Ilford, Essex.

GARDENER (UNDER), to live on the premises, and to assist in the Forcing-houses.—Age 21. Three years' character.—A. B., Post Office, Benenden, Staplehurst.

GARDENER (UNDER).—Age 19, respectable. Has had six years' experience. Under Glass preferred. Good reference.—State all particulars to W. WOOLLARD, Scotland Green, Tottenham, N.

To the Trade.

PROPAGATOR and GROWER of Soft-wooded Stuff, or Grapes, Cucumbers, &c.—Age 26, married.—H., Post Office, Bickley, Kent.

PROPAGATOR (FIRST-CLASS) and PLANTSMAN, principally Soft-wooded; also well up in the Management of Azaleas, Camellias, Vines for Fruiting in pots, &c. Good references.—W. B., Mr. Meades, Second Cross Road, Twickenham Green, Middlesex.

PROPAGATOR.—Soft-wooded Grower for Exhibition or Market, if required. First-class character. —C. C., 1, Lordship Road, Stoke Newington, N.

JOURNEYMAN, under a good Foreman, in the Houses preferred.—Age 21. Two years' good character from present employer. State wages.—W. F., Ripley Gardens, Ripley, Yorkshire.

TO NURSERYMEN and FLORISTS.—Indoor Hand; a respectable young Man. Excellent character from the Nurseryman he has just left.—F. PARRY, Kingswear, Dartmouth.

IMPROVER, under a Nobleman's or Gentleman's Gardener.—Age 16; respectable.—For particulars address T. FLETCHER, Bath Road, Harlington, Middlesex.

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CONTENTS.

SALES BY AUCTION.

Sale this Day of 50,000 Autumn-struck Bedding PLANTS.

MESSRS. PROTHEROE AND MORRIS will SELL the above on the Premises, The Vineries, Nightingale Road, Wood Green, N., THIS DAY, SATURDAY, at 1 for 2 o'Clock precisely.

Upper Sydenham, S.E.

CLEARANCE SALE of choice BEDDING and GREENHOUSE PLANTS, &c.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. George Selley to SELL by AUCTION, on the Premises, Kirkdale Nursery, Upper Sydenham, S.E., on WEDNESDAY, May 19, at 1 for 2 o'Clock precisely, without reserve, the Land being sold and immediately required for other purposes, the whole of the well-grown BEDDING and GREENHOUSE PLANTS, comprising thousands of Geraniums, Verbenas, Calceolarias, &c., a few Camellias, Azaleas, and other Greenhouse Plants.

Now on view. Catalogues may be had on the Premises, and of the Auctioneers and Estate Agents, 98, Gracechurch St., E.C.

West Dulwich, S.E.

IMPORTANT SALE of VALUABLE STOVE, GREENHOUSE, and BEDDING PLANTS, &c.

MESSRS. PROTHEROE AND MORRIS have received instructions from Messrs. F. & A. Smith to SELL by AUCTION, without reserve, on the Premises, the Nursery, Park Road, West Dulwich, S.E., on THURSDAY and FRIDAY, May 20 and 21, at 11 for 12 o'Clock precisely, a large quantity of beautifully-grown STOVE and GREENHOUSE PLANTS, including many handsome specimens, numerous selected Palms and choice Orchids, a considerable number of fine double Camellias (many of which are well-furnished plants of the old true double white): Fruiting Vines in Pots; also quantities of Azalea indica, together with a large and rich assortment of 40,000 GERANIUMS and other plants for bedding-out purposes; also a Mowing Machine.

On view. Catalogues may be had on the Premises and of the Auctioneers, 98, Gracechurch St., E.C., and Leytonstone, E.

Leytonstone, Essex.

IMPORTANT UNRESERVED SALE of about 15,000 GREENHOUSE and BEDDING PLANTS, &c.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, The American Nursery, Leytonstone, Essex, adjoining the Railway Station, on SATURDAY, May 22, at 2 o'Clock precisely, about 15,000 GREENHOUSE and BEDDING PLANTS of the usual miscellaneous assortment.

On view day prior to Sale. Catalogues are now ready, and may be had at the Nursery, and of the Auctioneers, &c., 98, Gracechurch Street, E.C.

Tooting, S.W.

IMPORTANT SALE of a large quantity of extra stock of choice STOVE and GREENHOUSE PLANTS, the whole of which are in a very healthy and thriving condition, containing some New and Rare Plants; also some selected ORCHIDS, quantity of EXOTIC FERNS, several valuable PALMS, together with a fine assortment of Succulent and Hardy HERBACEOUS PLANTS, Hardy CLIMBERS in pots, &c.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from Mr. R. Parker to SELL the above by AUCTION, on the Premises, Exotic Nursery, Tooting, Surrey, S.W., on MONDAY, May 24, at 12 for 1 o'Clock precisely.

On view the day prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, 98, Gracechurch Street, E.C., and Leytonstone, E.

Hornsey, N.

IMPORTANT SALE of about 40,000 unusually well-grown GREENHOUSE and BEDDING PLANTS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the Hornsey Nursery, Hornsey, Middlesex, N., close to Hornsey Station, Great Northern Railway, on TUESDAY, May 25, at 11 for 12 o'Clock precisely, by order of Mr. M. Cleall, without reserve, about 40,000 GREENHOUSE and BEDDING PLANTS, in rich assortment, and beautifully grown, consisting of 20,000 Geraniums, the whole of which are wintered plants, including Vesuvius, Madame Vaucher, Crystal Palace Gem, Christine, and many other leading sorts; 1000 Mrs. Pollock, Lady Cullum, and other choice new Tricolor and Bicolor varieties; 3000 Calceolarias, of sorts; and the usual miscellaneous assortment, together with some choice Greenhouse Plants in bloom, comprising Azalea indica, Spiræas, Pelargoniums, Fuchsias, Ferns, Intermediate Stocks, &c.

May be viewed three days prior to Sale. Catalogues may be had on the Premises, and of the Auctioneers, 98, Gracechurch Street, E.C., and Leytonstone, E.

Stamford Hill, N.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, Allen's Buildings, Manor Road, Stamford Hill, N., on WEDNESDAY, May 26, at 12 for 1 o'Clock precisely, by order of Mr. M. Allen, about 10,000 well-assorted BEDDING PLANTS.

Freehold and Leasehold Properties.

MESSRS. PROTHEROE AND MORRIS will include in their PERIODICAL SALE, to take place at the Auction Mart, Tokenhouse Yard, E.C., on MONDAY, May 31, at 1 for 2 o'Clock, the undermentioned properties:—

DULWICH.—Eligible Freehold Building Land, situate in the Underhill Road.

LEYTON.—Three Superiorly Built Freehold Residences, known as Nos. 1, 2, and 3, Fairlight Villas, Vicarage Road; also five Plots of Freehold Building Land in the rear of same; and three other Plots situate in the Vicarage Road, and one in the Preston Road, Mark House Common.

LEA BRIDGE ROAD.—A substantial Brick-built House, known as No. 2, Amberley Road, Lea Bridge Road, Leyton.

LEYTONSTONE ROAD.—Five Brick-built Cottages, being Nos. 5 to 9, Newmarch Terrace, Victoria Road, Leytonstone; also five other Cottages, known as Nos. 6 to 10, Amos Terrace, Victoria Road.

FOREST HILL.—A Brick-built Semi-Detached Freehold Villa Residence, known as Malmsbury Villa, St. Germain's Road; also a modern and well-built Family Residence, known as Auckland Cottage, Ravensbourn Road, Stanstead Road.

WALTHAMSTOW.—A valuable Plot of Building Land, situate in the Grosvenor Road East.

Messrs. PROTHEROE AND MORRIS beg to announce that their NEXT PERIODICAL SALES of PROPERTIES will take place on JUNE 7 and 28.

Edmonton, N.

To NURSERYMEN, MARKET GARDENERS, BUILDERS, and OTHERS.

MESSRS. PROTHEROE AND MORRIS will include in their next PERIODICAL SALE of PROPERTIES, to be held at the Auction Mart, Tokenhouse Yard, City, on MONDAY, May 31, at 12 for 1 o'Clock, about FOUR ACRES of highly productive LAND, situate in the Hyde Road, Edmonton, five minutes' walk from the station, and immediately available for Building purposes; or a portion could be advantageously utilised for Nursery and Market Garden purposes.

Cards to view may be obtained of Messrs. PROTHEROE AND MORRIS, 98, Gracechurch Street, City, E.C.

Highly Important Sale of Imported Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, May 20, at half-past 12 o'Clock precisely, New and Rare ORCHIDS, collected by order and for account of Mr. R. Roezl, comprising a few plants of the new and beautiful Bollea coelestis, Reich.; also some plants of the magnificent Pavenia Burtii var. Wallisii, Reich.; Odontoglossum Roezli; and an importation of ORCHIDS from Mr. Roezl, collected in Western Mexico, mostly adapted for cool houses, such as Oncidium tigrinum, Cattleya citrina, Odontoglossum insleayi var. leopardinum, Oncidium Barkeri, &c.; an importation of OPHRYS OTOGLOSSUMS from New Granada; a consignment of SARRACENIA PURPUREA, and other hardy North American Plants; an importation of ORCHIDS from Moulmein; an importation of immense masses of LÆLIAS from Mexico; several small collections of Established ORCHIDS, &c.

On view the morning of Sale, and Catalogues had.

Specimen Stove and Greenhouse Plants.

MR. J. C. STEVENS will SELL by AUCTION, on the Premises, South Bank, Surbiton, on FRIDAY, MAY 21, at half-past 12 o'Clock precisely, a Collection of STOVE and GREENHOUSE PLANTS, consisting of Camellias, Azaleas, Ferns, well-grown Heaths, Palms, Eucharias amazonica, Anthuriums, Crotons, Marantas, a few lots of Orchids, a quantity of Bedding Plants: BELL-GLASSES, MOWING MACHINE, WATER-BARROW, Four TWO-LIGHT and One TWO-LIGHT-LIGHT FRAMES, &c., the property of J. A. Barton, Esq.

On view the day prior and morning of Sale, and Catalogues had on the Premises, and of Mr. J. C. STEVENS, Auctioneer and Valuer, 38, King Street, Covent Garden, W.C.

Vine Cottage, Lee Park, Blackheath, S.E.

GREENHOUSE and STOVE PLANTS, FERNS, CAMELLIAS, AZALEAS, and BEDDING PLANTS.

MR. DYER has received instructions from Mr. Saville to SELL by AUCTION, on the Premises, on THURSDAY NEXT, May 20, at 2 o'Clock punctually, a choice Collection of GREENHOUSE and STOVE PLANTS, Specimen FERNS, comprising Dicksonia antarctica (8 feet across), Lomaria gibba (8 feet 6 inches across), Selaginella, Alsophila, Adiantums, Asplenisms, Davallias, Gymnogrammas, Nephrolepis, Nothochlæna, Onychium, Pteris, and other Ferns; specimen Camellias and Azaleas, from 9 inches to 8 feet in height; fine specimen Epacris, Epiphyllums, Bouvardias, 5 feet high; trained Euphorbia in flower, 3 feet high; Gardenias, Stephanotis, Eucharis amazonica, Gloxinias to name, Ficus elastica, Roses in pots, Palms in varieties, several thousand Bedding Plants of the most popular and choice kinds, and numerous other plants.

May be viewed the day prior and morning of Sale, and Catalogues obtained on the Premises, at the Estate Exchange, Auction Mart, Tokenhouse Yard, E.C., and of the AUCTIONEER, Blackheath, S.E.

Summit Road, Walthamstow, E.,

Five minutes' walk from the Hoe Street Station.

MESSRS. GREEN AND SON will SELL by AUCTION at the Mart, Tokenhouse Yard, by order of the Mortgagees, on FRIDAY, May 21, at 1 for 2 o'Clock, the valuable FREEHOLD LAND with DWELLING-HOUSE and GREENHOUSES situate in Summit Road, Walthamstow, which have for many years been occupied by Mr. Sherman as Florist and Nurseryman. The premises are well adapted for the business, the land is also valuable for building purposes, having a frontage to the road of 128 feet and a depth of 152 feet. Possession will be given on the 24 next.

Particulars of Messrs. ELWES AND SHARPE, Solicitors, 8, Furnival's Inn, E.C.; at the "Nag's Head," Walthamstow, E.; and of GREEN AND SON, 10, St. Swithin's Lane, E.C.

Magnificent Specimen and Other Plants.

MESSRS. LYTHALL AND CLARKE are instructed by Messrs. Felton & Sons (who are declining exhibiting large specimens this year) to OFFER by AUCTION, at the Midland Counties Repository, Moseley Street, Birmingham, on WEDNESDAY, May 26, at 2 o'Clock prompt, a splendid SELECTION of EXHIBITION PLANTS, in the finest possible health and every leaf perfect, including Pandanus Veitchii, 5 feet by 4 feet, leaves upwards of 4 feet long—a noble plant; Maranta Veitchii, 4 feet by 4 feet; Maranta Makoyana, 2 feet by 2 feet: Areca Baueri, 8 feet high—a noble Palm; Cocos Weddeliana, 5 feet; Dracænopsis melanochaetes (true), 6 feet; Kentia Forsteriana, 5 feet; Kentia Balmoreana, 5 feet: two extra fine Curculigo recurvata variegata, 4 feet by 5 feet; Dracæna Baptisti, 3 feet; D. Mooreana, 3 feet (a splendid pair); D. gloriosa, 3 feet; D. amabilis, very fine (three plants); Dendrobium nobile, 4 feet by 3 feet, with 500 open blooms; Vanda insignis (in bloom), a very first-class variety; Crotons (new), Orchids, large Tree and other Ferns, Anthurium crystallinum, seven leaves, 2 feet by 18 inches, very fine; Caladiums (new), Pelargoniums, Fuchsias, &c.; choice new Camellias to name, and a few lots of very excellent Bedding Plants.

The collection of Plants (of which the above form only a portion) are of the rarest varieties, and are, as described, in the most perfect health, and ready for successful exhibition at any Show.

Catalogues may be obtained gratis on application to Messrs. FELTON AND SONS, 23, High Street; the Offices of the *Midland Counties Herald*; or from the Auctioneers, 1, Moseley Street, Birmingham.

Victoria Estate, Kansas, U.S.—To Farmers and OTHERS.

FINE STOCK FARMS of 640 Acres and upwards, to be SOLD, Freehold, from 12s. to 50s. per acre. Grass in its natural condition unsurpassed for feeding Sheep and Cattle. For PAMPHLET containing full particulars respecting this Property, apply to

ROBERT W. EDIS, Esq., F.S.A., 14, Fitzroy Square, London, W., Architect to the Estate.

FOR SALE, an Orchard and Plant-house SPAN-ROOF RANGE, length 65 feet, width 24 feet, height 13 feet, with 297 feet heating pipes and 4 valves, Iron Ratchet-worked Ventilators, Shelves and Stages, all in excellent condition. Inquire of

Mr. WOOKEY, Heybridge Garden, near Malden, Essex.

THE FREEHOLD for SALE, or to be LET on LEASE a NURSERY doing a large Trade in Cut Flowers with the principal London Florists. Valuation about £500. Address by letter only,

Mr. DICKSON, Centre Avenue, Covent Garden, W.C.

Crown Lands, Stagsden, Bedfordshire.

TO BE LET by TENDER, from October 10 next, on Lease, WICK END FARM, in the Parish of Stagsden, in the occupation of Mr. Philip Herman, comprising about 328 acres, and situated about 4½ miles from the town of Bedford. About 258 acres are Arable, and 57 acres Meadow Land. Mr. Samuel Odell, of Stagsden, the Woodreeve, will point out the Farm.

Particulars and Forms of Tender may be obtained on application to the Hon. CHARLES GORE, Office of Woods, &c., 1, Whitehall Place, Westminster, S.W.; or to Mr. JOHN CLUTTON, 9, Whitehall Place, Westminster, S.W.

Tenders must be delivered on or before Saturday, May 29.

WANTED to PURCHASE, a small but well-established FLORIST'S or NURSERYMAN'S BUSINESS, within 15 miles of London. Nothing entertained that will not bear the strictest investigation. Address, with price and fullest particulars, to

A. R., 1, St. Stephen's Road, Lewisham, S.E.

NOTICE.

Royal Vineyard Nursery, Hammersmith.

MESSRS. J. AND C. LEE beg to GIVE NOTICE that

Lee's Nursery, Albion Gardens, Hammersmith,

where a Sale is advertised to take place,

Is in no way Connected with this Establishment.

ROYAL BOTANIC SOCIETY, Regent's Park, S.W.

EXHIBITION of CLEMATIS, in the Gardens, from MAY 5 to MAY 25, Sundays excepted. GEORGE JACKMAN AND SON, of the Woking Nursery, Surrey, beg to announce that their Exhibition of Clematis will be on view (as above) daily.

CRYSTAL PALACE.—The GREAT FLOWER SHOW of the Season will take place on SATURDAY, May 29.

RICHMOND HORTICULTURAL SOCIETY, embracing Richmond, Twickenham, Isleworth, Mortlake, East Sheen, Kew, Petersham, and Ham. Under the Royal and Distinguished Patronage of H.R.H. the Duchess of Cambridge, H.R.H. the Princess Mary of Cambridge, Duchess of Teck, H.R.H. the Duc d'Aumale, &c.

President—H.S.H. the DUKE OF TECK, G.C.B., President of the Royal Botanic Society.

The FIRST ANNUAL EXHIBITION of PLANTS, FLOWERS, FRUIT, and VEGETABLES, will take place on THURSDAY, July 8, and will be held in the Old Deer Park, Richmond (entrance from Richmond Green). Special Prize, offered by Messrs. James Carter & Co., The Queen's Seedsmen, High Holborn, London, W.C.—A SILVER CUP, value Five Guineas, for the best Collection of Vegetables (unforced), to comprise eighteen dishes and not less than twelve distinct kinds.

Schedules of Prizes, with the Rules, Regulations, and other particulars, may be obtained of the Honorary Secretary.

Subscriptions and Donations will be received by the London and Provincial Banks (Richmond and Twickenham); by Mr. BENNING, Collector, 7, Eton Street, Richmond; or by ALBERT CHANCELLOR, F.R.H.S., Honorary Secretary, 1, King Street, Richmond, Surrey.

May, 1875.

ROYAL HORTICULTURAL SOCIETY. SHOW of ROSES, AZALEAS, &c.—MAY 12.

AWARDS of the JUDGES.

CLASS 2.—6 ROSES, in pots, distinct. (Amateurs.)
1st, Mr. J. Herrington, Gr., Larkbere, Thornton Road, Clapham Park.

CLASS 5.—12 ROSES, Cut Blooms, distinct. (Amateurs.)
1st, Mr. J. Herrington.

CLASS 7.—6 GREENHOUSE AZALEAS, distinct, in pots not exceeding 12 inches in diameter. (Amateurs.)
1st, Mr. J. Herrington.
2d, Mr. W. Coles, Gr. to W. K. Wigram, Esq., The Chestnuts, St. Margaret's, Twickenham.

CLASS 8.—9 CALCEOLARIAS, distinct. (Open.)
1st, Messrs. Dobson & Son, Woodlands Nursery, Isleworth.
2d, Mr. A. Clark, Gr. to W. Shuter, Esq., 66, Belsize Park Gardens, Hampstead.
3d, Mr. J. Hetherington.

CLASS 9.—18 HARDY PERENNIALS in FLOWER, distinct, in pots not exceeding 12 inches in diameter. (Open.)
1st and Silver Medal, Messrs. W. Rollisson & Sons, The Nurseries, Tooting.
2d, Mr. R. Parker, Exotic Nursery, Tooting.
3d, Mr. R. Dean, Ranelagh Road, Ealing.

CLASS 10.—9 Bunches of HARDY PERENNIALS, Cut Blooms.
1st, Mr. R. Parker. | 2d, Mr. R. Dean.

CLASS 12.—6 ALPINE or FANCY AURICULAS, distinct. (Open.)
1st, Mr. R. Dean. | 2d, Messrs. Dobson & Son.

MISCELLANEOUS.—EXTRA PRIZES.

Messrs. James Carter & Co., 237 and 238, High Holborn, for Group of Tree Mignonette in flower, and Basket of Coleus Duchess of Edinburgh, Silver Medal.
Mr. W. Paul, Paul's Nurseries, Waltham Cross, for Collection of Cut Roses, Silver Medal.
Mr. S. Coulter, Gr. to L. J. Baker, Esq., Haydon Hall, Eastcott, Middlesex, for Group of Tree Mignonette in flower, Silver Medal.
Messrs. Dobson & Son, for Group of Azaleas in flower, Bronze Medal.
Mr. F. Barnes, Gr. to A. Chancellor, Esq., The Retreat, Richmond, for six pots of Mignonette in flower, Bronze Medal.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION, for the relief of decayed Farmers, their Widows and Orphans.

Patron—HER MAJESTY THE QUEEN.
President—HIS GRACE THE DUKE OF RICHMOND.

Allowances to Pensioners.

Married	£40 per annum.
Male	£26 „
Widow and unmarried Orphan Daughters	£20 „

Every information to be had of the Secretary, by whom Subscriptions and Donations will be thankfully received.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.—THE FIFTEENTH ANNIVERSARY FESTIVAL, in aid of the Funds of the Institution, will take place at Willis's Rooms on SATURDAY, June 5, at 6 o'Clock.

H.R.H. The PRINCE OF WALES, K.G., in the Chair.

Dinner tickets, 21s., application for which should be made to the Secretary not later than May 22.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.—The ANNUAL GENERAL MEETING will be held at Willis's Rooms, St. James's, on WEDNESDAY, June 16, at 11 o'Clock precisely, and the ELECTION of PENSIONERS will take place on the same day, at half-past 11 o'Clock.

All Subscriptions shall be deemed payable on January 1 in each year; and no Contributor shall vote in respect of an annual Subscription while the same is in arrear.

Offices of the Institution—
No. 26, Charles Street, St. James's, London, S.W.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.

Patron—HER MOST GRACIOUS MAJESTY THE QUEEN.
President—HIS GRACE THE DUKE OF RICHMOND.
Founded 1860.

For the Relief of Decayed Farmers and their Widows, and for the Maintenance and Education of their Orphans.

The FIFTEENTH ANNIVERSARY FESTIVAL, in aid of the Funds of the Institution, will take place at WILLIS'S ROOMS, King Street, St. James's, W., on SATURDAY, June 5, at half-past 6 o'Clock—

H.R.H. the PRINCE of WALES, K.G., in the Chair.

Preliminary List of Stewards:—

His Grace the Duke of Buckingham and Chandos	Sir Edward C. Kerrison, Bart.
His Grace the Duke of Manchester	John Baldwin, Esq.
The Most Noble the Marquis of Exeter	Frank Battcock, Esq.
The Most Noble the Marquis of Hertford	Thomas Beddall, Esq.
The Most Noble the Marquis of Huntly	John B. Brandram, Esq.
The Rt. Hon. the Viscount Bridport	William Cunliffe Brooks, Esq., M.P.
The Rt. Hon. the Earl of Dunmore	J. W. Brown, Esq.
The Rt. Hon. Lord Egerton of Tatton	Chas. S. Cantrell, Esq.
The Rt. Hon. Lord Fitzwalter	George Cavendish Bentinck, Esq., M.P.
The Rt. Hon. the Earl of Hardwicke	John Collins, Esq.
The Rt. Hon. the Earl Spencer, K.G.	Joseph Druce, Esq.
The Rt. Hon. Lord Mahon, M.P.	John Floyer, Esq., M.P.
The Rt. Hon. the Earl of Malmesbury	J. K. Fowler, Esq.
The Rt. Hon. the Earl of Normanton	Abraham Garrett, Esq.
The Rt. Hon. Lord Rivers	A. H. Johnson, Esq.
The Rt. Hon. Lord Sondes	Colonel Kingscote, M.P.
The Rt. Hon. Lord Vernon	Hanslip Long, Esq.
The Rt. Hon. Lord Walsingham	John Marten, Esq.
Sir William Bagge, Bart., M.P.	John J. Mechi, Esq.
Sir Edward Hulse, Bart.	William Adam Mundell, Esq., Q.C.
	Mr. Alderman Naish
	Albert Pell, Esq., M.P.
	Clare Sewell Read, Esq., M.P.
	B. B. Hunter Rodwell, Esq., Q.C., M.P.
	George Russell, Esq.
	Thomas Cowille Scott, Esq.
	Charles Shaw, Esq.
	Abel Smith, Esq., M.P.
	William Vivian, Esq.
	Thomas Wagstaff, Esq.

Dinner Tickets 21s., application for which should be made to the SECRETARY, at the Offices of the Institution, 26, Charles Street, St. James's, W., not later than May 22.

Lawn Grass Seeds.

FRANCIS & ARTHUR DICKSON & SONS' Mixture of LAWN SEEDS is composed only of the FINEST and DWARFEST EVERGREEN GRASSES, and is very superior to mixtures generally offered, quickly forming a close velvety turf. For New Lawns sow 60 lb. to 80 lb. per acre. To Renovate Old Lawns sow 10 lb. to 20 lb. per acre. Price 1s. per lb. Orders over 20s. Carriage Free.

The Old-Established Seed Warehouse, 106, Eastgate Street, Chester.

VINES, extra strong leading sorts, close-jointed and well ripened; SEAKALE, ASPARAGUS, and RHUBARB, extra strong, for forcing; ROSES, FRUIT, FOREST, and ORNAMENTAL TREES, STOVE and GREENHOUSE PLANTS, &c.

Priced Descriptive CATALOGUE, post-free.
DICKSON AND ROBINSON, 23, Market Place, Manchester.

New Pink Geranium, "Mrs. Haliburton."

FRANCIS R. KINGHORN has much pleasure in again offering this favourite variety, sent out by him last season, and which gave such general satisfaction. On three occasions it has received the highest commendation from the Floral Committee at Chiswick, associated with all the best varieties grown there for trial. Good plants 9s. per dozen, 50 for 33s., 100 for 58s. Extra-sized cut-down plants, 2s. each.

Sheen Nursery, Richmond, Surrey.

Verbenas, Verbenas.

JOHN SOLOMON offers White, Scarlet, Purple, Pink, Crimson, Rose and other mixed sorts, good strong spring-struck cuttings, well rooted, at 6s. per 100, 50s. per 1000, package included. Cash to accompany all orders from unknown Correspondents.

Islington Nursery, Park Street, Islington, N.

FERNS for SALE, fine specimens.—Fifty Todea superba, 3 to 4 feet through; fifty do., 1 to 2 feet through; fifty Todea pelucida, 2 to 3 feet through; fifty Todea pelucida and superba, 1 foot through. These plants are superb, perhaps the finest specimens in Britain, and will be sold at very reasonable prices for cash, as the house they are growing in is wanted for my Cut Flower Trade. Apply to

PETER MCKENZIE, Nurseryman and Florist, 1, Gordon Street, Glasgow, and Bellfield Nursery, Paisley, N.B.

Cauliflower Plants.

H. J. HARDY begs to say he has a few thousands of the above to offer at a very moderate price. The Plants are well-grown, strong, and healthy, and have been pricked out from the seed-bed and well established.

Carriage paid to any Railway Station in England for 20s. worth. Cash or reference. P.O.O. made payable at "Bures." Apply to

H. J. HARDY, Stour Valley Seed Grounds, Bures, Essex.

RARE SEEDS, just arrived from California:—

DRACÆNA STRICTA.
PINUS INSIGNIS.
CUPRESSUS MACROCARPA.

The advertiser has received a few ounces of each of the above, and will part with the same to the highest offer.

THOS. H. APPLEBY, 1, Lancaster Road, New Barnet, Herts.

To the Trade and Others.

CHOICE BEDDING PLANTS.—A large Quantity to dispose of. About 10,000 extra strong ALTERNANTHERA of sorts, 6000 of them in single pots; 1000 Double LOBELIA; 6000 Bedding GERANIUMS of sorts; 7000 ECHEVERIA, and 2000 MESEMBRYANTHEMUM CORDIFOLIUM. To be sold in large quantities, at a very low price. Address,

W. BIRMINGHAM, Gardener, Grantham, Lincolnshire.

Hollies.

ANTHONY WATERER respectfully invites the attention of Holly buyers to the very fine Stock to be seen growing at Knap Hill. It comprises upwards of Thirty Thousand Plants, from 3 to 10 and 12 feet high, of the finer Gold, Silver, and Green-leaved kinds, affording a choice in size and variety such as can be met with in no other Nursery in Europe. Every Plant has been recently removed, and will be guaranteed.

The Stock of Common Green Hollies alone occupies 5 acres of land, and Purchasers will find them in large numbers of all heights up to 15 feet.

Knap Hill Nursery, Woking, Surrey.

NEW CLEMATIS, to be sent out by JOHN STANDISH AND CO. on May 10:—

ASCOTIENSIS.—The flowers are considerably larger than Jackmanni, and are well shaped, containing six petals each; colour, a fine azure-blue; it throws a profusion of flowers the whole summer long, and is of a very vigorous habit. 10s. 6d. each.

MRS. QUILTER.—A magnificent white flower, containing eight petals; it is the largest, smoothest, and purest of all the whites, and a very free bloomer, with strong habit. 10s. 6d. each.

The above are decided acquisitions, and should be in every collection. Orders are now being booked for them.

Royal Nurseries, Ascot, Berks.

Bedding Roses.

CRANSTON'S CRIMSON BEDDER: strong plants, in 5-inch pots, 30s. per dozen.

TEA-SCENTED, CHINA, NOISETTE, and HYBRID-PERPETUAL ROSES, in 4 and 5-inch pots, 9s. to 15s. per dozen.

Now is the best time for bedding-out the Tea-scented and China Roses, and Hybrid Perpetuals, on their own roots.

Address, CRANSTON AND MAYOS, King's Acre Nurseries, Hereford.

New Dwarf Silver Variegated Geranium, "LITTLE TROT."

WM. POTTEN is now sending out the above GERANIUM, which is the best and most distinct silver variegated variety yet offered. Its dwarf and free habit, and broad clear white margin, will make it invaluable as a bedder for edging or panel-work. Received a First-class Certificate from the Royal Horticultural Society, August 29, 1874. Price 2s. 6d. each, 24s. per dozen. The usual Discount to the Trade.

A Post Office Order, payable at Sissinghurst, must accompany all orders from unknown Correspondents.

Camden Nursery, Sissinghurst, Staplehurst, Kent.

Strong Verbenas.—Special Offer.

WILLIAM BADMAN offers the following VERBENAS, strong plants, from single pots:—

PURPLE KING
CRIMSON KING, best scarlet
LE GRAND BOULE DE NEIGE, finest white
GEANT DES BATAILLES, crimson
LADY COWLEY, rose, fine bedder

All healthy good stuff, 1s. 6d. per dozen, 10s. per 100, 80s. per 1000, package included. Terms cash.

Cemetery Nursery, Gravesend.

E. G. HENDERSON AND SON'S SEED CATALOGUE for 1875, containing over 200 Illustrations of Flowers, will be posted, free, on application, and from which the following can be supplied, of first-class quality:—

CALCEOLARIA, in mixed colours, 1s., 2s. 6d., and 5s. per pkt.
CINERARIA, 1s., 2s. 6d., and 5s. per packet.
PRIMULA SINENSIS, fine strain, 2s. 6d. and 5s. per packet.
„ „ RUBRA FLORE-PLENA, 2s. 6d. and 5s. per packet.
„ „ ALBA FLORE-PLENA, 2s. 6d. and 5s. per packet.
AURICULA, 1s. and 2s. 6d. per packet.
CARNATION, 2s. 6d. and 5s. per packet.
CYCLAMEN PERSICUM, 1s. and 2s. 6d. per packet.
HOLLYHOCK, 1s. and 2s. 6d. per packet.
PINKS, 1s. and 2s. 6d. per packet.
MIMULUS, 1s. per packet. | PETUNIAS, 6d. and 1s. p. pkt.
PANSIES, 6d. & 1s. 6d. pkt. | VERBENA, 1s. & 2s. 6d. p. pkt.
SWEET WILLIAM, Perfection, 1s. per packet.
„ from named flowers, 1s. and 2s. 6d. per packet.
AMERICAN TUBEROSE, double flowered, large roots, 20s. per 100.
LILIUM AURATUM, 12s. per dozen, good flowering size; extra size, of full growth, at higher prices.

The Wellington Nursery, St. John's Wood, London, N.W.

American Plants without Peat.

WM. MAULE AND SONS beg to offer the choicest Hardy English and Continental RHODODENDRONS, with Belgic and other AZALEAS, at 30s. per dozen, £10 per 100.

The Plants are grown in a stiff Loamy Soil, on an exposed and elevated situation, and will thrive in any soil free from Lime, Iron, or Chalk. Large Bushes of the Ponticum and Catawbiense varieties, 4 to 5 feet high and as much through, 60s. per dozen. April and May is the best time for planting.

The Nurseries, Bristol.

Adiantum farleyense.

MESSRS. JOHN STANDISH AND CO. have a number of magnificent specimens of the above splendid FERN, fit for immediate exhibition. They are in 16 and 22-inch pots, and of perfect form. Also a few well-grown specimens of ADIANTUM GRACILLIMUM, fine plants, 18 inches through, in 8-inch pots.

Further particulars and price on application.

Royal Nurseries, Ascot, Berks.

Choice Tricolor and Bronze Geraniums.

THOMAS PESTRIDGE can supply, at per dozen:—Acme, 5s.; Florence, 4s.; Howarth Ashton, 6s.; Lady Cullum, 3s.; Mrs. Dunnett, 5s.; Mrs. Rutter, 6s.; Prince of Wales, 9s.; Peter Grieve, 9s.; Sophia Cusack, 3s.; Salamander, 9s.; Lass o' Gowrie, 6s.; Mrs. Colonel Wilkinson, 7s.; Miss Poud, 12s.; Black Douglas, 3s.; Earl of Rosslyn, 4s.; Rev. C. P. Peach, 5s.; Reine Victoria, 4s. Terms cash. A LIST of other varieties, post free.

Boston Park Road Nurseries, Brentford, Middlesex, W.

Verbenas for Sale.

S. BIDE can now supply, for cash:—

VERBENAS, spring-struck, strong, and free from disease of any kind, including Purple King, Scarlet, White, Pink, and many other varieties (of which a list may be had on application), at 8s. per 100, package free.

PELARGONIUMS, show and fancy, of the best varieties, 40s. per 100.

GERANIUMS, plain-leaved and zonal, strong autumn-struck plants, 10s. per 100.

Crystal Palace Gem, in single pots, 20s. per 100.

COLEUS VERSCHAFFELTII, 10s. per 100.

IRESINE LINDENI, 8s. per 100.

„ HERBSTII, 8s. per 100.

CENTAUREA CANDIDISSIMA, struck last autumn, and well established, in large 60-pots, 40s. per 100.

AUREA FLORIBUNDA and other CALCEOLARIAS, 8s. per 100.

HELIOTROPES, light and dark, 8s. per 100.

S. BIDE, Alma Nursery, Farnham, Surrey.

PALM SEEDS of splendid quality.

CORYPHA AUSTRALIS, 1000 grains, 36s., 10,000 grains, 300s.

LATANIA RUBRA, genuine, germinating, 100 grains, 36s.

PANDANUS AQUATICUS, fruits containing 8 to 15 sprigs each, 10 fruits 12s.

ARECA CATECHU, 100 fruits, 30s.

DESMONCUS HORRIDUS, 1000 grains, 75s., 100 grains, 10s.

ASTROCARYUM TUCUMA, 100 fruits, 30s.

LIVISTONA RAMSEYI, a beautiful, newly-discovered Palm. The same was discovered last fall by Mr. Ramsey, of the Sidney Museum, and named after him by Baron von Müller; it is smaller than Corypha australis, but just as hardy, with larger fronds, and a rapid grower; certainly more beautiful than the well-known Corypha. 10 grains, 4s., 50 grains, 18s., 100 grains, 30s.

All doubtful Palm seed returned directly after receipt, postage free, are retaken at the charged rates.

J. C. SCHMIDT, Erfurt, Prussia.

Cheap Plants.

WILLIAM BADMAN offers the following plants for present potting:—

VERBENAS, Purple, White, Scarlet, Crimson, and Rose, good plants, from single pots, 1s. 6d. per dozen, 10s. per 100; rooted cuttings, 1s. per dozen, 6s. per 100, 50s. per 1000.

PELARGONIUMS, Scarlet—Vesuvius and Jean Sisley, 1s. 6d. per dozen, 10s. per 100.

„ White—Madame Vaucher, 1s. 6d. per dozen, 10s. per 100.

„ Pink — Blue Bell, Mrs. W. Paul, Maid of Kent, &c., 1s. 6d. per dozen, 10s. per 100.

„ Crimson — Waltham Seedling, fine bedder, 1s. 6d. per dozen, 10s. per 100.

„ Rose—Master Christine, 2s. per dozen, 15s. per 100.

LOBELIA, speciosa (true), from cuttings, 3s. per 100, 20s. per 1000.

CALCEOLARIA, Yellow Bedding, from stores, 1s. per dozen, 6s. per 100; strong plants, 12s. per 100.

HELIOTROPIUMS, finest dark, rooted cuttings, 1s. per dozen, 6s. per 100; strong plants, 1s. 6d. per dozen, 10s. per 100.

AGERATUM, Imperial Dwarf, blue, makes a fine bed, 1s. per dozen, 5s. per 100; good plants, from single pots, 1s. 6d. per dozen, 10s. per 100.

STELLARIA, aurea, new golden edging plant, 1s. per dozen, 4s. per 100.

PELARGONIUMS, Silver-edge—May Queen, &c., 2s. per dozen, 15s. per 100.

„ Gold leaf—Crystal Palace Gem, 2s. per doz., 15s. per 100

ALTERNANTHERA, magnifica, fine, also paronychioides good plants, 2s. per dozen, 12s. per 100.

Package included. Terms cash.

Cemetery Nursery, Gravesend.

Pelargoniums, Fuchsias, Bedding and other Plants all Established in Single Pots. Wholesale Prices.

WOOD AND INGRAM beg to offer:—

FUCHSIAS, named, in 5-inch pots, 40s. per 100, 5s. per dozen

PELARGONIUM, double white, Aline Sisley, 4s. per dozen.

„ Side Zonal, Harry King, 4s. per dozen.

„ „ Master Christine, 25s. per 100, 3s. 6d. per dozen.

„ „ Salmon Clipper, the freest flowerer of its colour 9s. per dozen.

„ Golden Tricolor, Miss Batters, 9s. per dozen.

„ „ J. D. Bassett, 9s. per dozen.

„ „ Peter Grieve, 9s. per dozen.

„ „ Mrs. Dunnett, 6s. per dozen.

„ „ Mrs. Pollock, 30s. per 100; 3s. 6d. per dozen.

„ Silver Tricolor, Lass o' Gowrie, 9s. per dozen.

COLEUS VERSCHAFFELTI, 20s. per 100; 3s. per dozen.

„ „ SPLENDENS, 20s. per 100; 3s. per dozen.

DAHLIAS, Bouquet, to name, 30s. per 100; 4s. per dozen.

GAZANIA SPLENDENS, 18s. per 100; 2s. 6d. per dozen.

VERBENAS, Scarlet, Purple, and Crimson, 14s. per 100, 2s. per dozen.

ECHEVERIA SECUNDA, 18s. per 100.

„ „ GLAUCA, 20s. per 100.

SEMPERVIVUM CALIFORNICUM, 10s. to 16s. per 100.

AGERATUM, Imperial Dwarf, 12s. per 100.

IRESINE HERBSTII, 14s. per 100.

„ LINDENI, 14s. per 100.

HELIOTROPES, to name, 16s. per 100.

NIEREMBERGIA GRACILIS, 14s. per 100.

LEUCOPHYTON, Brownii, 16s. per 100.

PENTSTEMONS, to name, 20s. per 100, 3s. per dozen.

STELLARIA GRAMINEA AUREA, 12s. per 100.

The Nurseries, Huntingdon.

THE FINEST COLEUS EVER INTRODUCED.

Carter's

NEW COLEUS,

"DUCHESS OF EDINBURGH."

AWARDED FIRST-CLASS CERTIFICATES:—
Royal Horticultural Society, June 17, 1874; *Royal Botanic Society, June* 20, 1874.

The foliage of this distinct and beautiful variety has margins of purple and creamy yellow, with a centre of bright crimson-magenta, forming a superb contrast to the green-leaved section of Coleus, by reason of its dazzling brilliancy of colour.

Professor THUBER, in the *American Agriculturist*, says:—"It is the most beautiful foliage plant that has ever been exhibited."

Price 3s. 6d. each. Extra Strong Plants 5s. each.
POST FREE, 6*d.* extra.

See Carter's Illustrated Plant Catalogue with beautifully coloured Engraving of above.
Price 6*d.*, Post Free, Gratis to Customers.

CARTERS,
THE QUEEN'S SEEDSMEN,
237 and 238, HIGH HOLBORN, LONDON, W.C.

NEW PLANTS.

MR. WILLIAM BULL'S

ILLUSTRATED CATALOGUE,

Containing Descriptions and Prices of New Plants, is just issued.

PRICE ONE SHILLING.

ESTABLISHMENT FOR NEW AND RARE PLANTS, KINGS' ROAD, CHELSEA, LONDON, S.W.

NEW FUCHSIA PROCUMBENS.

T. JACKSON & SON

Have much pleasure in introducing this exceedingly interesting Novelty, which they have purchased from the Gardener of T. C. Blackett, Esq., of Thorpe Lea, seeds of which he received from New Zealand. It is of a shrubby trailing habit, producing freely at the axils short erect flowers with orange-yellow tube and violet-black sepals.

Strong Plants 5*s. each, free by post* 5*s.* 6*d.; extra strong ditto,* 10*s.* 6*d. each.*
A LARGE REDUCTION BY THE DOZEN OR HUNDRED.

N.B. A Plant of the above has been by us presented to the Royal Botanic Garden, Kew, where it may be seen in flower bearing the name of F. procumbens.

NEW DOUBLE PETUNIA "MRS. WILSON."

The above is a fine Double Crimson variety, striped and edged with white, very fine and distinct. It received three First-class Certificates last year.

Good Plants, now ready, 3*s.* 6*d. each, post free* 3*s.* 9*d.*
A LARGE REDUCTION BY THE DOZEN OR HUNDRED.

T. JACKSON AND SON, THE NURSERIES, KINGSTON, SURREY.

NEW BEDDING AGERATUM

"COUNTESS OF STAIR."

This variety is without doubt a decided advance upon any other Ageratum yet offered. There is not a shoot but throws up a head of dense blossoms, beginning a few inches from the ground, and only ending when its entire height of 6 or 8 inches is attained, when the whole top of the plant is one mass of fragrant lavender-blue blossoms. It was raised by Mr. Fowler, of Castle Kennedy, where it has been bedded out for five or six years with great success, withstanding, as it does, the heavy rains better than most bedding plants. Being of such compact habit and free-flowering qualities, it cannot fail to recommend itself for flower-garden purposes.

Price 3*s.* 6*d. each,* 30*s. per dozen. Special price per* 100.

B. S. WILLIAMS,
VICTORIA and PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.

PLANTING SEASON.

RHODODENDRONS
WILL BE SUPPLIED,

In Fifty of the most Popular and finest known Hardy Kinds,

Sturdy, Bushy Plants, 1½ to 2 feet high, at
£10 per 100,

Carriage Free to any Railway Station in England.

Many of these are Raised from Layers, and better Plants of their height cannot be desired or obtained.

A Descriptive Catalogue free on application to
ANTHONY WATERER,
KNAP HILL NURSERY, WOKING, SURREY.

DAHLIAS.

JOHN KEYNES
Has the finest COLLECTION of DAHLIAS in the WORLD, Old and New.

Amateurs will be treated most liberally.
CATALOGUES NOW READY.

The NEW VERBENAS raised by ECKFORD now ready.

Dahlias now being sent out.

A VERY SELECT LIST OF THE NEW ROSES.
Plants now ready.

SALISBURY.

MAURICE YOUNG'S
NEW DESCRIPTIVE CATALOGUE
Is now ready, and may be had on application.

IT COMPRISES:—
HARDY JAPANESE and other CONIFERÆ.
HARDY ORNAMENTAL TREES, SHRUBS, and EVERGREENS.
RHODODENDRONS in fine named varieties; PONTICUMS, and other common kinds for covers.
ROSES, Standard, Half-standard, and Dwarf, in all the best kinds.
FRUIT TREES.
CLEMATIS, and other climbing Plants.
Cheap EVERGREENS and DECIDUOUS TREES and SHRUBS for Planting Belts and Shrubberies.
TRANSPLANTED FOREST TREES.
QUICKS, and other Hedge Plants.
DWARF EVERGREEN and VARIEGATED PLANTS for Winter Bedding, &c.

DESIGNS, PLANS and ESTIMATES prepared for Laying-out and Planting New Grounds, and for Improving Park Scenery and Existing Shrubberies and Plantations.

MILFORD NURSERIES, near GODALMING.

SPECIAL PRIZES FOR NEW PLANTS.

WILLIAM BULL, F.L.S.,

HAVING OFFERED THROUGH THE ROYAL HORTICULTURAL SOCIETY

ONE THOUSAND POUNDS

FOR NEW PLANTS OF HIS OWN INTRODUCTIONS, ANNOUNCES THAT THE THIRD ANNUAL SERIES OF PRIZES AMOUNTING TO £260, WILL BE DISTRIBUTED IN SILVER CUPS THIS YEAR, AS FOLLOWS:—

FOR PRIVATE GROWERS.

1st Prize, a Silver Cup, value .. £15 15 0
2d Prize, a Silver Cup, value .. £10 10 0
3d Prize, a Silver Cup, value .. £ 6 6 0

FOR NURSERYMEN.

1st Prize, a Silver Cup, value .. £15 15 0
d Prize, a Silver Cup, value .. £10 10 0
3d Prize, a Silver Cup, value .. £ 6 6 0

The above Six Silver Cups will be given at the principal Show, to be held at Kensington, in 1875.

At the Provincial Show of the Royal Horticultural Society in 1875, the following Silver Cups will also be given:—

FOR PRIVATE GROWERS.

1st Prize, a Silver Cup, value .. £15 15 0
2d Prize, a Silver Cup, value .. £10 10 0
3d Prize, a Silver Cup, value .. £ 6 6 0

FOR NURSERYMEN.

1st Prize, a Silver Cup, value .. £15 15 0
2d Prize, a Silver Cup, value .. £10 10 0
3d Prize, a Silver Cup, value .. £ 6 6 0

In each and all cases the above Prizes to be offered for Twelve New Plants of Mr. W. Bull's introductions, and sent out for the first time since the commencement of 1872. The Plants available for the Prizes to comprise only those announced in Mr. W. Bull's Catalogues as sent out by him for the first time. The Catalogues can easily be referred to, or a List of the Plants had on application.

In each and every entry the names of the Twelve Plants to be exhibited must be sent with the entry. Exhibitors can only compete for one Prize at a time in each class.

The Twelve Plants must be twelve distinct species or varieties, but each may be composed of one or more individual plants, if grouped in one pot, pan, or vase.

PRIZE CUP.
Specially Designed by Messrs. Elkington & Co., to be awarded for Mr. William Bull's New Introductions.

A SERIES OF SILVER CUPS,

as follows, will be given to those not having previously won any of

MR. WM. BULL'S SILVER CUPS:

FOR PRIVATE GROWERS.

1st Prize, a Silver Cup, value .. £15 15 0
2d Prize, a Silver Cup, value .. £10 10 0
3d Prize, a Silver Cup, value .. £ 6 6 0

FOR NURSERYMEN.

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The Twelve Plants must be twelve distinct species or varieties, but each may be composed of one or more individual plants, if grouped in one pot, pan, or vase.

In addition to the above, Mr. William Bull will give the following PRIZES this year, for 12 NEW PLANTS of his introduction sent out since the commencement of 1872:—

FOR PRIVATE GROWERS.

Manchester, Silver Cup, value £10 10 0
Manchester, Silver Cup, value £ 6 6 0
Blackburn, Silver Cup, value £10 10 0
Blackburn, Silver Cup, value £ 6 6 0
The above Prizes are confined to growers in Lancashire.

Dublin ....Silver Cup, value £10 10 0
Dublin ....Silver Cup, value £ 6 6 0
Belfast ....Silver Cup, value £ 6 6 0
The above Prizes are confined to growers in Ireland.

Leeds .....Silver Cup, value £6 6 0
York .....Silver Cup, value £6 6 0
The above Prizes are confined to growers in Yorkshire.

Taunton....Silver Cup, value £6 6 0
The above Prize is confined to growers in Devon, Somerset, Dorset and Gloucestershire.

Glasgow....Silver Cup, value £10 10 0
Glasgow....Silver Cup, value £ 6 6 0
The above Prizes are confined to growers in Scotland.

FOR NURSERYMEN.

Manchester, Silver Cup, value £10 10 0
Manchester, Silver Cup, value £ 6 6 0
The above Prizes are confined to growers in Lancashire.

Leeds .....Silver Cup, value £ 6 6 0
York .....Silver Cup, value £ 6 6 0
The above Prizes are confined to growers in Yorkshire.

Taunton ..Silver Cup, value £ 6 6 0
The above Prize is confined to growers in Devon, Somerset, Dorset and Gloucestershire.

Glasgow....Silver Cup, value £10 10 0
Glasgow....Silver Cup, value £ 6 6 0
The above Prizes are confined to growers in Scotland.

Dublin ....Silver Cup, value £10 10 0
Dublin ....Silver Cup, value £ 6 6 0
Belfast ....Silver Cup, value £ 6 6 0
The above Prizes are confined to growers in Ireland.

In each and all cases the above Prizes to be offered for Twelve New Plants of Mr. W. Bull's introductions, and sent out for the first time since the commencement of 1872. The Plants available for the Prizes to comprise only those announced in Mr. W. Bull's Catalogues as sent out by him for the first time. The Catalogues can easily be referred to, or a List of the Plants had on application. In each and every entry, the names of the Twelve Plants to be exhibited must be sent with the entry. Exhibitors can only compete for one Prize at a time. The Twelve Plants must be twelve distinct species or varieties, but each may be composed of one or more individual plants, if grouped in one pot, pan, or vase.

ESTABLISHMENT for NEW and RARE PLANTS, KING'S ROAD, CHELSEA, LONDON, S.W.

SATURDAY, MAY 15, 1875.

DOUBLE DAISIES.

ABOUT Daisies there has been a diversity of sentiment. From the "wee, modest, crimson-tippèd flow'r," of Burns, to the bleating ditty "I'd like to be a Daisy, if I could be a flow'r," making the most of the matter at ev'ry passing show'r, poets and poetasters have taken kindly enough to the Daisy. Too sensitive Keats, at the approach of death, felt the Daisies growing over him. On the other hand, high-finishing gardeners use every effort to exterminate every Daisy from their lawns, treating them as plants in the wrong place, *i.e.*, weeds; whilst to the lovers of country strolls is there anything more charming than a meadow in May brightly spangled with Daisies? The Germans call the Daisy *das Marlieb* or *die Massliebe*, the Measure-love, doubtless from the popular practice of girls' repeating, as they pluck off the florets one by one, "He loves me," "He loves me not"—the last floret indicating the state of the lover's feelings. Perhaps it is an appreciation of the wisdom of those girls that the Daisy is also called *die Gänseblume*, the Gooseflower, unless its simultaneous appearance with goslings be the reason. The German catalogues, however, make compensation, by announcing it as *Tausendschön* (thousand times beautiful), fine double sorts in great variety, twelve named sorts being to be had for so much, besides the double white and double red aucubæfolias—a slight misnomer, because the leaves of the Aucuba are spotted, whereas those of the Daisy are veined with yellow. A Pearl, in Latin, is *Margarita*, in Italian also; in which latter language, *Margherita* and *Margheretina* are Daisies. The French call them *Paquerettes* (Easter flowers), and *Petites Marguerites* or *Margueritelles*, China Asters being *Reine Marguerites*, or Queen Margarets; and as both those nations claim to be of the Latin race, we may assume, if there be anything in etymology, that they regard the Daisy as the pearl of the meads. The English Daisy is the day's-eye—a term more pleasing than that bestowed on the Ox-eye, although amongst Homer's epithets "ox-eyed" is especially indicative of beauty. Loudon's *Encyclopædia of Gardening* simply admits the Daisy into the list of perennial flowers, white and red, which bloom in February and March; Glenny does not even allow it a place amongst the flowers which have a right to "properties." I must confess to thinking that it merits floral rank as much as the Pansy and the Polyanthus. And now, after having been long abandoned to cottage and farmhouse patronage exclusively, it is being promoted to the spring gardens of the nobility, perhaps even of royalty itself.

Bellis perennis is a hardy perennial; nevertheless some of its double varieties are delicate, disappearing without giving warning. From the time of their ceasing to bloom to the date of their flowering again they are mostly forgotten, and left to take care of themselves, during which interval they are apt to go off, through drought, or frost, or wet, or unsuitable soil, or slugs. When they are looked for in early spring they fail to answer to the roll-call; their place is vacant, or simply marked by the presence of a few weakly, lingering survivors; and people are surprised that they have perished. Who would have thought that any care was needful for the cultivation of a Daisy? But the occasional scarcity of some of the sorts—of the quilled crimson, for instance—proves that something more than mere neglect is required to have them in ornamental and thrifty condition, and that these little beauties resemble Eve, "who would be woo'd, and not unsought be won." The quilled white cannot be called a common border flower; the same of several other choice old varieties. The commonest, in consequence of its superior robustness, is the double pink.

If we could be content with this last, it is always to be had in quantity, but a diversity of hues is most desirable, and the others, less certain to propagate themselves unaided, may sometimes not be ready to hand. I would, therefore, suggest a mode of obtaining double Daisies, in various shades of colour, which is not often practised, I think, in private gardens, namely, by seed. Last spring, more with the hope of obtaining some one pretty variety than with any expectation of getting quantity, I sowed seed in earthen pans, had the seedlings pricked out in a bed in summer, and bestowed on them no further care than weeding and watering when necessary. In autumn they began to flower; the first blooms were encouraging. They continued to show themselves all winter long, stopping when the frost compelled a halt, and starting again as soon as a thaw allowed them. This spring the effect of the bed, seen from a little distance, was brilliant. On nearer inspection, the number of singles was small, and we turned them out as soon as they showed themselves; semi-doubles were more numerous, some of them so pretty that it cost us much to suppress them. Would it be worth while to save seed of such? Of doubles, or of flowers remaining so until their last moments disclosed a latent eye, we had a sufficient number to plant a long border. As the whites greatly predominated, I had them planted a white root alternately with some shade of pink, with a result which we think very cheerful and sparkling. Amongst the seedlings we have no dark crimsons and no quilled varieties, which probably depends on the plants whence the seed was obtained; but we have some of the Hen-and-Chickens type, some narrow-petalled having a sort of fluffy appearance, and others with the underside of the petal of a dark pink and the upper surface light pink or white, giving a kind of marbled or shot-silk effect as the flower is seen in different positions. Your impartiality would prevent my naming the house from whom I procured the seed, and it is the less necessary to do so as double Daisy seed is offered in the catalogues of most of the British seedsmen. The soil best suited for Daisies would seem to be their natural wild one—a good alluvial loam, well drained. Heath mould or leaf-mould alone are too light and too easily penetrated by drought; clayey soils are too retentive of wet. Separating and replanting the tufts every second year, or even every year, may be judicious treatment, but should my readers discover amongst their seedlings any real gem, a true Margarita, I venture to advise them not to be too much in a hurry to propagate it by division. The new variegated-leaved sorts, as well as several others, make exceedingly neat and pleasing pot plants for window sills and balcony gardens, while their early and long-continued blooming insures their hold on popular favour. *E. S. D.*

THE ROYAL ACADEMY.

(*Continued from p. 590.*)

WHAT could be more wearisome than a garden with one flower, or a concert with one tune, or a book or man with one idea, or a dinner with one dish? These notes on the Royal Academy pictures would be a little flat if entirely confined to a review of flowers, fruits, and vegetables; if, therefore, clouds, sea, rocks, and figures with their varied forms and colours are at times here adverted to, it is because all beautiful forms and hues are so intimately allied with each other that it is almost impossible to appreciate and review the beauties of one natural object without equally appreciating and noting the beauties of one and all.

Returning to Gallery No. IV., No. 284, "St. Cecilia," is by Miss A. M. Lea. St. Cecilia has

a ring on her finger, and touches a sharp or a flat of a piano; the white Lilies in the saint's hand are very poorly given. 289, "Eveline, daughter of Evan Lees, Esq.," one of Millais' series of portraits: this is a brown-eyed child with naked feet and a white dress, with a background of Ferns; Vinca minor is introduced in this picture, which is well worthy of study in its entirety. 286, "Ca' the yowes to the knowes," R. W. Macbeth, another landscape by one who is professedly a figure artist, good in itself but not to be compared with the landscapes by Millais or Walker. 293, "Gracia, daughter of Evan Lees, Esq.," another of Millais' child portraits: the child (judging from the presence of Iris Pseudacorus and Lychnis flos Cuculi, both roughly indicated) must be kneeling in a very damp place. 296, "An Enemy in the Path," F. E. Cox, is a lovely picture of a child with Daffodils—the Daffodils, be it observed, set off to their utmost advantage by the child's blue dress. 298, "Returning with the Spoils," F. P. Shuckard, is a picture of a pretty little girl with a basket of flowers—all of a dubious nature. 300 and 305, "Near Troutbeck" and "The Homestead," both by A. Hague, and both curious and dull, not to say unnatural. 309, "Autumn," T. E. Cox, a picture of a well-painted Apple orchard; girls heavily laden with Apples, and scampering ducks. 310, "Peonies," W. J. Muckley, is apparently a well-painted picture of Pæonies, Roses, Delphiniums, Rhododendrons, &c. It appears to be well painted, rich in colour, and correct, but unfortunately it is placed at the top of the room. 314, "Woods and Forests," J. Linnell, sen., is one of this well-known painter's masterpieces. It represents old Oaks, distant country, woodmen and vagrants, and is full of rich colour. 317, "Miss Margaret Stuart Wortley," A. Stuart Wortley. In this capital portrait there is a life-size group of Calla æthiopica, well and correctly painted, with the flower-spathes kept yellowish-grey in colour (pure white would be far too obtrusive in the middle of a picture). 319, "Toujours Fidèle," P. H. Calderon, R.A., an excellent figure subject, and a study of colour. Observe the black dress, white sleeves, and yellow "immortelles." 324, "How Sweet!" B. Amiconi—a girl with her head thrown back smelling a monthly Rose in a flower-pot. 338, "A Doubtful Greeting," Miss R. Brett—a semi-humorous little picture of a bird and snail, but not very well done. 343, "Neglected," W. C. Symons—Pompon Chrysanthemums, unfortunately at the top of the room. 346, "Chrysanthemums," A. Parsons: the vase is well painted, as is the background; the prevailing colours are slate, white, and yellow, low in tone but good: the flowers, however, will prove unsatisfactory to those who know what Chrysanthemums are. 352, "Gardening," C. E. Perugini: this is a charming picture, and is in its way perfect; it is full of floral detail, and represents an old-fashioned garden abounding in old-fashioned plants. Passing by No. 344, noticeable for its wretchedly conceived rendering of "Ophelia," by A. Elmore, R.A., we come to 345, "Little Fatima," by F. Leighton, R.A., a rich study of colour—a girl with a magenta and mauve cloak on a black background: the broad flat gold margin of the frame considerably adds to the beauty of this picture with its purples and jet black. 353-6-7, "A Palm Fan," "A Flower Walk," and "Pansies," all by A. Moore, are decorative figure subjects, low in colour. 369, "Sandy Cove: Tide Flowing," E. W. Cooke, R.A., a magnificent picture of sea, piles, huge rocks, and Scotch Firs, full of good drawing and colour, bold, yet every detail of rock, sea and trees well made out. 381, "Queen Lily and Rose in One," E. H. Fahey, a picture of an old-fashioned garden, full of flowers, especially white and yellow Lilies and Poppies; the painting is full of careful detail, and the plants are correctly painted. 391, "Cottage Window," Miss D. M. Mutrie. This is a masterpiece of drawing and colour as applied to flower painting, and represents a group of Primulas, Cyclamens, Tulips, &c., in a cottage window; the colours are extremely brilliant and the drawing is good, for without perfect drawing colour is worse than useless. Observe the shining deep blue vase in which the Tulips are placed, with the light upon it, as contrasted with the opaque flower-pot in which the Primulas grow—the single fallen white flower on the table, which could not be dispensed with, the lemon-coloured Apple, the blue saucer just touching it, and the old Bible marked with a thread of red worsted; the position and colour of every trifling object shows the constant thought and design of the painter.

(To be continued.)

New Garden Plants.

Adiantum macrophyllum glaucum.*

Though undoubtedly a form of Adiantum macrophyllum, this Fern has at first sight quite a distinct appearance. It is, as our figures (126, 127) show, a very ornamental plant, the specimen represented being upwards of 2 feet broad in the spread of the fronds. The fronds are from 18—20 inches high, simply pinnate, with a dark-coloured shining stipe and rachis, and furnished with five or six pairs of opposite sessile pinnæ, which in the perfect fertile fronds assume a remarkable form, the anterior base being straight and parallel with the rachis, while the posterior is cut away obliquely, but in a straight line, and the two sides, again forming nearly straight lines, converge in the somewhat acuminate apex. The terminal pinnæ is equally cut away on both sides in an oblique manner, and in about the same degree as the posterior base of the lateral pinnæ. The sori are continuous, nearly or quite as long as the pinnæ.

As compared with the cultivated forms of A. macrophyllum, this plant appears at once and absolutely distinct by its glaucous green colour, which is very pronounced, and by the narrower pinnæ, which have always a strong tendency to be straight-sided. The opposite pinnæ look almost like some tropical butterfly with expanded wings, from the parallelism of the anterior sides, and from the evenly-balanced obliquity of their posterior base. Altogether it is a very desirable plant for decorative purposes, and quite an acquisition to our collections of Ferns.

This Fern has been imported by the Messrs. Veitch & Sons both from Peru and New Granada, the two forms being undistinguishable. Our illustrations have recently been drawn from plants cultivated in the Royal Exotic Nursery, at Chelsea. The young fronds, as in A. macrophyllum itself, are of a fine red colour; but the bright green of the normal A. macrophyllum is thoroughly distinctive and contrasting, and a first-sight character of which cultivators may avail themselves when making use of either or both for decorative uses. *T. Moore.*

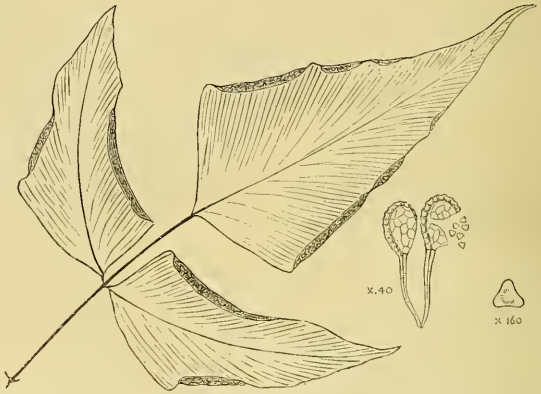

Fig. 126.—Adiantum macrophyllum glaucum (fertile pinnæ and fruit).

Tulipa Eichleri, *Regel, Gartenflora*, 23, p. 193, tab. 799.†

This is a well-marked new species of Tulip, of which a full description by Dr. Regel and a figure will be found in the *Gartenflora* of last year, as quoted. It is a native of Georgia, and was discovered in the district of Baku, near the Persian border, by the collector whose name it bears. The specimen from which my notes were taken was grown by Max. Leichtlin, Esq., at Carlsruhe, and flowered at the end of April of the present year. I have not heard of it in England yet,* but no doubt we shall have it soon, and, like Tulipa Greigii, which will appear shortly in the *Botanical Magazine*, it will prove a general favourite. Its general character will be best conveyed by saying that it is intermediate between T. suaveolens (the Duc Van Thol) and T. Oculis-solis or præcox. It has the downy stem and very glaucous leaves of the former, combined with the tall stature and very distinct black basal blotch, with a yellow border, which is the most striking characteristic of the flowers of the two latter. It is still nearer the Greek T. bœtica, but that is not yet in cultivation with us, and probably would not be hardy.

Bulb ovoid, with brown membranous tunics, which are slightly hairy inside upwards. Scape, including the peduncle, a foot and a half high, glaucous, terete, clothed throughout with distinct short spreading pubescence. Leaves two or three to a stem, the uppermost placed about its middle, lanceolate, narrowed gradually to a long point, glaucous, obscurely pubescent on both sides, very fleshy in texture, ascending, the lowest 8—9 inches long, $1\frac{1}{2}$ inch broad at the middle. Peduncle erect, 8—9 inches long, conspicuously pubescent. Perianth 3 inches deep, campanulate, the erect segments bright crimson, with a black deltoid blotch on the face at the base, which is $\frac{3}{4}$ inch deep, with a distinct yellow border, the inner segments obovate-cuspidate, $1\frac{1}{2}$ inch broad above the middle, the outer oblong-acute, an inch broad at the middle. Ovary $1\frac{1}{2}$ inch long, glaucous green, cylindrical, the ear-shaped deeply channelled downy stigmas little broader than the ovary itself. Anthers $\frac{1}{2}$ inch long, both anther and filament black, polished and glabrous. *J. G. Baker.*

Vanda bicolor, *Griff.*†

The reappearance of an old plant lost some thirty years is as a grand fête for us. The lamented Griffith discovered this Vanda on trees on the banks of the Monass River, in Bhootan, at the elevation of 2300 feet. And lately, April 8, at Mr. Low's grand sale, when a Dendrobium Wardianum fetched 100 guineas, a few plants of this Vanda came under the hammer. My reason for my statement is simply this, that Mr. Boxall dried (!) a single flower of this Vanda, which Mr. Low kindly sent me; and this flower is that of Vanda bicolor, Griff., itself. It is very near, as Mr. Low well suggested, both to Vanda Bensoni and V. Denisoniana, yet the anterior part of the lip distinguishes it at once, The flowers are rather larger than those of V. Bensoni, at least equalling those of a good Denisoniana, they

* *Adiantum macrophyllum*, Swartz; var. *glaucum*, Moore.—P innæ narrower than in the type, distinctly glaucous, nearly straight-sided, the terminal one pyramidal, with a broadly cuneate equal-sided base.

† *Tulipa Eichleri*, Regel,—Bulbo ovoideo tunicis intus superne pilosis; caule sesquipedali glauco conspicue puberulo; foliis 2—3 infra medium caulis impositis lanceolatis acuminatis utrinque glaucis obscure pubescentibus; pedunculo elongato recto unifloro; perianthi tripollicaris segmentis splendide coccineis basi macula nigra magna deltoidea flavo-cincta præditis; interioribus obovatis obtusis cuspidatis; exterioribus oblongis acutis; staminibus nigris perianthio triplo brevioribus; antheris filamento glabro æquilongis; ovario cylindrico; stigmate parvo profunde sulcato.

* Since this was written I have had a fine specimen from Mr Elwes, grown and flowered at Cirencester.

† *Vanda bicolor*, Griff.—Foliis ligulatis apice bidentatis; pedunculis porrectis exsertis pluriforis; ovariis pedicellatis elongatis; sepalis oblongis obtusis basi cuneatis, sepalo summo superne æqualiter dilatato, sepalis lateralibus inæqualibus, latere interno revolutis, submajoribus; sepalis bene ligulatis medio obtusangulo hastatis; labelli auriculis ovatis, lamina hastato-triangula, apice obtuse dilatata, bifida seu bilobo, angusta; callo bicarinato in ima basi, calcari brevi conico. — *Vanda bicolor*, Griff. Not. 354, Ic. Plant. As. cccxxx. (execrabilis icon 9). Lindl. Folia i., Vanda. No. 11.

have been yellowish inside, with numerous dark tessellations, white outside. The lip is stated to be lilac by Dr. Griffith, whose indications as to sepals and petals are coincident with what we see. Are there any ridges on the lip? It seems so, but we cannot well judge on the question before we have seen living flowers, for which I recommend myself to those who may happen to flower the plant. The basilar auriculæ of the lips afford an excellent mark of distinction from V. Bensoni. I am sorry to add that Dr. Lindley himself appears to have been misled by the execrable representation, when stating "labello linguæforni emarginato"—which is decidedly wrong; and according to this I should have had to give the plant a new name, if I had not known the type. *H. G. Rchb. f.*

Fritillaria (Monocodon) acmopetala, *Boiss. Diagn.* vii. 104; *Baker, in Linn. Journ.* xiv. 262.

Besides a new Snowdrop and a new Crocus we owe to the excursion of Mr. Elwes to Asia Minor last spring a couple of Fritillarias, which are new to cultivation. As I have lately given a full diagnosis of this in the *Journal of the Linnean Society*, I need not repeat it here. The bulbs were procured by Mr. Elwes in Lycia, in the Dembra gorge, whence we have dried specimens at Kew, gathered long ago by Professor Edward Forbes. The species, which is exclusively oriental, may be roughly described as a compromise between F. Meleagris and F. pyrenaica, with the tall habit and narrow leaves of the former, and the dull coloured untessellated flower with a great deal of green in its composition of the latter. So that it is by no means a beauty, not half so handsome as our common English Meleagris, nor, for that matter, either is our other novelty. Boissier has separated a Fritillaria Lycia from F. acmopetala, and if the two be distinct our plant is doubtless the former; but after examining a pretty good set of dried specimens, I cannot make out any satisfactory character between the two.

Bulb like that of F. Meleagris. Stem above a foot long, slender, glabrous, mottled with glaucous and purple. Leaves 5—6, all linear, scattered, rather glaucous, acuminate, the lowest 4—5 inches long, ⅛ inch broad. Flower solitary, cernuous. Perianth 13—14 lines long, the segments untessellated, green, only bordered with purple; the nectary obscure, purple, oblong, placed a little above the base, the outer oblanceolate-oblong, ¼ inch broad, the inner obovate-oblong, ⅜ inch broad above the middle, deltoid at the tip. Genitalia about half as long as the perianth. Ovary clavate, 4 lines long; style as long as the ovary, with three forks, reaching half-way down. Oblong yellow anther, 2 lines long, half as long as the very downy filament. *J. G. Baker.*

ELEMENTARY LESSONS IN BOTANICAL GEOGRAPHY.

(*Continued from p. 595.*)

IX.—On the Botanical Characteristics of the Zones of Moisture.

As, in speaking of heat, we have had to speak of four groups of plants which have a special constitution in respect to the amount of heat they require, so now, in speaking of moisture, we have to separate plants into three groups, according to their needs as regards aërial humidity. These groups are, 1st, Xerophilous plants, which can live in climates in which the air contains habitually very little moisture; 2d, Hygrophilous plants, which can only live in climates in which there is habitually a great deal of atmospheric moisture; and, 3d, Noterophilous plants, intermediate in constitution between those of the other two groups.

Broadly stated, the grand influence which the distribution of moisture over the earth's surface exercises upon the distribution of plants is, that the earth is girdled round, in and near the borders of the two rainless zones, which run like a belt round the earth near the two tropics, and separate the region of the periodic rains from the region of irregular rains, by two broad belts of country in which the Xerophilous plants predominate more decidedly than they do in any other part of the world, and that they run out from these belts into the interior of the continents, both towards the equator and the poles, avoiding the insular climates.

The concomitants in plant form of the Xerophilous type of constitution are as follows:—In Dicotyledons—1st, leaves becoming thick and fleshy, with pulpy inner and leathery outer layers, in which the air-passages and stomata are few, and the cells either small or their walls thickened by secondary deposits of cellulose, as shown in Mesembryanthemum, Sedum, Cotyledon, and Sempervivum; 2d, the stem condensed into a single central unbranched barrel-shaped or top-shaped mass, which is either leafless, and armed only with spines, as in Mammillaria, Echinocactus, and various Euphorbias, or without spines, and bearing fleshy or rigid leaves, as in Cycads, Welwitschia, and Vitis Bainesii and V. macropus; 3d, branching fleshy or hard stem-types without proper leaves, but in which the main stems or petioles put on a leafy appearance, as in Opuntia, Phyllocactus, Colletia, and the phyllodineous Acacias; 4th, much-branching shrubs with copious whip-like branches without either leaves or prickles, as Retama, Ephedra, Rhipsalis, Cassytha, and Euphorbia Tirucalli; 5th, much branched wiry herbs or shrubs with an excessive development of prickles, as Fagonia, Alhagi, Gum Acacias, and Acanthosicyos; 6th, shrubs with small hard rigid leaves, as Fabiana, Proteaceæ, Larrea, Epacris, Bruniaceæ; 7th, leaves, and often also branches, gland-dotted, as Myrtaceæ, Rutaceæ, and Psoralea, or yielding gummy exudations, like myrrh and frankincense; 8th, flowers protected by an excessive development of scarious bracts, as in Helichrysum, Gomphrena, and Barleria; 9th, dense hairiness or scurfiness on the leaf, bract, and other foliar organs, as shown in Kochia, Eriocephalus, Aerua, and Dalea; 10th, in the development of a tuberous root, large out of all ordinary proportion in comparison with the stems and leaves that come from it, as shown in Hoarea, Seymouria, Diposis, Oxalis, and Brachystelma.

In Monocotyledons we have the Xerophilous type represented in two very characteristic forms, the large thick fleshy-leaved type, as illustrated by Aloe, Gasteria, Haworthia, Fourcroya, Agave, and Bulbine; and the familiar bulb type, to which so many of our most beautiful open-air garden flowers belong—Lilies, Tulips, Hyacinths, Daffodils, Crocuses, Colchicums, Ixias, plants which mostly inhabit, not the heart of the rainless tract, but its borders, where rain comes but seldom and sparingly, and which push up into leaf and the flower in the brief season of fertility, and spend the rest of the year in the form of an underground mass of dry or fleshy leaf-scales, in the axils of some of which new plants are formed by a process of vegetative reproduction which enables them to hold their ground even if no seed be ripened.

One of the most remarkable points about these Xerophilous plants is the extraordinary way in which many familiar groups of plants which are distributed through different climates are modified in form in the Xerophilous belts. We have an excellent instance of this in Euphorbia, which is a genus of 700 species, spread over all parts of the world, all the members of which coincide in the extremely peculiar structure of the flower. About 600 of the species are annual or perennial herbs, several of them widely-spread garden and cornfield weeds, with slender unarmed stems and a copious development of scattered entire sessile simple leaves. About a hundred species inhabit the specially Xerophilous region, and these, whilst retaining absolutely their floral structure, become so extremely modified in habit that they are usually taken for Cactuses by inexperienced visitors to our living collections. I can only indicate roughly the general appearance of two or three, taken at random. Euphorbia canariensis is a shrub 20 feet high, with a general shape like a chandelier, throwing out from the main stem copious firm, fleshy, ascending branches a couple of inches thick, without any leaves, each branch furrowed so as to have five angles, and each angle

Fig. 127.—Adiantum macrophyllum glaucum.

armed with a row of pairs of hard, pungent prickles, which spread from the ridge at an angle of 45°. Euphorbia Tirucalli is a tall bush, with copious slender round rod-like branches, ½—¾ inch thick, without any leaves, furrows, or prickles. The Cape Euphorbia polygona has simple fleshy cylindrical stems about a foot high, like those of a Cereus in habit, grooved vertically into a dozen deep furrows, each sharp ridge between the furrows armed with a row of close large simple horizontal prickles. The Cape E. meloformis is a top-shaped leathery tuberous mass, 3 or 4 inches high and thick, without either leaves or prickles, with eight ridges and eight grooves radiating from a central umbilicus, and carried down the sides.

The large floras of decidedly Xerophilous type are five in number—two in the Northern and three in the Southern hemisphere, and are as follows:—

1st. The Desert flora, extending from the Canaries, through the Sahara, and through Egypt and Arabia to the Indus delta. This is not so rich in large groups and large genera of decidedly Xerophilous type as some of the others, but it is the largest arid tract in the world, and has a great many endemic genera and species. In the Canaries, in striking Xerophilous types, we have Æonium, Greenovia, Monanthes, Kleinia, Ceropegia, and the Euphorbia canariensis just described. In the continental portion of its area occur several Cactus-like Euphorbias, a few Stapelias and Mesembryanthemums, Aloe socotrina, Retama, Boswellia, Balsamodendron, Nitraria, Seltzenia, Miltianthus, Reaumuria, Anastatica, many erect shrubby Convolvuluses and prickly Acacias, Prosopis, Mœrua, Sphærocoma, Fagonia, Balanites, Francœuria, Peganum, Crotalaria arenaria and thebaica; and amongst bulbs Ornithogalums, Scillas, Urgineas, Xiphions, Trichonema, Erythrostictis, and Dipcadi serotinum. This passes at its eastern end into the little known flora of the Tibetan plateau and heart of Asia, the great home of Astragalus, Allium, Artemisia, Calligonum, Halimodendron, Galatella, and Cousinia, but it is completely broken up and dissipated in the eastern half of Asia near the tropic by the Himalayas.

2d. The flora of Southern California, New Mexico, Texas, and North Mexico, running out northward to Utah and Kansas, but stopped in a southern direction by the Mexican Andes. This is the exclusive home of Agave and its allies Fourcroya and Beschorneria, and of the rigid-leaved tree Liliaceæ, Yucca, Hesperaloe, Dasyliriion and Beaucarnea, and it is the great centre of the Cactuses. Of other marked Xerophilous types, it possesses Dion, Echeveria, Claytonia, Spraguea, Talinum, Lewisia, Larrea, Eriogonum, many spiny Mimoseæ, many fleshy-leaved Portulaceæ and Chenopodiaceæ; and in bulbs, Calochortus, Milla, Androstephium, Tigridia, Rigidella, Ferraria, and several Alliums.

Turning now to the Southern hemisphere, we have—

3d. The flora of Southern Angola, stretching down the coast to the mouth of the Orange River, and across the Kalihari Desert and Cape Karroo to Kaffirland. This is the great home of Aloe (of which one huge arborescent species is said to reach 150 feet in the spread of its branches), Gasteria, Haworthia, Stapelia, Mesembryanthemum (of which latter genus alone there are said to be not less than 400 species of extremely varied habit), and of the Cactus-like Euphorbias. This is the richest Xerophilous flora in the world; and, besides the types already mentioned, possesses Kalanchoe, Cotyledon, Portulacaria, Rhipsalis, Bulbine, a great variety of Crassulas, Welwitschia, Acanthosicyos, Encephalartos, Prionium, Augea, Sisyndite, Sarcocaulon, a great number of Helichrysa, Vitis macropus and V. Bainesii, Anacampseros, many tuberous-rooted Pelargonia, Oxalises and Asclepiads, Kleinia, Othonna, Adenium, Pachypodium, Testudinaria; in rigid and dotted leaved shrubs, crowds of Proteaceæ, Diosmeæ, Cliffortia, Cluytia, and the Karroo genera of Compositæ; and in bulbs Massonia, Lachenalia, Drimia, Ixia, Gladiolus, Babiana, Tritonia, Moræa, Androcymbium, and the very curious climber Bowiea.

4th. The flora of Central Australia, including the Swan River territory, and reaching on the north to the tropic, and on the south to the Victorian alps. Here there are no Cactuses, Stapelias, Agaves, nor Aloes, and Crassulaceæ is only represented by Bryophyllum. The fleshy-leaved dicotyledons are represented by Zygophyllum, Calandrinia, two or three species of Mesembryanthemum, and several Chenopodiaceæ; and the fleshy endogens by Bulbine. Of the phyllodineous Leguminosæ there are Brachysema, Jacksonia, and not less than 270 species of Acacia. In petaloid monocotyledons there are Stypandra, Patersonia, Cæsia, Thysanotus, Tricoryne, and other Anthericeæ. In Cycads there are Cycas and Macrozamia, and a very peculiar endemic monocotyledonous type of similar habit in Kingia and Xanthorrhœa. The dicotyledons with large scariose bracts are represented copiously by Helichrysum and Gomphrena, and there is a similar endemic monocotyledonous type in Borya and Laxmannia. The most abundant type of all is that of bushes with rigid and gland-dotted leaves, very abundantly represented here in Boronieæ, Leguminosæ, Myrtaceæ, Epacridaceæ, and Proteaceæ.

5th. The flora of the Chilian province of Atacama, which extends on the west side of the Andes from the borders of Bolivia to 28° or 30° south latitude, and in the heart of the continent of Catamarca, Tucuman, Cordova, Mendoza, and other provinces of the Argentine Confederation. Here there are no Agaves, Aloes, nor Stapelias, and scarcely any Crassulaceæ, but a good many Cactuses and the Cactus-like Euphorbias are represented by one, and Mesembryanthemums by two or three species. Amongst its characteristic Xerophilous types are Calycereæ, an order confined to this tract; Loasaceæ, which pass up the Andes to the Rocky Mountains; Larrea, Diostea, Fabiana, Pintoa, Plectrocarpa, Bulnesia, Calandrinia, Tetragonia, Colletia, Discaria, the phyllodineous species of Baccharis, Diposis, Grahamia, Silvæa; and in bulbs, Leucocoryne, Milla, Botherbe, Placea, Stephanolirion, and the very peculiar tribe, Gilliesiæ. Northwards this passes into the dry tract of Central Brazil, the home of Barbacenia, Vellozia, Lychnophoreæ, Microliciæ, the Cassias of the Chamæcrista group, and a group of Cactuses, Mimoseæ, and erect Convolvuli.

The concomitants in plant form of the Hygrophilous type of constitution are luxuriant growth, erectness, and great size of the timber trees, the presence in the tropical zone of abundant climbers and epiphytes, the absence of prickles, whether adventitious or stipular, or formed by indurated branchlets, leaf-borders, or calyx-teeth, the absence of hair or matting from the leaves, bracts, and other foliar surfaces, the abundance of flowers with large delicate corollas, and the organisation of the leaves, which are planned by air-channels, stomata, and the arrangement and structure of the cell-layers, so as to favour copious evaporation. Within the 20,000,000 square miles that make up the tropical zone, it is the absence and presence of plants of these two opposed types of constitution that give their characteristic tone to the different floras, except so far as this depends on purely geographical conditions. As I have already indicated which are the luxuriant characteristically Hygrophilous floras of the tropical zone I need not repeat them now. Amongst the most characteristically Hygrophilous plant-types of the tropics are the woody climbers (Lianas), Peppers, Gingers, Dracænas, filmy Ferns, Cyatheas, Laurels, Marattiaceæ, and Anonaceæ.

The distribution of Ferns in general illustrates extremely well how the presence and absence of plants of these two types affects the general character of the tropical floras. Taking Ferns as they stand, as regards species limitation, in the first edition of our *Synopsis Filicum*, out of 2228 known species, 1901, or 85 per cent., occur in the tropical zone, and 1437 species, or 65 per cent. of the order, are confined to it; but of the genera there are at any rate three—Cheilanthes, Pellæa, and Nothochlæna, including together 125 species—which cannot be considered Hygrophilous. But neglecting these as not materially affecting the result, because many of them are also not tropical, we find practically that the number of Ferns in any tropical or sub-tropical flora furnishes an excellent test of the moisture or dryness of the climate of the country. To take first the continents:—There are 944 species in tropical America, 863 in tropical Asia, and 346 in tropical Africa. To take next countries with an insular climate, there are 320 in the Himalayas, 118 in Japan, 153 at the Cape, 113 in New Zealand, 160 in Australia, 213 in the Mascaren Isles, about 200 in Ceylon, 100 in Formosa, 400 in the Polynesian, and 650 in the Malayan islands. Contrast these with the number of species in continental climates—Asia Minor, 25; Algeria, 24; Spain, 39; Banda, 7; the Punjaub, apart from the hills, 11; Italy, 40; Arabia Felix, 19. In Egypt the only known Fern is Adiantum Capillus-Veneris. In Nubia there are five, the same Adiantum, Nothochlæna vellea, Onychium melanopus, Actiniopteris radiata, and Ophioglossum vulgatum. In the neighbourhood of Pekin there are five—Adiantum Edgeworthii, A. Capillus-Junonis, Cheilanthus argentea, Asplenium japonicum, and A. pekinense.

In Brazil we have the two kinds of flora displayed side by side under the same latitude—the Hygrophilous type in the Regio Dryadum of Martius, which belts the coast from the province of Santa Catherina, through Rio Janeiro and Bahia, to Pernambuco; and the Xerophilous type in his Regio Oreadum, which occupies a large tract in the interior of the empire in the provinces of Goyaz, Minas Geraes, and St. Paulo. A great many species and genera are restricted to one of the two districts, but there are also a great many other groups and genera, which are represented by a large number of species in both, as, for instance, in orders Malpighiaceæ, Convolvulaceæ, and Bignoniaceæ, and in genera Eupatorium, Vernonia, Mikania, Vitis, and Echites and its allies. The species of these are mostly distinct in the two tracts, and put on so different a type in their vegetative organs, that though, of course, where there is generic identity there is no sensible difference in flower-structure, yet, in nineteen cases out of twenty, it is easy to see from which tract the plant comes, by a mere glance at its texture and general aspect, the rigidity of the leaves or their hairy coating, the shortened petioles, the diminished flowers, the congested inflorescence of all, the erect stems of the Malpighiaceæ and Bignoniaceæ, the vanished tendrils of the Vines, the greater quantity and rigidity of the pappus-bristles of the Compositæ, marking the Oreads from the Dryads.

Even within the compass of Britain we have the two types contrasted to a certain extent. Out of the 606 species which in Britain are gradually lost in passing from the south to the north of the island, Mr. Watson has separated seventy which belong by preference to the west side of the island, and constitute what he calls the "Atlantic type of distribution;" and 127 species which belong by preference to the east side of the island, and constitute what he names the "Germanic type of distribution." In Britain, as we have already explained, the west side is more insular, and the east side is more continental in its climate; and difference in atmospheric climate is in this case intensified in its relation to plant-stations by the nature of the subjacent rocks, the chalk and other dry rocks of calcareous nature being mainly concentrated in the eastern half of England, between Hampshire, Sussex, and the Tyne. There can be little doubt that a principal cause of one set of these plants affecting the east, and the other the west, side of the island is the more Xerophilous constitution of the Germanic, and the more Hygrophilous constitution of the Atlantic group—the two types here, as elsewhere in extra-tropical latitudes, corresponding in the main to the groups which, in their relation to temperature, I have called the warm-lovers and cold-fearers.

In the North of England, and especially in my native Yorkshire, we have masses of these dry rocks of calcareous constitution, with great belts interspersed between them of strata of other kinds. There are a certain number of plants which follow the dry rock from area to area, and avoid the intermediate belts. In the North Riding of Yorkshire I found that sixty-seven species, or one in thirteen of the indigenous plants, did this more or less decidedly. As instances of such plants, I may mention the common Columbine, the Lily of the Valley, the Fly Orchis, Bee Orchis, Helianthemum vulgare, Geranium sanguineum, Sesleria cœrulea, Actæa spicata, and Brachypodium pinnatum.

In the heart of the Continent there are two great hill-masses of different lithological constitution, the granitic Vosges and calcareous Jura. The late M. Thurmann, who investigated the subject very carefully, has given an account of the species which are peculiar to each range; and we find that many species (such as Betula alba, Sarothamnus scoparius, Galium saxatile, Hypericum pulchrum, and Stellaria Holostea), which in Britain are the common product of strata of all kinds, and grow freely upon these same limestone hills to which the insect Orchises and wild Columbine are restricted, upon the Continent are absent from the calcareous Jura, and restricted to the granitic Vosges. It would seem that under the more insular climate that these plants could grow freely on soils which they avoid under the Continental climate, that in this way the moisture of the air in its relation to plants is modified by the character of the soils in which they grow, and the nature of the great masses of rock beneath the immediate surface. *J. G. B.*

SCARLET RHODODENDRONS AT KEELE HALL.

The notice of Mr. Boscawen's Cornish specimens of early-flowering Rhododendrons has served to recall to our recollection the magnificent masses of these plants growing at Keele Hall, and of which, thanks to the attention of Mr. Hill, we have been furnished with numerous trusses of flowers. They consist mostly of shades of rosy scarlet, some lighter, approaching to a carmine hue, others tending in various degrees towards crimson or purplish-rose, but all brilliant in the extreme, and such as must render that part of the extensive and varied pleasure grounds, in which they are situated, resplendent with their floral trusses.

Keele Hall has been for many years a place of horticultural celebrity, thanks in great measure to the munificent encouragement given to the gentle craft by the former proprietor, Ralph Sneyd, Esq., and which is continued by the present worthy possessor, the Rev. Walter Sneyd. The fine old place stands on a well-sheltered hill of the new red sandstone formation, a soil which is particularly favourable to the growth of the Rhododendron. The late Mr. Sneyd was fortunately led, some forty-five years ago, to plant freely some of the earlier crosses of Rhododendron arboreum, and he lived to see and enjoy the rich effect they produced.

In low damp situations, it is true, this breed of early-blooming varieties, having a large intermixture

of the arboreum blood, are comparatively useless, since they are generally frost-smitten, and the beauties they are known to possess are but seldom fully developed; but this is not the case in elevated and sheltered localities, where, if the soil is suitable, they are well worthy of being planted, even in the present day, though the materials available for this purpose are so ample and so various. A month's gain in the earliness of the blooming season is worth risking something for, if there is any hope of occasionally realising it.

The Rhododendron grounds at Keele Hall are, so far as our memory serves, exceedingly well sheltered, and at this season are usually to be seen sparkling and ablaze with their rich flower tints—all the richer for having at that season no floral rivals with which to compete. Some of them are often really grand. One group, of about 20 yards by 10 yards, is now covered with bloom. They are all on their own bottoms, and were supplied by Mr. Skirving, of Liverpool. They vary in height, the higher coloured ones not being so vigorous as those with more purple in their flowers. Mr. Hill informs us that, during the twenty-five years he has known them, they have never been so fine as this year. They have the scenic advantage which is imparted by the grand tree-like masses which these original crosses from R. arboreum take on in a very marked degree. A correspondent, writing in one of our past volumes respecting the grand appearance these trees present, observes truly that although it is not an uncommon sight to see fine masses of ponticum and catawbiense varieties from 12 to 15 feet high, yet it is not by any means common to see in the open garden masses of scarlet and crimson Rhododendrons, 18 to 24 feet high—"little mountains, spangled and sparkling from top to bottom, with their rich inflorescence laughing the lingering east winds to shame, and proclaiming the reign of the goddess once more." Long may they flourish. *M.*

BEERSCHOTEN, DRIEBERGEN, UTRECHT, HOLLAND.

This place, the seat of J. A. Willinck, Esq., is within easy reach of Amsterdam. It is beautifully situated on the side of the high road a few miles from Utrecht, and is reached by a pleasant drive through avenues of fine trees, along which there are many noble mansions on each side almost hidden by the fine specimen trees that surround them. After a journey over flat open country, such as one meets with generally in Holland, it is a relief to find a place of this description to remind one of the well wooded districts of England, where our wealthy merchants generally build their residences. The Dutch are a persevering race, and, amongst other pursuits, gardening seems to be well kept up. Most of their residences are a short distance from the road, and have well kept lawns in front of them, and gardens that present a very neat appearance. There is generally a lake in these grounds, with sloping banks, on which are planted deciduous trees, intermixed with good Pines and other ornamental trees and shrubs.

We now arrive at Mr. Willinck's domain, situated near the main line of railway leading to Amsterdam, and near the station which is next to Utrecht. Alighting from the train the visitor walks a short distance until the fine avenue of trees that leads to the entrance is reached. The main road divides the estate, the park being on one side of it and the mansion and pleasure grounds on the other. In the carriage-drive are some fine trees; on the right are deciduous trees, such as Chestnuts, Oaks, Elms, &c. The mansion, which is a well built one, with a fine verandah in front of it, overlooks a well-kept lawn, sloping down to a lake in front, which winds round the pleasure-grounds; it has a mound rising in the distance, well planted with trees, and grassy banks slope down to the water below. There is a fine view of the park from the front of the house, where you can see the fine spotted deer basking in the sun. In bad weather they are well cared for also, for there is an ornamental building for them to take shelter in; there is also a fine view of the surrounding country. The grounds are not of great extent, but are laid out with good taste and to much advantage; indeed, it might be imitated by many who have such places to lay out and make the most of. It was originally a flat surface, but the rising ground at the end of the lake has been formed years ago, and the trees being of a large size they have by their appearance evidently been well looked after. The lawn is laid out with beds for ornamental foliage plants, which are much used on the Continent. Bedding Pelargoniums are in great variety, and many other plants which, when in full beauty, must produce a charming effect. It is really one of the prettiest places I have seen in Holland.

After leaving the ornamental department we come to the useful, namely, the kitchen garden, which we enter soon after leaving the pleasure-grounds through a short avenue of trees. In it are well-planted fruit trees and excellent vegetables. The trees on the walls, such as Peaches, Nectarines, Plums, &c., promise well for fruit. The next thing that attracted my attention was a good range of fruit-houses, the Grapes being well grown, and the crops very promising. There are several houses of this fruit, all in different stages of development. Next came Peach and Nectarine-houses, all giving promise of good crops. Strawberries are also well cultivated, and forced early. The pits were well filled with Lettuce and other salads. Mr. Willinck has a good and attentive gardener, who has been with him for a number of years. After leaving the fruit-houses we crossed the kitchen-garden to a well-built range of plant-houses, all of which have been erected within the past few years, and their structure has been well considered according to the requisitions of the plants. The centre house contains fine specimens of Ferns, such as the rare Cyathea contaminans, 12 feet high, with its graceful fronds. Next this was the silver Tree Fern, Cyathea dealbata; the noble C. princeps, with its light green drooping foliage. Then there is a fine collection of Marattias, perhaps the finest in Europe. I noticed a very fine one named after Mr. Willinck—a good and noble kind; also a good specimen of M. elegans and M. cicutæfolia. Cibotium regale was a fine plant; associated with this was the rare Alsophila subaculeata, with a stem 5 feet in height; also the rare Hemitelia integrifolia. There are, as well as those mentioned, many other fine Ferns grown in this house. In the adjoining house was a fine plant of Rhopala corcovadense, Orange trees, Geraniums, and many other greenhouse plants. The Orchid-house is of a large size, and in it there are many grand specimens, especially such as Vanda suavis, 5 feet high, with many branches, and well-bloomed; V. tricolor, also a good plant, and many others about the same size. Cypripedium Veitchii was also well-grown; C. villosum, a grand plant, and well-bloomed; C. Lowii, in great beauty. Aerides crispum was a good plant; Odontoglossum citrosmum has grown well, and showed well for bloom; the slowly Dendrobium aggregatum was finely flowered; Saccolabium giganteum and many others were worthy of notice. Mr. Willinck is a great lover of Orchids and Ferns, of which there are a number grown for cutting to supply the town house in Amsterdam, where Mr. Willinck resides in winter.

The next house was filled with Marantas and other decorative plants. I noticed a fine specimen of Platycerium grande, also the new P. Willinckii, which was figured in the *Gardeners' Chronicle* of this year, from the Messrs. Veitch & Sons. I noticed in one of the houses a rare Lycopodium, a plant of very curious habit. Pines are also grown here, and a good collection of Begonias, Tillandsias, Selaginellas, such as Wildenovii, cæsium arboreum, and the beautiful T. Galeottianum, &c. After leaving these houses we enter another fruit garden, which leads back to the mansion. We then started on our way back to Amsterdam. I must say that I never spent a more pleasant afternoon than I did at this place, which Mr. Willinck spared no pains in showing me, and gave me a most kind reception. Any one visiting the Netherlands, and fond of horticulture, should devote some of his time to visiting this well-kept place, where, I have no doubt, he would be equally well received. *B. S. Williams.*

OATS AND WHEAT.

In reply to your inquiry, "Why was the covering made use of?" I answer, to protect the plants from the severity of the frost, which I should have imagined any one who conducted such an experiment would have considered necessary after the Oats had undergone such exceptional treatment. Your Cambridge correspondent did not take this precaution, and, consequently, only one or two of his plants survived the winter, and therefore I cannot think his experiment was properly conducted. But one experiment, or, indeed, one hundred that failed, would not disprove the fact that Wheat had been produced from Oats when treated in a peculiar manner. Difference of variety, of climate, of soil, of culture, and sundry other matters, might alter the results; and, as the experiment is so easily tried, and next month is the best time for sowing the Oats, let me advise some of your numerous readers to make a few trials, rather than allow the dogmatic opinion of even a clever man, who made one slovenly experiment, "to settle the exploded idea." You will see that the covering of straw was not "applied from the first," but I had better give you Mr. Colman's own words:—

"East Harling, May 4, 1875.

"I planted clean Freesland Oats about the middle of June, cut them down, I think, four times during the summer and autumn. When the frost came in the winter I covered them up with the straw I had, which was clean Wheat straw, to protect them from the frost, and cleared it off again in the spring. Some few of the Oats in the rows died off, and till the remainder came into ear there was a great speculation what they would be—whether Oats, Barley, or Wheat. They came early, very rough, long ears of coarse Wheat, and there were a very few ears of coarse inferior Oats with it. Mr. D. K. Emson, of Wimbush, Essex, saw some of the ears, took them home, rubbed them out carefully with his hands, and planted the seed, one kernel in a hole, in his garden. The following year I was visiting him, just before the harvest, and, to his great surprise, we found one ear of very coarse Oats amongst it, all the rest were very large ears of red and white Wheat."

I also enclose a letter, addressed to Mr. Mechi a few years ago; and some observations which were made by that experienced agriculturist and most careful observer of all farm plants, the late Mr. Hudson, of Castleacre:—

[*Copy.*]

"Thelnetham, Harling, Norfolk, Nov. 20, 1868.

"Mr. Alderman Mechi, &c.

"Dear Sir,—As regards the transmutation of Oats into Wheat, enclosed is a specimen of Wheat and ear. The stock was given to me two years ago by Mr. Norman, who planted in a garden of Mr. T. Robinson's, of Hopton, Suffolk, a sample of best white Oats in May, and, just before the ear blossomed, he cut all the first ears, then the second, and so on, down to October, taking care to leave the leaves and straw entire. In October he took all the plants up and separated the young offsets carefully from the old roots, which he replanted in fresh ground, taking care to place over the plants a slight shelter (such as a few leaves or straw placed over a few bushes during very sharp weather). Next spring they had a miserable appearance, scarcely discernible from the ground. After cleaning it in April, and giving them a little liquid manure, soot and ashes, they quickly recovered their growth, and were allowed to ear, which proved to be Wheat, with a few Oat ears still. Then he selected two of the best ears of Wheat for another crop, which he planted in a well manured garden, with liquid manure, soot and ashes, taking care to put only one kernel in a hole. The plants tillered very much, and the straw was like reeds. The produce he gave to me, of which, after two years' cultivation by me, the enclosed is a fair sample, grown on light land. To set the matter at rest I should recommend you to select a small plot of ground and follow the enclosed instructions, and you can satisfy yourself by the result.—Yours faithfully, "Henry Button."

From the *Norfolk Chronicle*, May 23. 1863.

"Mr. Hudson, of Castleacre, states the following freaks of Nature:—'Last year I grew a few acres of what is called Oat-Barley, viz., Barley produced by a gentleman in Huntingdonshire from Oats being sown and not allowed to produce seed the first year, but stood till the following year, and then the produce was Barley with a very stiff straw. I liked it so much that I have sown 30 acres of it this year. Last year my brother-in-law, Mr. Thomas Sewell Moore, of Wareham, near Holkham, ploughed up a piece of land that had been plantation for a great many years, and drilled it with Oats. It produced a very fine crop of Oats; two or three bushels were shed down when ripe, and ploughed in immediately after the last harvest, and the land drilled with Tares. The whole came up well; there is a large crop on the ground, but, instead of being Oats and Tares, as expected, it is now Rye and Tares in full ear, and not an Oat to be seen.'"

It would appear that Wheat may be produced in another way, which is recorded by my friend, Mr. J. Chalmers Morton, with whom you are, no doubt, better acquainted than I am:—

From the *Cyclopædia of Agriculture*, edited by John C. Morton, 1855.

"*Triticum vulgare* (common Wheat).—Within the last yew years, however, the experiments and observations of M. Esprit Fabre, of Agde, in the South of France, seems to prove a fact which had been more than once suggested, but almost always scouted, that our agricultural Wheats are cultivated varieties of a set of grasses common in the South of Europe, which botanists have uniformly regarded as belonging to a different genus named Ægilops. The principal characters by which the latter genus had been distinguished, consisted in the greater fragility of the ear, and in the glumes being generally terminated by three or four, and the pales by two or three, points or awns. But M. Fabre has shown how readily these characters become modified by cultivation; and wide as is the apparent difference between Ægilops ovata and common Wheat, he has practically proved their botanic identity, for, from seeds of the Ægilops, first sown in 1838, carefully raised in a garden soil and resown every year from their produce, he had, through successive transformations, by the eighth year (1846) obtained crops of real Wheat as good as the generality of those cultivated in his neighbourhood."

Clare Sewell Read, Farmers' Club, E.C., May 6.

[Mr. Read does not now tell us what precautions were taken against the presence of Wheat grains in the Wheat-straw used, and to which our former note mainly referred. We are afraid, moreover, that he has not sufficiently weighed the evidence he puts before us. Even supposing that Wheat had originated as a hybrid from some Ægilops (which we cannot admit as an established fact), it would not prove that Oats would, by the treatment he mentions, or by any other treatment, be changed into Wheat. Eds.]

THE PRIMROSE.

While every one knows the common Primrose and the Cowslip, it is not every one who knows the Oxlip. The truth is, that while several separate plants have been termed Oxlips, there has been no such confusion in the case of either Primrose or Cowslip. Every one admits that the two plants we have named are distinct species, that is, as species go in the present age of scepticism as to the existence of any such thing. In any case they are well-defined types, at opposite ends of a long train of intermediate forms. Of these intermediates some are nearest to the Primrose, others to the Cowslip, while those in the middle of the series are so cunningly blended that it is difficult to say whether they are most like to the one or the other.

No words of ours are needed to describe the common Primrose or to point out its differences from the Cowslip—still less are words needed in eulogy of this real "heart's delight" among flowers. The illustration (fig. 128) is the result of a visit to Mr. Fitch's studio, where we met with a water-colour sketch of a "Primrose by a river's brim," so charming in its truthfulness that we begged the artist to reproduce a portion of his sketch on wood, not only for the sake of its artistic merits, but because it illustrates one marked difference between the Primrose and the Cowslip as to locality—the Primrose, as a rule, frequenting woods and hedge-banks, the Cowslip, as a rule, luxuriating in open meadows. Nevertheless, in Derbyshire, a week or two since, we met with a meadow full of Primroses without a single Cowslip; and we know of copses in Middlesex full of Cowslips, with scarce a Primrose visible. We may have more to say on this matter in a subsequent number, when we propose to illustrate the Oxlip (or one of the forms so-called) and the Cowslip.

The common single Primrose has proved itself so susceptible of improvement, and that so far in the direction of the qualities of form, substance, and colour, that it is now practically admitted among the florists' flowers. It is now included with the Auricula, Polyanthus, and others of the great Primula group. We should like to get at the history of that fine variety known as Auriculæflora. It was a happy thought that led Mr. A. Dean to cross the crimson Auriculæflora on to the pale lilac Primrose grown as Primula altaica, for the progeny, after two or three generations had been flowered, has yielded some charming varieties, and seedlings from Auriculæflora alone have proved equally good. Then by crossing the best of the seedlings we have gradually been supplied with the fine varieties which have recently been exhibited. It was a work of time to obtain flowers rich in colour, stout in substance, circular in form, and with bold and striking and well-defined golden centres; but it has been done, and floriculture is the richer for the gain. Gem of Roses, Lilacina, Crimson Banner, the Fairy, Queen of Violets, Rosy Morn, Splendour, Sunrise, Violacea, and Violet Gem, all attest the beauty and value of the new single Primroses.

Primroses can be usefully employed in various ways as decorative agents; it will suffice to mention two. One is to cultivate them in pots for flowering under glass in mid-winter. If nice established tufts are lifted in October, and potted in some good soil in 48-pots, they come into bloom in December, in the first instance from the ripened crowns of the previous summer's growth; and they give another lot of flowers in March and April from the spring growths. A cold frame or cool greenhouse suits them well, and when grown in this way the individual flowers are very fine. They should be planted out in a shady moist place during summer and potted in the autumn.

The next use to which they can be put is to plant them out in woodland walks, and in shady nooks and places on the fringes of shrubbery borders where the wild Primrose abounds. The result would be the admixture of flowers of darker hues, thus affording a striking and pleasing contrast. One fact deserves recording—the richest and most striking varieties are the earliest to flower.

Fig. 128.—"A PRIMROSE BY A RIVER'S BRIM."

CYPRIPEDIUM JAPONICUM.*

This very singular species has up till lately only been known to us by the imperfect figure in Thunberg's *Icones Plant. Jap.*, dec. i., tab. 1; by the figure in Blume's work, below cited; and by a coloured figure in the *Flore des Serres*, copied from a Japanese drawing. It is no wonder that on looking at the latter drawing some may have considered it a somewhat imaginative production on the part of the Japanese artist. Recently, however, the New Plant Company of Colchester have succeeded in flowering the plant from which Mr. Worthington Smith's drawing is made (fig. 129), and which, though in a faded state, was exhibited on Wednesday last at South Kensington. We are obliged to admit that some injustice has been done to the Japanese artist.

The rhizome is creeping, flexuose, the thickness of a quill, beset here and there with scales, and emitting numerous roots. The stems are erect, terete, shaggy, about a foot high, bearing two nearly opposite plicated truncate leaves about the centre, just as in Listera ovata. The shape of these leaves is very peculiar, and is sufficiently shown in the illustration. The flower is terminal, protected by a lanceolate bract; the flower segments are lanceolate, greenish, sprinkled with reddish dots, the lip is whitish, suffused with pink. As the plant is so singular, and as this is the first time that it has flowered in British gardens, we hope even Professor Reichenbach will forgive us for placing this representation before a much larger circle of readers than would have ready means of seeing the other illustrations. We add some remarks with which we have been favoured by the introducers.

"We have very little to say respecting Cypripedium japonicum, except that it is of very easy culture. We have tried it in various soils, but that which we find most suitable is a light sandy loam, giving the plant plenty of water when it commences growth, and keeping it rather dry during the winter. This of course has reference to pot culture. Our collector in one of his letters writes that he found a "Bamboo wood full of it," and that they "grow best in moist Bamboo groves." This led us to try the cultivation of it in pots, but not wishing to place all our eggs in one basket we selected a suitable spot in our grounds nicely cool, and prepared a border for this and other

* *C. japonicum*, Thunberg, Flora Japon. (1784), p. 30; Blume, Collect. Orchid. Archip. Ind. et Japon (1858), i., p. 169, tab. 59 (ubi synonymiam hujusce speciei insignis invenies); Flore des Serres, xx. (1874), t. 2064.—"C. foliis suboppositis, rhombeo-ovatis, acutis repando-undulatis plicatis; bractea lanceolata acuminata ovario longiore; perigonii phyllis acuminatis; labello brevioribus, inferioribus subfalcatis intus villosulis; stamine sterili cucullato-cordato subbicarinato."—Blume, loc. supra cit.

Fig. 129.—Cypripedium japonicum (nat. size; front and side view of column twice nat. size).

Cypripediums from America. Here we placed several hundreds: those in pots were put into our New Zealand Tree Fernery, a lofty structure, with plenty of shade, and in a temperature where the thermometer rarely exceeded during the winter 40°, and at the present time 60°; the result has been that the plants have done well, and flowered nicely. But although these have done well, we believe the plants in the border will beat them in point of strength and colouring of flower, for not only have these—the Japanese Cypripediums—thrown up well, but so also have the American forms, some having already attained a height of 3 to 4 inches, and bid fair to bloom freely. We may, however, mention that this border was never allowed to get dry during the months of March and April, when we supposed their growing season about to commence. We do not pretend to say that ours is the correct mode of treatment, but we do think that any one having found any difficulty in growing these beautiful plants might try this. *The New Plant and Bulb Company.*"

THE HOME OF THE COCOA-NUT.

IN its peculiar style of beauty, says Sir Emmerson Tennent, nothing in the world can exceed in loveliness the road from Point de Galle to Colombo; it is literally an avenue of Palms, nearly 70 miles long, with a rich undergrowth of tropical trees, many of them crimson with flowers and over-run with Orchids and climbing plants—such as the Gloriosa superba, with its splendid red and amber blossoms—whose tendrils descend in luxuriant festoons. Birds of gaudy plumage dart amidst the branches, gay butterflies hover over the shady foliage, and insects of metallic lustre glitter on the leaves.

There is no quarter of the world in which the Cocoa-nut flourishes in such rich luxuriance as in this corner of Ceylon. Here it enjoys a rare combination of every advantage essential to its growth—a loose, friable soil, a free and genial air, unobstructed solar heat, and an atmosphere damp with the spray and moisture from the sea, toward which the crown of the tree is always more or less inclined; this tendency, causing its fruit to drop in the water, appears to account for its marvellous extension to the innumerable islands and atolls to which the nuts are floated by wind and tide. Of late years its cultivation has been vastly increased. Some idea may be formed of its importance from the fact that at the time when the English took possession of Colombo, it was estimated that the single district lying between Dondera Head and Calpentyn contained ten millions of Cocoa-nut trees, and such has been the increase since that the total number in the district cannot be less than twenty millions.

All that has ever been told of the Breadfruit, or any plant contributing to the welfare of man, is as nothing compared with the blessings conferred on Ceylon by this inestimable Palm. The Singalese, in the warmth of their affection for their favourite tree, avow their belief that it pines when beyond the reach of the human voice, and certainly the Cocoa-nut grows more luxuriantly in the vicinity of human dwellings; but then it finds there a soil artificially enriched, and it is never found wild in the jungle. Every particle of the substance of the Cocoa-nut the Singalese turn to account—for instance: The leaves for roofing, for mats, for baskets, torches or chules, fuel, brooms, fodder for cattle, manure. The stem of the leaf for fences, for pingoes, or yokes, for carrying burdens on the shoulders, for fishing rods, and innumerable domestic utensils. The cabbage, or cluster of unexpanded leaves, for pickles and preserves. The sap for toddy, for distilling arrack, and for making vinegar and sugar. The unformed nut for medicine and sweetmeats. The young nut and its milk for drinking, for dessert; the green husk for preserves. The nut for eating, for curry, for milk, for cooking. The oil for rheumatism, for anointing the hair, for soap, for candles, for light; and the refuse of the nut, after expressing the oil, for cattle and poultry. The shell of the nut for drinking cups, charcoal, tooth-powder, spoons, medicine, hookahs, beads, bottles, and knife-handles. The coir, or fibre which envelopes the shell within the outer husk, for mattresses, cushions, ropes, cable, cordage, canvas, fishing nets, fuel, brushes, oakum, and floor mats. The trunk for rafters, laths, railing, boats, troughs, furniture, firewood; and, when very young, the first shoots, or cabbage, as a vegetable for the table. Dr. Thwaites, the well-known curator of Peradenia, has enumerated fifteen species of the Palm tribe as indigenous to Ceylon, viz.:—Areca, 4; Caryota, 1; Calamus, 5; Borassus, 1, Corypha, 1; Phœnix, 2; Cocos, 1. The road from Galle to Colombo crosses three estuaries of rivers, which are bridged. The scene of one of them, the Gindura River, is here represented (fig. 130), and shows the curious canoes, hollowed out of single trees, with a peculiar wash-board sewed to the gunwale by coir-yarn, so that no iron or any other metal enters into the construction. Their characteristic peculiarity is the balance-log of very buoyant wood carried at the extremity of two elastic outriggers. These canoes are manned by the *Oroo*, or certain classes of the fisher caste, or *Karâwe*, who form the most numerous section of the coast population. Thus there are the *Madell Karâwe* and the *Baroodell*, who cast nets; the *Dandu*, who carry the rod; the *Kisbai*, who catch turtle; and the *Gode Kawoolo*, who fish from the rocks. The small houses, on little islands and piles in the water, remind one of the ancient Swiss lake dwellings, and the pre-historic *crannoges* of the Tuatha de Danaan, in Ireland. The estuaries on this coast also supply small but delicious oysters, which many a wearied traveller has enjoyed at the charming half-way rest-house of Bentotte, of which the present writer recalls pleasing associations. [Our illustration of the home of the Cocoa-nut, on p. 629, was prepared from a sketch made by Captain S. P. Oliver, of the Royal Artillery. EDS.]

Apiary.

WORK FOR THE MONTH OF MAY.—This, the merry month of May, generally opens with joy to all. The bee-keeper looks forward to this flowery and happy season with joy, because he expects his bees now to become profitable. Weak stocks may and ought still to be encouraged with a little feeding, but this is the exception, not the rule. The spring sometimes witnesses the prevalence of east or north-east winds, evidenced by the late appearance or backwardness of vegetation; the bees, if this should occur, are unable to glean much honey, and we have known what are called hungry swarms leave the old stands to seek a better home elsewhere.

Hungry Swarms.—What an ominous name! nay, we cannot recall it to memory without shuddering at the thought that our favourites are actually starving when there should be plenty of food within reach, but forgotten by the careless apiarian, so that they are compelled to seek shelter in some more hospitable locality, where their wants will receive attention.

How to begin Bee-keeping.—We turn now to a more delightful theme. Those of our readers who purpose making their fortunes from the happy occupation of bee-keeping should begin to keep a sharp look-out. Making their fortunes! say some of our readers with an incredulous smile. Yes, you may smile, but we just mean what we say. An old schoolmaster told his pupils to shoot at the moon, if they did not succeed in hitting the mark they would be none the worse for the attempt. So say we, by all means begin bee-keeping; you know it is a honey-making concern, and honey in its turn makes money. Never mind the district you live in, your bees will make their way, never fear; and if you do not make £1000 per annum, you may probably in time clear £200 each year. We are running away from our subject, of course, thinking of the number of persons who have become rich by bee-farming, only we cannot tell you where they are now living. But begin (whatever you do, take our advice upon this one point) first with a single swarm, the earlier the better; if you intend making a start, look around the cottage apiaries in the district in which you reside, and engage with one of them to sell you a May swarm. The better to secure your object leave with them the hive in which you wish them to be carried home; you will seldom be disappointed. You have by this time learned the old rhyme, by whom composed we cannot state—*Punch* thinks it was first given to the world by Solomon, because it contains much wisdom—

> "A swarm of bees in May,
> Is worth a cartload of hay.
> A swarm of bees in June,
> Is worth a silver spoon.
> But a swarm of bees in July,
> Is not worth a butterfly."

It would be well if our village bee-keepers would follow it more faithfully, instead of hiving, as separate colonies, the often worthless third swarms, or, more correctly speaking, "casts." If we purchase a May swarm we have this confidence about it, that it is genuine. At this early period we could not well be deceived—casts are far more rare than swarms just now.

Above all secure a swarm as early in the month of May as possible, and remove them on the evening of the day on which they are hived to the stand you intend them to occupy permanently. On warm, quiet afternoons watch the mouth of your hives for the appearance of the fat and lazy gentlemen bees, commonly called

Drones.—"Early drones early swarms," say our farmers' wives; this saying, every other thing being favourable, is correct. We have known drones to be hatched in April, but this was caused probably from the hive being filled with drone-comb—he is a poor bee-master who will allow too much of this to exist in any hive. It is a necessary evil, but take care they are not allowed to manufacture too much. If you meet with it in those hives you are reserving for the purpose of supering, cut it out without delay.

A sign beheld with delight and pleasure by most bee-keepers is to observe the busy, active workers carry in great quantities of pollen the early part of this month. Nearly all our bee-keepers in the northern counties believed, about twenty years ago, that it was wax, or what was intended to be employed in comb-building; but it is astonishing what a change has taken place since that time in the knowledge and opinions of people: very few can be found now to adhere to the old doctrine—three-fourths at least know it is pollen, from the anthers of flowers, and is used to feed the young brood in the cells.

In this month of all others in the year have an eye to the farmer's

Enemy, who is also far from being a friend to the beehive and its industrious occupants—we refer to the bird found everywhere in this island, the common sparrow. You may laugh and make merry at the thought that he should prove to be an enemy, but, laugh or cry, such is the fact. When first we were informed upon this subject, we were inclined to make light of it, though after experience has taught us wisdom. Very early in the dewy morning, when the bees are flying about rather slowly (from the impediment of watery particles adhering to their hairy bodies probably), the bird is on the watch not very far away, often on the ground beneath the stand, watching its opportunity; suddenly, and in much less time than we can write the account, it darts upon the prey, and bears it triumphantly to the neighbouring slates, from thence to its nest. It has been supposed that this game is not sought except in the breeding season; whether this is so or not we cannot positively assert, all we know is that throughout May and June, though seldom in the after-part of the day, the war is carried on. The best thing to be done is to protect the entrance—a rabbit net thrown carelessly over the entire hive is a capital plan; the bird seems to think it is a snare to be avoided, and accordingly so long as it continues it is cautiously shunned. This enemy may be unknown in village apiaries—we speaking more of the outskirts of our towns, where insect food may not be so plentiful, therefore they may be compelled to some extent to seek it in the apiary. *R.*

The Villa Garden.

IMPORTANCE OF HOEING.—The recent rains, while they had the effect of nicely moistening the soil, also served to beat it down and cake it on the surface, and as hot sun and drying winds followed, quite a hard crust has formed itself on all garden ground. This requires loosening at once. Observe the London market gardener, how persistently he applies the hoe among his crops, chopping up weeds and loosening the soil at the same time; and the various plants he cultivates, how rapidly they grow for the treatment. His two main principles are—plentiful manuring, and constant deep hoeing. Both are equally important to the Villa gardener; the first need not be discussed now, the second must be insisted on as an important part of the weekly round of gardening duties.

All young plants that are making growth are much benefited by having the soil about them stirred after rains; it breaks up that incrustation of the surface which prevents the atmosphere from reaching the roots. A loose stirred surface is not so much burned by sun-heat as a caked soil at the top. Thus it is that nurserymen and others encourage deep hoeing at times of drought.

Potatos are rapidly pushing their way through the soil, and they will be much benefited by hoeing, stirring the soil round and about them, and between the rows. The same holds good of Peas, Broad Beans, Scarlet Runners, Dwarf French Beans, and other kitchen garden crops. In hoeing, guard against drawing the hoe too near the plants, so as to cut them off. A careful gardener with the hoe does not chop with it in an awkward downward fashion, but by a rather gentle, careful stroke he brings down his hoe into the soil in a slanting direction, and then draws it towards him. It is a study to watch a market garden labourer hoeing; he does it in quite an artistic manner—thoroughly, rapidly, and with a minimum amount of exertion.

The soil should be drawn up to Peas and Beans on both sides as soon as they are sufficiently advanced in growth. This is of great assistance to them; but the bank of soil on either side should not be allowed to bake hard, as when rain comes it is thrown off; therefore they should be occasionally stirred with the hoe. Potatos and Dwarf and Scarlet Runner Beans are very tender, and a little frost soon disfigures them, and gives them a serious check, even if it does not destroy their growth. If the nights turn cold, as they frequently do in the month of May, it is a good precaution to draw some soil up to or slightly to cover the plants. It is a capital protection.

Surface Stirring of Flower Beds.—In like manner the surface soil of flower beds should be stirred, as recommended for the vegetable garden. Even if the process were not a beneficial one, it is to be commended on the ground of imparting to the beds a tidy appearance. Beds of double Daisies are just now at the height of their beauty, and it is a good plan to go over them occasionally, and pluck the decaying flowers. Beds of Pansies require going over in the same way, so that no seed-pods be allowed to form. If the plants have to turn their strength to the production of seed, less energy will go to the production of flowers. We have seen some very charming beds of mixed Pansies on several occasions this spring, and have been much pleased with them. We have now in our own garden a bed of mixed Violas, mainly seedlings from a pale lavender-coloured variety named Princess Teck, but there are white flowers and rich purple ones also among them, with many intermediate tints, and the effect is charming. We have just top-dressed the bed, to the manifest advantage of the plants. Immediately after the rain the surface-soil was stirred, and then there was added about an inch of refuse potting soil, laid evenly over the surface. The young growth eats into it, and derives strength from it. What charming posies these Violas make! A bunch of them will pleasantly perfume a sitting-room.

Hyacinths, &c., Out-of-Doors.—Some persons with limited garden accommodation are at a loss to know what to do with the Hyacinths and Narcissi that have gone out of flower. They don't like the idea of throwing them away, and they are disfiguring in the greenhouse. Two or three courses can be recommended: one is to open a trench in any spare corner of the garden, and plant them in it, turning the balls of earth out of the pots without disturbing the roots, and simply remove the crocks; or if the roots have bound themselves about them, they can remain. Some fine mould should be placed about the balls, and the soil put back and firmly pressed about them. Treated in this way the Hyacinths, Tulips, Narcissi, &c., will ripen their bulbs and growth, and come in very useful next autumn for planting out in beds or borders. They will, however, need to be watered in dry, hot water. Another good mode is to open holes along the fringe of a shrubbery border, almost beneath the lowermost branches, and plant out for permanent effect. In such a spot they come into flower early in the spring, and they are sufficiently out of the way not to interfere with the summer planting, if the margin of any shrubbery border admits of its being done.

We are now making use of our cool ash-bed for any choice spring-flowering plants that, having gone out of flower, it is desirable to preserve in pots. It is under a north wall in a cool shady position. Species of Crocus, Primroses, Violets, Triteleia, Narcissi, and such like, are plunged here, to ripen their growth, previous to the period of rest. It is a most useful spot, very little water is required, and the plants thrive well. So many Villa gardeners are now turning their attention to the culture of a few choice hardy plants in pots, especially those which bloom early in the spring, that any suggestion for keeping their plants through the summer will be gladly welcomed by them.

Notices of Books.

The Fruit Manual, &c., by Robert Hogg, LL.D., F.L.S., &c. Fourth edition. *Journal of Horticulture* Office. 8vo, pp. 600, and cuts.

It is rarely that we find it necessary to do more than announce the publication of a new edition of a book, especially if it be a fourth edition, but in the present case the additions are so extensive as almost to constitute a new book rather than a new edition. As we are going to recommend the book warmly to all interested in fruits, and to tell them that this edition is a great improvement on its predecessors, and an indispensable tenant of their book-shelves, so we shall feel no compunction in first of all alluding to sundry shortcomings. In the first place, so far as we have seen, there is no further attempt at classification than there was before. The novice who is ignorant of the name of any given fruit would be wholly at a loss in his attempts to discover what it was from the book before us. It is possible that the present state of pomology does not admit of this being done, but at least it would have been practicable to have established definite if arbitrary rules for distinguishing leading classes, such as, among Apples, for instance, Pearmains, Pippins, Russets, Codlins, &c., or some attempt might have been made to group Apples according to their form: thus, there is the depressed spherical form, as in the Quarrenden, the globose, the ovoid, the obovoid types, &c. Doubtless it would be wholly impracticable to make a classification without including very numerous exceptional or transitional forms, but that difficulty occurs throughout all Nature; while, for the sake of beginners, any classification is better than none. Again, it would have been better if some definite standard of size had been given instead of such terms as "large," "very large," "pretty good size," "medium," and so forth.

Among Apples, too, we find no mention in the work before us of the "Stock" Apples, of which a collection was got together at Chiswick, which formed the subjects of a notice in our columns last year, and one of which—the French Paradise—is figured in the *Florist* for the present month.

Of course, it is not to be expected that even now all the varieties of fruit should find a place in this volume. Many volumes would be needed for this, while many of the varieties would be better entirely ignored; still we are surprised to find so fine a Nectarine as the Welbeck Seedling omitted, and to find no mention whatever of the numerous new varieties of Filberts, for which pomologists are indebted to Messrs. Rivers and Webb, and many of which were well illustrated in our columns in 1872, by the skilful pencil of Mr. Worthington Smith. Our last complaint is anent the cuts, which are mere sectional outlines, not always characteristic, and which might more profitably have been replaced by a smaller number of well-drawn types, specimens selected as types of form, or as illustrations of superior varieties.

Now, having alluded to what we consider the deficiencies of the book before us, it is time we said something as to its good qualities. These much outweigh any defects there may be. The present edition is a great advance in all ways upon its predecessors; it is fuller in detail, more scientific in method and description, and in all ways more satisfactory.

As an illustration of the additions that have been made, we may give the following table, showing in round numbers the number of varieties mentioned in the last and in the preceding editions. Thus, while the list of Almonds remains the same, no less than 313 more varieties of Apples are included, and so on.

	Third Edition.	Fourth Edition.	Additions to Fourth Edition.
Almonds	42	42	..
Apples	410	723	313
Nuts and Filberts	19	19	..
Apricots	83	103	20
Berberries	2	2	..
Cherries	269	417	148
Chestnuts	2	2	..
Crabs	4	0	..
Cranberries	5	5	..
Currants	30	32	2
Figs	133	145	12
Gooseberries	254	275	21
Grapes	405	439	34
Medlars	11	11	..
Mulberry	1	1	..
Nectarines	75	85	10
Peaches	211	226	15
Pears	1006	1487	481
Plums	372	435	63
Quinces	3	3	..
Raspberries	53	55	2
Strawberries	122	120	2 less
Walnuts	20	20	..

Apart from this evidence of the increased value of the book, and of the diligence of the author, it is interesting to see the immense additions in certain fruits and the small increase in others. Of course, it must not be imagined that the excess is wholly due to the increase of new varieties—the great augmentation, as we take it, is due to the insertion of a large number of old or locally-known varieties. It is a pity that so many indifferent varieties should be perpetuated in the presence of improved subjects, but all the time they do exist it is well that their names at least should be registered.

One great feature of the present volume, to which we must refer in terms of the highest approbation, is constituted by the historical notes. These have been got together with diligence and care, and they are not only valuable, but to any one interested in fruits they are very pleasant reading. While we thank the author for giving us so good a descriptive catalogue of fruits, we thank him yet more for appending to his descriptions these historical details, which raise the *Fruit Manual* from the level of a catalogue to that of an encyclopædia. We append two of these notes (omitting the descriptive matter), which will illustrate our remarks, and demonstrate the value of the volume which has given rise to them:—

"*The Catshead Apple.*—In the Horticultural Society's *Catalogue of Fruits*, and also in Lindley's *Guide to the Orchard*, this is made synonymous with the Costard of Ray, which is undoubtedly an error, the Costard being a distinct variety.

"The Catshead is one of our oldest varieties, and was always highly esteemed for its great size. Phillips, in his poem on Cyder, says:—

"'——Why should we sing the thrift
Codling or Pomroy, or of pimpled coat
The Russet, or the Cat's-head's weighty orb,
Enormous in its growth, for various use?
Tho' these are meet, tho' after full repast
Are oft requir'd, and crown the rich dessert.'

"In Ellis' *Modern Husbandman* he says the Catshead is 'a very useful Apple to the farmer, because one of them pared and wrapped up in dough serves with little trouble for making an Apple dumpling, so much in request with the Kentish farmer, for being part of a ready meal that in the cheapest manner satiates the keen appetite of the hungry ploughman, both at home and in the field, and, therefore, has now got into such reputation in Hertfordshire, and some other counties, that it is become the most common food, with a piece of bacon or pickle-pork, for families.'"

"*Grosse Mignonne Peach.*—The numerous synonyms which this variety possesses are an evidence of the favour in which it has been held. Its origin is unknown, but it has been in cultivation for upwards of two centuries, being mentioned by Merlet and all subsequent authors. From the fact of its reproducing itself from seed, nurserymen, with good faith, have introduced it from time to time as a new variety. Grimwood, of the Kensington Nursery, sent it out in George the Third's reign as Grimwood's Royal George. The late Mr. Lee of Hammersmith did so under the two names of Early Vineyard and Smooth-leaved Royal George. Neal (or Neil), a nurseryman, sold two plants of it to Mr. Padley, the King's gardener at Hampton Court, for five guineas, under the name of Neal's Early Purple, and hence Padley's name also appears among the synonyms. Shailer, of Chelsea, who raised the white Moss Rose, also sent it out under the name of Superb Royal; and Ronalds, of Brentford, sold it as Ronalds' Galande. It was called Royal Kensington by Forsyth, the Royal gardener, who, when he went to Kensington in 1784, found it as a new Peach sent with some others from France to the Queen."

—— The *Flore des Serres*, of which the three first parts of the twenty-first volume have just reached us, contains several representations of old friends or reproductions from other periodicals. Among less familiar illustrations we may cite the beautiful little Mammillaria senilis; and Tydæa Belzebuth, a handsome Gesnerad with maroon-coloured flowers, with darker spots and pale tube. "Un Conservatory" is a reproduction from our own pages, though the fact is not stated. Pilocereus Dantwitzii is capitally represented; it was described in our columns, 1873, p. 7, but it remains doubtful whether it is sufficiently distinct from P. Williamsii. Gloxinia Ami Thibaut is described by M. Thibaut, who ought to be a good judge, as the most beautiful variety he had ever seen; the flowers are partially erect, with a limb prettily spotted with pink. The representation is said not to be equal to the original, which we can well believe, else M. Thibaut's eulogy would seem exaggerated. The curious little Petunia intermedia of Lindley, we are told, is only managed by being grafted on to Nicotiana glauca. Paul Neron Rose is a good representation of a glorious Rose, of good form and pure rose colour. By way of contrast, perhaps, a figure of the Octopus is given.

—— The *Villa Gardener* for May opens with "freshness and purity." These are the opening words of the first article, and they may not inaptly be applied to the contents of the number, which are fresh and varied. The versatility of the Editor is something amazing.

—— The re-issue of Sowerby's *British Wild Flowers* (Van Voorst) has now reached as far as the commencement of the Incompletæ. The figures, though small, are useful as reminders.

—— The May number of the *Revue de l'Horticulture Belge* opens with a coloured plate of certain Pansies, and in the accompanying article M. Rodigas takes occasion to recommend the cultivation of the Pansy to the amateur. We entirely share the opinion of our *confrère* as to bedding Pansies, than which nothing more effective or free-flowering can be selected. Their low price and easy culture render them available for gardeners of the most slender means.

—— The current number of the *Gardener* opens with an article on Vine Bleeding, the ill effects of which with Mr. Pearson, we think, may be exaggerated. We altogether demur to the writer's dictum as to the "generally accepted theory" of the storing up of sap, and the bleeding that occurs in consequence. The writer seems to be a quarter of a century behind the day in his physiology, and to have only vague notions as to what the sap is, and what it is not, although he is "heretical enough to doubt the greater part of Dr. Lindley's theory." We should consider it equally heretical now-a-days, first, to state that Dr. Lindley ever had or had published any theory of his own on the subject; and, next, we should consider it heretical not to doubt the validity of any theory as to sap-flow which was five-and-twenty years old. Vegetable physiology in this country is so backward that it is cruel to make it appear worse than it really is. The other articles in the number are of the excellent practical nature so characteristic of this magazine. Mr. Pearson's articleon grafting Vines is particularly suggestive.

HORTICULTURAL EXHIBITIONS, 1875.

May.

26.—Royal Botanic Society, Regent's Park. Summer Exhibition. Sec., W. Sowerby.
26.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.
29.—Crystal Palace Great Flower Show. Sec., F. W. Wilson.
29 to June 6.—Annual Exhibition of the Central Horticultural Society of France, Paris. Sec., A. Lavallée, 84, Rue de Grenelle.
31.—Coventry and Warwickshire Floral and Horticultural Society's First Show of the Season. Sec., Thomas Wigston, 3, Portland Terrace, Lower Ford St., Coventry.
31 to June 4.—Bath and West of England Society's Exhibition at Croydon.

June.

1 and 2.—Royal Western Horticultural Society's Exhibition at Plymouth. Hon. Sec., F. B. Bond, 16, Penrose Street, Plymouth.
2.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees. Great Summer Show.
9, 10, and 11.—Leeds Horticultural Society's Twelfth Annual Summer Show. Sec., James Birbeck, Delph Lane, Woodhouse, Leeds.
10.—South Essex Floricultural Society's Exhibition at Leyton. Sec., G. E. Cox, Leyton.
16.—Royal Botanic Society, Regent's Park. Summer Exhibition. Sec., W. Sowerby.
16.—Glasgow and West of Scotland Horticultural Society. Midsummer Exhibition. Sec., F. G. Dougall, 167, Canning Street, Glasgow.
16.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.
17 and 18.—Lee and Blackheath Horticultural Society's Exhibition. Sec., C. Helmer, 5, Boones Road, Lee.
18.—Scottish Pansy Society's Exhibition at Edinburgh. Sec., W. M. Welsh, 1, Waterloo Place, Edinburgh.
22 and 23.—The Kingston and Surbiton Royal Horticultural Society's Eleventh Exhibition, at Norbiton. Sec., J. Kirk, 2, East Villas, East Road, Richmond Road, Kingston-on-Thames.
23.—Fareham and South Hants Horticultural Society's Show. Sec., Harry Smith, Fareham.
24.—Royal Horticultural Society of Ireland. Great Summer Exhibition. Sec., A. Bolfe, 28, Westland Row, Dublin.
26.—Crystal Palace Rose Show. Sec., F. W. Wilson.

THE

Gardeners' Chronicle.

SATURDAY, MAY 15, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

Monday,	May 17	Halifax Floral and Horticultural Society's Annual Exhibition (two days). Continuation (to 21st) of the National Horticultural Exhibition at Manchester.
Wednesday,	May 19	Clearance Sale of Bedding and Greenhouse Plants, &c., at the Kirkdale Nursery, Upper Sydenham, S.E., by Protheroe & Morris.
Thursday,	May 20	Royal Horticultural Society of Ireland's Early Summer Exhibition. Sale of Stove, Greenhouse and Bedding Plants, at "The Nursery," Park Road, West Dulwich, S.E., by Protheroe & Morris (two days). Sale of Imported Orchids, collected by M. Roezl, at Stevens' Rooms.
Friday,	May 21	Sale of Specimen Stove and Greenhouse Plants at South Bank, Surbiton, by Mr. Stevens.

MR. HUTCHINSON, of Carlowrie, in an excellent paper lately read before the Botanical Society of Edinburgh, has pointed out various features of resemblance between two winters of unusual severity—those of 1860-61 and 1874-75. The FROST-MARKS ON VEGETATION have in a good many cases been almost identical. Shrubs and trees of different sorts that have seemed to hover on the border land of perfect hardiness, have suffered very much in the same way and almost to the same extent during this winter as in that. Even the bark and bodies of hardy trees have been rent and split in the same way. This is one of the most serious injuries inflicted by severe frosts. It is often not noticed at the time. On felling some Beech trees this spring the timber split, and flew into pieces as the bole touched ground, almost as a tube or rod of glass might be expected to do. On examining into the cause of this extreme brittleness it was found that old rents, obviously made by the severe frosts of 1860-61, penetrated the timber in various directions, and caused it to fly into fragments by the concussion of falling. In the eastern counties the bark-splitting of Planes and old Banksian Roses has been carried further than in the year 1870-71. The latter, too, are more severely injured, whilst the old Buddlea globosa and Triomphe de Rennes Rose on its own roots seemed killed to the ground, and the Maréchal Niel Rose is likewise very severely hit. But the shrubs and trees seem far less hurt now than then. In fact the Laurustinus, Arbutus, and evergreen Oaks, killed by wholesale throughout the frosts in 1860-61, are hardly touched now; and Laurels, Hollies, &c., in favourable localities, are scarcely hit by the frost. Roses, too, and Araucarias, killed by wholesale then, have escaped now. But the greatest contrast is to be found in the fruit trees. Peaches, Nectarines, and Apricots were killed by a wholesale slaughter in the memorable winter of fourteen years since—they have passed through this long and severe season with almost perfect impunity.

Whence the striking difference? The chief cause can hardly be one of temperature. Several times during the past winter the thermometer has hugged zero very closely, and even sunk within a few degrees as far beyond it as during 1860-61. Mr. HUTCHINSON registered only a difference of 2° to 8° below zero this winter, and 10° below zero during that. This difference between the two has been more marked in the South. But that difference is not sufficient to account for the marked disparity in the effects of cold in the two cases.

The fact is—and it cannot be too often repeated—the effects of frost on plants is as much and more a matter of condition as of temperature. Vegetation was, upon the whole, in fair condition this winter to bear frost with impunity. During the winter of 1860-61 the frost hit vegetation in a crude and unfinished state or condition of growth; the previous summer had been wet and dull, and the winter caught growth before it was consolidated, and easily wrecked it by wholesale. The crude state of plants let the frost in, and the result was seen in the destruction of thousands upon thousands of plants. Frost-bitten branches, and even trunks of trees on walls, proved alike their weakness of resistance, and the severity of the attacks of the frost. This year the well-ripened wood bore the attacks of the frost almost without injury, and the walls were pinked over with Peach, or whitened with Apricot blossoms in unusual numbers, and of almost abnormal strength and vigour.

The lesson to be drawn from the contrast of the two winters is obvious. We cannot make nor sensibly influence the climate, but we may, we can, we do mould conditions to a large extent. By the skilful choice of sites, by drainage, and skilful cultivation, we may so determine the rapidity and character of growth, and the measure of its maturity, as to either give it up into the power of severe cold, or enable it to resist it. Site alone largely determines conditions. To place a garden in the bottom of a valley, is to invite the destruction of all the plants with which it is furnished or enriched. To place it there for the sake of so-called shelter, or to be near the water, is like placing an army within range of the enemy's guns, that they might be out of the wind, and near to their drinking-fountains. The frost must hit such gardens hard, for the site chosen is not only the coldest during frost, but that most favourable for the development of gross and, consequently, frost-susceptible growth. Place the garden higher up, and a more solid, hardy growth will reward the wisdom of a better choice of a site, and the cold air will also roll past without affecting it, bent on concentrating its destructive force on what it can find in the bottom of the valley. Drainage, again, by keeping the base of the root-larder dry, likewise favours growth adapted for endurance with impunity. The wood is no longer gorged with stagnant water, the roots only taking up what the plant can assimilate or convert into firm, durable, hardy tissue. Drainage also moderates the energy of cold by checking surface evaporation and covering the surface with a layer of mellow earth. This conserves heat, for a mellow surface performs the same functions for the earth's tilth that a warm great-coat does for ourselves. All the water that is passed through the soil by drainage, that would otherwise have been lifted off the surface by evaporation, becomes a source of warmth or a conserver of heat; and either way it creates a local atmosphere superior in temperature to the general mass of the air.

Finally, skilful cultivation promotes a sound and healthy condition in plants. The greatest bulk in the least time may end in giving up plants a sacrifice to the first severe frost. Skilful culture conserves vigour of constitution, and promotes that measure of robustness that enables plants to meet and resist frosts and other evils most successfully. For instance, growths of medium strength are mostly the most thoroughly ripened, and the strength of growth can be regulated well-nigh at pleasure. It is largely a matter of soil, food, pruning, training, cropping, &c. Again, transplantation, by checking the supply of sap, strengthens the power of plants to resist cold. This is the sound theory that underlies the old-fashioned practice of heeling our Broccoli in the autumn. The greater part of the roots were disturbed, and the plants slightly wilted in consequence; hence the frost could gain little or no hold upon them. Doubtless, too, part of their immunity arose from their prostrate position. With their heads to the north and closely hugging the ground, the slightest snow covered them, and the sun could not hit their crowns. But the conservative power against frost is also seen in the safety of transplanted Cabbages, Lettuces, Cauliflowers, Stocks, Wallflowers, and hardy annuals; while the same plants that have not been disturbed, on the self-same ground, side by side, are often cut down.

Root pruning becomes a means of resisting the frost from a similar cause. Less fluid is forwarded to the plant or tree when fully stored with juice or sap, and hence it passes without injury through weather that would half kill trees in a more spongy or watery state or condition.

The chief aim of all autumnal cultivation should be to perfect maturity and keep the fluids at rest or at a minimum amount for the winter. Growth will be all the better in quality for the rest through the danger period in a dry condition.

—— It is necessary that those desirous of building up a really National Society devoted to Horticulture—and horticulture only—should be vigilantly watchful at present, and ready to act at the right moment. Matters at the ROYAL HORTICULTURAL SOCIETY are at present so extremely critical, that a false move or a failure to act at the right time would imperil the existence of the Society. Every one admits that a thorough reconstruction is absolutely essential; but thorough reconstruction and utter annihilation are two different things. The latter would, in our opinion, be a great misfortune, and would most seriously injure the prospects of horticulture as a science and as an art. We presume the Fellows will shortly hear what the Council intend to do, and in the event of their explanations being unsatisfactory, it may be well to consider the propriety of addressing HER MAJESTY, and respectfully requesting her to nominate a commission of inquiry. Meanwhile, no time ought to be lost in paying the arrears of prize-money to the exhibitors, and in carrying out the original terms of the schedule for the year. The present state of things is not only a disgrace to the Council, but it is a humiliation to the Fellows at large; and if no other means be forthcoming, the required sum should at once be raised by private subscription. What the exhibitors think was shown by Wednesday's proceedings. Into what low estate the Society has fallen was shown by the fact that six pot Roses, and six only, were shown, and these of quite indifferent quality. That the judges should have awarded a first prize, and so cast another stone at the Society and lowered it still more, is to our thinking a most lamentable and untoward proceeding. The horticultural Fellows, at least, are probably not aware how low the Society has fallen in public esteem—so low that we observed lately in one of the numbers of the *Queen* that the Kensington garden was so little in favour with the fashion of the town, that it was quite unnecessary to describe the

toilettes of the ladies!! This is a cruel stab for poor Horticulture.

—— We are informed that it has been arranged to hold an INTERNATIONAL FRUIT AND FLOWER SHOW AT THE ALEXANDRA PALACE on September 2, 3, and 4 next. A liberal schedule of prizes will be issued in a few days.

—— The "WARS OF THE ROSES" in pots is near at hand, and, judging from what we saw at the Royal Nursery, Slough, a few days ago, something very fine will be seen this season. One magnificent plant of Noisette Céline Forestier contained no less than 250 flower-stems, many of them bearing twin blossoms; and a huge example of H. P. Paul Perras stood 8 feet in height, measuring from the base of the pot, and was 7½ feet in diameter. It, too, was literally loaded with fine blossoms. The Cheshunt plants are said to be grand this season, and so the first meeting this season (probably at Manchester) of the two champion cultivators, Messrs. PAUL & Son and Mr. CHARLES TURNER, will be looked forward to with more than ordinary interest.

—— Among the most beautiful of the spring flowers in use at Belvoir is a seedling IRIS with the habit of I. pumila. The "falls" are transparent white, with a violet disc and a yellow fringe, the petals and styles white. It is one of the most delicate and charming Irises we know, and it has the merit of being among the very earliest.

—— The *Athenæum* states that a large portion, probably thirty or forty stalwart trees, of the NOBLE LINE OF ELMS which extended from near the bridge at Kew to the commencement of the open view and low wall of the gardens, have been destroyed. This apparently unnecessary operation has laid bare the brick wall in front of the old lodge in the gardens, lately occupied, we believe, by Sir A. HELPS. The effect is sadly injurious to the landscape, once so lovely. The same authority mentions, in reference to the removal of old trees on historic sites, that a considerable number of the once noble Elms in Gray's Inn gardens have been, of necessity it is presumed, cut down. Limes, or similar trees, have been planted in their place. We may add that the "apparent necessity" may be very real; large Elms, even when apparently sound, have an awkward habit of casting their branches without warning, and all of the Elms in question had long past their maturity.

—— Some fine old plants of ALOYSIA CITRIODORA are to be seen in one of the plant-houses at Gunnersbury. Mr. RICHARDS estimates them to be at least thirty years old, and they look like Gooseberry bushes, with stout, strong main stems. In their pruned state—and they are cut back to the old wood hard every year—they measured 2½ feet in diameter; and when their full summer growth is on them they are considerably larger. They are found of great value both for conservatory decoration and for cutting from.

—— PELARGONIUM TRIOMPHE DE ST. MAUDE, a fine variety, of Continental origin, promises to make a splendid forcing variety. The flowers are of a deep crimson hue, very large, and trusses of an enormous size, very bright in colour and extremely effective; habit good, and a profuse bloomer. It has recently been distributed by Mr. CHARLES TURNER, and it can now be seen in fine condition at the Royal Nursery, Slough.

—— An admirable scheme is carried out, or on the point of being so, at Grantham, in connection with the district Horticultural Society, viz., the distribution among the cottagers of varieties of FRUIT TREES suitable for the district. The ordinary cottager has practically no means of knowing what to plant, or of procuring it if he did know. The Society meets this difficulty, and so lays the foundation of great good. We hope the example may be generally imitated, for few greater boons to the rural districts, nay, to the nation at large, could be conferred. We would further suggest that the local societies should depute some competent gardener to show the cottagers how to manage and prune their trees.

—— The *Times* states that a re-arrangement of the Judicial Bench has been rendered necessary by the lamented death of Baron PIGOTT. The new Judge is Mr. LINDLEY, Q.C., heretofore one of the leaders in the Court of Vice-Chancellor HALL, and author of a treatise on the *Law of Partnership*. He will go to the Common Pleas, where the presence of a judge with a knowledge of equity is desired by the Court, especially in view of the new judicial arrangements, the Exchequer having already that advantage in the presence of Baron AMPHLETT. In order to enable this arrangement to be made, Mr. Justice HUDDLESTON has consented to transfer his services to the Court of Exchequer. Mr. LINDLEY, as may be known to many of our readers, is the only son of Dr. LINDLEY, one of the founders of this journal, and is not only known as a sound and successful lawyer, but in his early days lent his aid in the instruction of the garden pupils at Chiswick.

—— A huge example of ARAUCARIA EXCELSA has been successfully wintered in the open air at Gunnersbury by placing it near some trees, by which it was somewhat sheltered, and by covering the top with a canopy formed of mats. The plant was thus kept dry, and it appears to have passed through the ordeal of the severe winter without being in any way injured.

—— It is remarkable to note how some once popular plants fall away, as it were, from cultivation and become quite rare, though once very plentiful. This is very true of the old double yellow Auricula, which was once grown in large quantities in that note-

FIG. 130.—RIVER SCENERY: WEST COAST OF CEYLON (THE HOME OF THE COCOA-NUT).

worthy Auricula district, Middleton, near Manchester; for here died very recently ROBERT LANCASHIRE, who, as his memorial card states, "was a thorough florist, and raised from seed that fine Auricula, Lancashire Hero." Mr. SAMUEL BARLOW states that this yellow double Auricula was much grown in the Middleton gardens for the Manchester market, but it has now died out. It is well worth reviving, being deserving alike of pot and border culture, as the trusses are large and bold, and the individual flowers of a lasting character.

—— From the *Journal of Botany* we learn that Dr. JOHN ANDERSON, the naturalist to the recent expedition to South-Eastern China, which met with so much opposition from the natives, and resulted in the death of Mr. MARGARY, has returned to Calcutta, and is now on his way to England. He succeeded in escaping with his life, but lost all his property, including his collections and apparatus.

—— The same journal also intimates that Mr. CHARLES B. PLOWRIGHT, of King's Lynn, has prepared for publication a second *fasciculus* of his SPHÆRIACEI BRITANNICI. One hundred species are comprised in the *fasciculus*, the price of which is £1.

—— One would scarcely expect to find CAMELLIAS FLOWERING OUT-OF-DOORS IN LEICESTERSHIRE; nevertheless in the beautiful woods of Belvoir a scarlet Camellia was in full bloom towards the end of April.

—— The varieties of TROLLIUS now in bloom at Kew indicate its value either as a hardy border plant, or for cultivation and exhibition in pots. Trollius altaicus has large semi-double flowers that are quite globular, as are those of the other kinds; they are borne on stems about 12 inches in height, and in colour are pale yellow. T. europæus is less robust, but the colour of its flowers is deeper, whilst Trollius laxus is still dwarfer, and has flowers in colour pale sulphur.

—— Chance combinations and arrangements are often more effective than planned devices. The other day at the Sheffield Botanic Garden we saw a very graceful arch formed of DACRYDIUM CUPRESSINUM, which had grown over the path of the house, and been adapted by Mr. EWING in the way mentioned. In the conservatory at Wortley, Mr. SIMPSON has trained Henfreya scandens over wire arches, and when we saw them the plants were short-jointed and full of flower. This is a plant not often seen now, but amply deserving of more attention.

—— In consequence of the lateness of the season, the CRYSTAL PALACE ROSE SHOW has been postponed from June 19 to June 26.

—— At the Sheffield Botanic Garden lately we were shown by Mr. EWING a CROSS between PRIMULA VERTICILLATA and P. JAPONICA. The leaves were in shape like those of the latter plant, but covered with the grey mealy powder of the former.

—— In the herbaceous ground at Kew is now in flower VIOLA PUBESCENS, a native of North America. The flowers are purplish mauve in colour, and larger and rounder than those of Lee's Victoria Regina; the foliage is thin and small; the plant blooms very freely and is a beautiful species. It would look well as a pot plant, and charming in the herbaceous border. Close by are several varieties of Viola cucullata; all have a compact habit of growth and plenty of foliage; the blooms in size and colour much resemble those of the Russian Superb; but in several of the kinds the flowers are beautifully splashed and flaked with white. These latter especially are exceedingly pretty, and deserve wide cultivation. Viola obliqua is another variety that has mottled flowers, but is not so showy as are the preceding kinds.

—— Standing up boldly in the new spring garden at Belvoir is a notable STANDARD PORTUGAL LAUREL, one of the largest in the kingdom. The trunk is 5 feet 11 inches in girth at 3 feet above the ground; the trunk is 10 feet clear from the surface to the first branch, and the spread of the branches 42 feet.

—— The following communication, dated April 26, 1875, has been received by the Council of the Royal Horticultural Society with reference to the COLOGNE INTERNATIONAL EXHIBITION:—

"Gentlemen,—A letter from Lord ODO RUSSELL, the British Ambassador at Berlin, under date of 16th inst., informs us of your having courteously intimated that the Council of your esteemed Society would be ready to act as a committee on behalf of British exhibitors at our forthcoming International Exhibition, and that it would also send a representative to the same.

"We now take the liberty to address you direct on this subject, and before all we beg to state that we shall be very happy to accept your kind offer, by which you will be putting us under great obligations, and that we shall thank you to inform us of the names of those gentlemen who will kindly take the matter in hand, so that we may insert them in the catalogue to be issued, as forming the English special committee, in the same manner as we shall publish the committees formed in other foreign countries.

"We are sending you by book-post general programmes, as well as the special regulations of our exhibition. If you should require any more of these, they will with pleasure be at your service.

"We do not at the same time send you application forms for entries, because we should first like to hear from you whether you will undertake to attend to this matter, or direct to us any exhibitors applying for the same, which we suppose would be more convenient to you.

"In our opinion it is especially desirable to see the English manufacturers of objects relating to garden architecture, machinery, &c. (divisions iii., iv., and v. of our programme) entering competition; and we beg you will kindly draw also their attention to our undertaking. Further there are fossil plants and their fruit stands (see special programme, vi. *c*) of which we should be highly pleased to get a collection sent from your country. These latter are no doubt abundantly found in the coal and turf pits of Wales, &c., and perhaps there are collections of this kind in the Royal museums which Government might be induced to send to our Exhibition.

"Our undertaking, which already thus far promises to take very large dimensions, has found ready subvention on the part of the different Governments, as well as from the public in general. Most of the railway and steam navigation companies have reduced the freight on goods to be sent to the exhibition by 50 per cent., and there is no duty to be charged on such objects unless they should be sold here and remain in the country.

"For English exhibitors it will be of special interest that the Netherlands Steam Navigation Company, and the Belgian Company, whose steamers ply respectively between London and Rotterdam, and Dover and Ostend, as well as the Rhenish Railway Company, are of those who have granted the before-mentioned reduction.

B. EDWARD OPPENHEIM, *Secretary*."

Responding to this application, the Royal Horticultural Society have appointed a committee, consisting of W. BURNLEY HUME, Esq., W. B. KELLOCK, Esq., ROBERT WARNER, Esq, and Dr. HOGG.

—— VERONICA PECTINATA is one of the prettiest spring-flowering plants at Belvoir. Its close habit, regularly disposed leaves, and deep blue flowers are very engaging. The habit alters as the plant grows older.

—— At Belvoir granite-dust is found an admirable soil in which to grow Vines, while the bunter sandstone, deficient in lime, is valued for Camellias.

HEATING.

THE arrangement of the boiler and water-pipes in a hothouse is one on which gardeners, as well as the mechanics who fit them up, have strong notions about the necessity of having the boiler at the lowest point of the flow, so that the water shall on no occasion have to rise to get into it. I was building a fernery last year, and, being my own architect and clerk of works, I found it convenient, in order that the pipes should pass a doorway without obstructing it, to require the boiler to be a foot above the floor, while the return pipes passed under it, and had to ascend about 2 feet to be connected to the boiler.

The off-let pipe from the boiler had to rise some 5 feet, and then cross above that same door and descend on the other side of it, to the system of pipes that were laid round the house.

My bricklayer, who was a candid, experienced old fellow, told me that it would never work. My gardener thought the same, but was a younger man, and expressed himself less confidently.

I said, "Well, I don't see what law of fluids we are contradicting, and we shall try it." When the ironmonger came to fit up, he backed up the opinion of the others, and, in fact, I know that I was quietly being laughed at by all, and the same opinion took possession indoors in my household. I must be wrong; these people whose business it was to do those things said so, and they must be right. To this I replied, "Well, it may be so, but I will try it; we can sink the boiler when beaten, meantime we will have some instructive experiments that will be worth all the money."

Well the work was carried out. The house was about 30 feet by 14 feet by 12 feet high. For this I had a double coil of 3-inch pipes connected to the boiler at each end by a few feet of 1¼-inch wrought iron tube. We made a trial and it was a lamentable failure—the water would not circulate. An air-pipe had been put in at the highest point, viz., where the delivery pipe crossed over the top of the door; another had been put in at another high point, viz., where the pipes began to dip where they commenced to return to the boiler; even two sniff-cocks had been put in at another place, just by way of extra security that there should be no hitch.

These air-pipes were of ⅝-inch iron tube, and they were carried up 10 feet above the roof of the house. A temporary water supply was rigged up on top of the house, or say 8 feet above the boiler, or say 4 feet above the highest point the warm water from the boiler had to pass over. All those details were done in strict conformity with all our opinions. The only one point on which we differed was the position of the boiler. I stayed at home from business a day to watch the matter and interrogate Nature.

Once we got the water to circulate; it took a long time—several hours—but we got the water warm throughout the whole length of the pipes, and sceptics began to think that we should succeed after all. However I said, "At this rate of heating we should be all adrift in a frost; urge the fire, and let us see what we can do." In a very short time the return-pipe began to get colder. Shortly a volume of steam poured forth from the air-pipes, the water was rising and sinking in the supply cistern. It was clear the fluids had all gone astray; they were not circulating. We had to draw the fire to save the boiler, and begin and think anew.

There was a variety of opinion; one thought the boiler must be lowered, another thought the feed cistern should be put higher to give it more force; and the fitter thought that we should have an enlargement of the return-pipe close to the boiler, to act as a receptacle for air, which he would let off by another air-pipe.

I replied, "Let all be done, save lowering the boiler, for that will cause me to disturb my tesselated paving." We heightened the tank that supplied the water 3 feet. The fitter erected a 6-inch pipe, like an ornamental column, to look nice, and to comply with the physical wants he saw apparent, and in a few days we were ready for another trial. We made it, and we failed again. While we worked the boilers with a slow fire all was well, but when we urged the fire to do what would be necessary in a cold winter night, the circulation ceased—forces arose that balanced each other, and stagnation was the result.

During these trials I had noticed that if we worked slowly all went well; here I found Nature endorsed the principle of construction: why, then, couldn't we work quickly? Why, because sufficient outlet had not been provided for an off-let for that air which is expanded and developed in volume when water gets to a high temperature. Instead, therefore, of a small ⅝-inch pipe at the highest point, I said, "Cut away the pipe, and put an iron water-cistern there to form part of the line of pipe, and let the air or steam that accumulates fly off from its surface." This was done, and from that time all has gone merrily as a "marriage bell." During these *contretemps* I never lost faith, but it often occurred to me how necessary it is not only to have a theoretical but also a practical knowledge of the operation of the laws of Nature, for, as it turned out, it was not only I that was at fault in the latter, but the practical men knew no better, and the nostrums which they proposed were not a cure.

The season for building plant-houses that require fire, or the alteration and improvement of those that exist, is now at hand, and it may be a consolation to some of your gentleman readers to know that it is an accomplished fact that you may raise or lower your pipes in relation to the boiler as suits your taste or convenience, and you need not sink your boiler where it will be drowned in winter, nor need you close off a doorway, or dispense with pipes along a side of your house where you know the heat is necessary; but that you may sink under or go over doorways as suits your need, while you keep three things in view—water supply at sufficient height, heat sufficient to propel the water, and ample space wherein to let off air or steam. And that others may profit by my troubles is the sole reason why I ask you to give place for these remarks in your journal. *George Anderson, Riversdale Lodge, Hanworth, Middlesex, May* 4.

Home Correspondence.

Botanical Collectors.—For a long time I felt so disgusted with Mr. Linden's remarks (see *Gardeners' Chronicle*, No. 61, n. s., p. 279, and his *Illustration Horticole*, January, 1875) that I disdained to make any reply; I am, however, urged by many friends to do so. The best I can do in my defence is to let Mr. Linden speak for himself, and reproduce some extracts from his letters. Those who take a special interest in me or Mr. Linden may consider themselves entitled to ask for judicial proofs, unless they prefer to see them in my hands at the next International Exhibition at Cologne. What was the reason that aroused Mr. Linden's unbounded ire? Nothing but my plain and harmless protest not to bear his cooduct any longer, for he not only concealed my name when speaking of my discoveries, but he even substituted that of other travellers in place of mine. Mr. Linden himself wrote, under date of May 27, 1865: "—revint après un fiasco complet dû exclusivement à son indolence et à son incapacité. Toutes mes espérances se concentrent donc sur vous et avec d'autant plus de raison, que vous m'avez donné les preuves les plus manifestes, que vous

êtes un véritable voyageur botaniste et qui je puis me reposer en toute confiance sur vous." Mr. Linden, when engaging me to travel on the Amazon River, had the advantage of finding me there, without loss of time or money, and surely not so "unknown and forsaken" as he now asserts. I had then travelled about two years on my own account, and under the most flattering auspices of persons some of whom I may be allowed to name here. The late celebrated Brazilian traveller, Von Martius, who had recommended me to the Embassy at Paris; the late Director Schott, from Schönbrunn, with an offer for collecting; the celebrated traveller, Freiherr v. Tschudi; the General-Consul Sturtz, in Berlin; the Brazilian statesman, De Capanema; the Brazilian minister, Cansanzon de Sinimbri, and even His Majesty the Emperor of Brazil himself. Exactly in the same way as Mr. Linden did, I founded a horticultural establishment in Rio de Janeiro, on behalf of which I undertook to explore equatorial Brazil under the special protection of the Brazilian Government. The non-continuance of this arduous task was unavoidable by me, and was caused chiefly by the unexpected bankruptcy of my partner. Under such splendid auspices it was, of course, most probably a mistake on my part to accept the offer of Mr. Linden, quite captivated as I was by the style of his letters, and because I was so desirous of continuing my travels in the immense and interesting Amazon valley. Had his words been equalled by his deeds then I should never have left my patron. Had I not been his collector I should have travelled for some one else. I could also have accepted lucrative appointments, offered afterwards to me—as, for example, from the learned Archbishop Antonio Macedo da Costa, who repeatedly tried to get me to establish a botanical garden in Pará, the capital of Lower Amazon; then a good offer was made me as a botanical *attoché* by a Peruvian captain on an exploring man-of-war; then to go to Lima, to accept the direction of the Botanical Garden there. But once engaged with Mr. Linden I refused all, as I was too conscientious to accept any offer to his prejudice. Now, the good effects of so much self-denial are undoubtedly my work. I beg permission to call attention to several testimonials spread throughout the press for six or more years now. As for example—Mr. Forissenne (whom I have not the honour to know personally) said on one occasion in the *Belgique Horticole* (1869, p. 228):—"Pendant toutes ces excursions il n'a cessé d'expédier un grand nombre de plantes en Europe. Lors de l'Exposition Universelle de Paris, M. Linden remporta, grâce aux belles découvertes de M. Wallis, le grand prix pour les plantes les plus nouvelles et les plus remarquables. Depuis lors, on a encore en l'occasion au Congrès de St. Petersbourg, d'admirer ses heureuses importations." I need not add here that the same triumph occurred at the grand International Exhibitions held in Hamburgh, Vienna, and Florence, as well as formerly in Amsterdam and London. Professor Morren expresses himself, among other terms (see his *Plantes des Serres*, Rapport du Jury Internal., 1867, p. 67):—"A côté de ce mémorable voyage les autres explorations sont un peu effacées, bien que leurs services ne puissent être amoindris." Many letters of Mr. Linden are full of the highest acknowledgments of my *feu sacré*. Even Mr. Linden, in the remembrance of the former state of his establishment, declares in a letter dated September 28, 1867:—"Vos importantes découvertes ont consolidé la réputation de mon établissement comme elles ont fait votre réputation." Thus the reader will admit that what Mr. Linden means by "ingratitude et mauvais procédés," &c., is incomprehensible. As to Mr. Linden's assertion of guiding me step by step through the immense Amazon territory, which he never saw with his own eyes, this has been the cause of the most continual disagreement, since he expects one to do in four weeks what cannot be carried out in four months. Nothing equals my disdain of Mr. Linden's pretensions of having directed and assisted me by his experience, whilst it is he who has learned and profited by me. His letters during the time of my travels are surely more admissible than his assertions of to-day. Since he seems to have forgotten all, he will allow me to call them back to his memory. September 23, 1861:—"I leave your itinerary to your entire liberty, but I should like you to spend some months on the Rio Negro river." Besides, it is true he indicated to me several *desiderata*, found formerly by Warscewicz and others, and to be re-collected by me, after having travelled already four years for him. But my best plants, Mr. Linden will admit, were found when following my own itinerary, even respecting to New Granada, visited by Mr. Linden. Another letter, dated October 12, 1865, says:—"Je vous laisse complétement libre de retourner par l'Amazone ou par Panamá." The same as in regard to the itinerary, I went my own way also in regard to packing, and, as may be stated:—June 14, 1865: "Grâce à votre emballage intelligent tout s'est bien conservé et m'a occasionné la plus grande joie." Mr. Linden will not have forgotten that here are meant plants that were seven months on their way to Europe, in consequence of a shipwreck. October 6, 1865:—"Your method of packing is an excellent one; what a pity it is that you did not go instead of ——!" May 3, 1868:—"Le plus ingénieux de tout ce que vous avez fait, ce sont les caisses 51—53. De l'Odontogl. Phalænopsis il n'y a pas une seule plante morte." . . . "Si ces plantes arrivent bien, je vous proclamerai roi des voyageurs." May 1, 1868:—"Honneur donc à votre grande activité, et à l'énergie que vous avez déployée malgré les contrariétés de toute nature." In regard to Mr. Linden's most singular assertions, that my many distinctions of gold and other medals (perhaps the nominations of several societies as extraordinary member, too?) are for his and not my merits. I must frankly tell him that seventeen years before I knew him, in the year 1852, I obtained three silver medals at an exhibition at Munich for several horticultural objects, though foreigners, properly speaking, were not admitted to competition. In comparison with my successful voyages, I admit only that difference with Mr. Linden's "scientific expeditions," on which he was chiefly helped by his step-brother Schlim and by Funck, that I had to stand on my own feet and to do my chief work myself, and that I had a lucky eye for making the most interesting discoveries. I even fully admit that those plants discovered by him in New Granada may be found again blindfolded, as he said. However, I am proud to state that such an easy method of refinding would not be the case with my discoveries. Having done with his pretended classical ground, where I rejoiced to find out also Odontoglossum nevadense, O. Wallisii, the splendid Tillandsia musaica, and resuming my own ways, as so many times before, I had the pleasure to discover a long series of the finest plants, as for example, Masdevallia Lindeni, M. ephippium (Trochilus), Odontoglossum vexillarium, Cattleya gigas, Aphelandra fascinator, Curmeria picturata, Anthurium crystallinum, Maranta hieroglyphica, and many others. Mr. Linden cannot deny that he knows New Granada much better since I made my travels therein, and since I followed my own itinerary; and how much he liked this country thereafter will be proved by the fact that he sent another traveller there three times, notwithstanding his having said (Dec. 11, 1867): "Keep in mind this is the last exploration in New Granada; I shall not send any other traveller there." It has always been regarded a point of honour for each nurseryman to give due honour to the collector of any plant, and I may quote Messrs. Veitch, who have always done full justice, among others to Messrs. Pearce and William Lobb, even a long time after they had left them. Localities, indeed, have usually not been given too clearly; neither would I have indicated any, if Mr. Linden had not offended my sense of justice by omitting my name when it was his duty to have given me the credit, or even by putting the names of others in my place. The trip Mr. Roezl made for him was intended to profit by my discoveries, which I could not take advantage of, since when at Medellin and Trontino I was totally broken by fever. Mr. Linden's assertions that a traveller is no more than one of his garden people, is one of his choicest revelations! If Mr. Linden had not had me, where would his name be now? He would even now boast his Begonia Rex. And if Mr. De Craan, then his excellent gardener, had not understood how to treat my plants so well, they would neither have appeared in the trade "to make a noise," nor have won honours upon honours. Now, as to the assertion of my having left him clandestinely, and of collecting the same plants for the profit of others, all this shall now be explained. I was neither satisfied with Mr. Linden's payment for my many years' services and sacrifices, nor had I found experience in the slightest degree of what he had so often called his generosity. Nevertheless, I decided to go once more for him, as I felt too much influenced by the desire to see my discoveries all together united in the same hands and place. Mr. Linden supposes here the effect of a "remorseful conscience." When going over to Messrs. Veitch I told them conditionally: "Send me wherever you like, except where I travelled for Mr. Linden, unless you should wish me to do so after three or four years." I left Mr. Linden a first and a second time for valid reasons, but surely in neither case "clandestinely," as may be proved. First desertion, Nov. 10, 1869.—"Dans une de mes précédentes lettres je vous avais demandé de me donner dans tous les cas la préférence à conditions égales." (Mr. Linden referred to a letter written about two months before my starting, December 10, 1869.) Second desertion.—When Mr. Linden saw all his endeavours to make me go a third time for him were in vain (he now calls it a *faiblesse* to have me engaged a second time) he wrote, Dec. 6, 1872:—"Bref à quoi bon de prêcher dans le désert!" Thus, and not otherwise, is the story of my "clandestinely leaving him." After my second leaving him I did really recollect some plants formerly discovered for others, but then matters and circumstances had entirely changed, principally by my own conscience-stipulated period of four years having passed, and then I felt too much disinclined for any further regard. I have tried to be as short as possible, but if Mr. Linden should not be convinced I shall have great pleasure in producing further proofs. *G. Wallis.* [Those further proofs must be sent to M. Linden. We cannot occupy more space with what seems merely a matter of business arrangement with M. Linden and M. Wallis. Eds.]

Fruit Crops in North Staffordshire.—With regard to our fruit crops, there is a fine show of everything, and the trees appear to be unusually healthy. From what I hear the Damson crop is likely to be good. Apples with us are now in full bloom. Pears a fine set. Apricots with us (all under glass) as thick as hail; all small fruits the same. Cherries in full bloom—standards quite a sight. Morellos on the Mahaleb stock (Rivers) very fine—the best way of growing Morellos; no Scone Palace training required, easily netted, and always ripen a crop even in North Staffordshire—not altogether a favourable climate for outdoor fruits. *W. Hill.*

Defective Sense of Smell.—Some time ago I read a very interesting paper or papers on "Colour Blindness," showing how many there were per cent. unable to identify or distinguish between certain colours, the number of those so incapable being perfectly astounding. With your kind permission I would now direct attention to a deficiency I myself labour under in a kindred sense—namely, in an inability to appreciate certain odours. Seeing in the *Botanical Magazine* (tab. 6046) a figure and description by Dr. Hooker of the beautiful new Boronia megastigma, which he described as having a fragrance resembling nothing known to him, as being "most delicious, and, though not overpowering, as soon filling a large room," and having at that time myself young plants coming away from seeds I had from King George's Sound of this odorous novelty, you may judge of my surprise when these came lately into flower with me, and flowered profusely, I failed to detect the faintest trace of any odour whatsoever; but to every one else to whom I submitted them Dr. Hooker's description was fully realised, and, though all were charmed with it, no two gave the same account of its perfume, some thinking it resembled the scent of Lemons, some the scent of Peaches, and some the scent of Sweet Violets. Judging from my own defect, I would regard those who likened it to the odour of Sweet Violets as nearest to the truth, for I am fully impressed with the scent of Lemons and Peaches, but of Sweet Violets, as of this new Boronia I utterly fail to detect odour of any kind, good, bad, or indifferent. I am still more unfortunate with that universal favourite, Mignonette, for instead of the sweet perfume everybody lauds it for, it exhales to me a smell truly heavy and disagreeable; from which I infer that it may possess a double or combined odour, the heavy smelling portion of which is alone perceptible by me. [The odour of Mignonette is unpleasant to many.] Though there are other flowers which withhold from me their sweets, it may suffice, for the present, to instance the above as types of those in various tribes which I might put down in the same category. Now, on the other hand, I am very far from being insensible to the perfume of flowers generally. I may only instance a few: Roses of all kinds and characters, where perfume is at all present, are to me delicious, excepting an Ayrshire climber named "Splendens," to me most foetid. And no less delicious to me are the common Hawthorn, many Acacias, many Rhododendrons; all the Cheiranthus, Dianthus and Thymus tribes; in short, everything having the Heliotrope, Mentha or aromatic odours. My case may be singular, for I don't remember having found any, save one gentleman, devoid as I am of any pleasurable odour from the things I have named above, viz., Mignonette, Boronia megastigma, and Sweet Violets. Yet, though the Pansy tribe be so near to the last, I feel its pleasant fragrance however faint. I hope that the publication of this letter may bring forward others similarly affected, or unaffected, and stating how and by what plants they are so affected. *H.*

Paper Protectors.—I can assure Mr. Bréhaut that I had no intention of being uncourteous to him in my remark upon paper protectors for Plum trees; I merely intended to convey that if his scheme were successful it could not be carried into practice on acres of trees. *C. Lee, Hounslow, May 12.*

Primula cortusoides amœna.—In Mr. Smith's nursery, Wilton Road, Salisbury, I have to-day (May 8) seen a grand bed of this charming spring-flowering plant, which is of a bright magenta colour. The bed in question is 4 feet wide and 15 feet long, and on an average each square foot contains from twenty-five to thirty trusses, each truss having from nine to ten blooms, which on an average measure 1¾ inch each in diameter. The effect which this bed produces is "simply magnificent," and, as I have seen it, it "only needs to be seen to be admired." It is of very easy culture, and is perfectly hardy. The plants were bedded-out two years ago, and the only protection which they received was a surface-dressing of leaf-mould. I consider no spring garden is com-

plete without this variety. I have also noticed in the same nursery a very fine seedling tree Carnation; both in habit and colour it resembles that of the Souvenir de la Malmaison, but the blooms are much larger and sweeter than that variety; one which I measured was 4 inches in diameter, and it is to be hoped that ere long Mr. Smith will introduce it to the public. There is, too, in front of Mr. Smith's house, in a ribbon-bed, a very nice arrangement of spring-flowering plants in double rows of the following sorts, viz., Silene pendula compacta, Arabis saxatile compacta, Myosotis dissitiflora, and dwarf double Wall-flowers—the whole making a very pleasing display. *H. W. W., Salisbury.*

Railway Rates for Nursery Stock.—In reference to the following extract from a circular of ours, sent out in February last, we have the pleasure to inform you, and, through you, all interested, that the several railway companies have agreed on and after June 1 next to reduce their rates to what they were last year, which will be a benefit:—

"Dear Sir,—You must be aware of the very largely increased rates for transit of our nursery goods that has taken place since January 1 last on the railway systems. Here we have personally waited upon the goods manager, who promises to represent the same at head-quarters, so that the old rates—which were high enough—may be adopted. We think if all interested will take the trouble of promptly urging their several goods managers on the subject, the result may be worth while to the nursery trade. Last autumn's rate to London from this was, for trees, at old rates, 51*s.* 8*d.*, now it is 70*s.*, other places in proportion. Of late we have sent several lots of goods to England, the carriage of which comes to more than our invoice cost."

John Stewart & Sons, Dundee, May 7.

The Dry Earth System.—Independently of the approval of the dry earth system expressed in the letter and extract which I enclose, there is something peculiarly interesting to me, and doubtless it will be so to your readers, in the fact of a Bengali studying British farming in East Lothian. In a more recent letter he informs me that he has been there six months; that he intended to remain another six months; then, before his return to Bengal, spend three months more in seeing things interesting to an agriculturist. Before that return I hope he will visit me, and that I shall be able to give him much information that may be of service to the people of India, and which, made known by a native of such manifest intelligence as his two letters in the *Times* prove him to be, will spread far more rapidly than if set forth by Europeans.

"Traprain, East Lothian, March 26.

"Sir,—I enclose twenty-four stamps for your *National Health and Wealth*, Part I., and thank you very much for your excellent letter. You will observe that I am a Bengalese, staying just now in East Lothian, to acquaint myself with British farming. Whether the dry earth closet system is applicable in this country or not you are the better judge; but so far as I can understand I think it would be a great blessing to India if this system were adopted, and (in towns) enforced by the municipal authorities. The water-closet system has been introduced in some large towns in India, but it has been at such an enormous cost that I think it has not any chance of success. In a letter which was published in the *Times* of January 13 you will find me highly approving of your system. I am glad to find that the Duke of Argyle, who was lately Secretary of State for India, is among your subscribers. Would you think it advisable to send a few copies of your book to the high officials in India? I may here mention a few Indian papers that you may send your book to. They are all published in Calcutta:—1, the *Englishman*; 2, the *Hindoo Patriot*; 3, the *Indian Mirror*; 4, the *Friend of India*; and 5, the *Indian Daily News*. When I go back to India I shall try my best to spread among my fellow countrymen the knowledge of your very simple contrivance for utilising house and town refuse.—I am, sir, yours truly, SRINATH DATA."

I append an extract from the letter referred to in the preceding letter:—

". . . Besides these there is another source to which I am particularly anxious to draw your attention. It is nightsoil. In very few places in India has the system of draining nightsoil by water been yet adopted. Before this expensive system is further extended in a poor country like India I should think it would be wise to give a fair trial to the system of earth closets, or ash closets, as advocated in his *National Health and Wealth*,* by the Rev. Henry Moule, Fordington Vicarage, who tried them and found them successful. This system has the recommendation not only of its requiring no expense and making the work of the *methars* (night-soil carriers) less disagreeable, but also of doing what liquid-drainage has not done, and perhaps cannot do, namely, preventing the production of highly infectious gases, and at the same time supplying the nation with a source of easily portable manure, which will increase with the increase of population."

Henry Moule, Fordington Vicarage.

The Double Cineraria.—Having read nearly all the reports respecting the double Cineraria, and find-it a general failure, allow me to state that I bought a 3*s.* 6*d.* packet of seed in the spring of 1874, which produced some sixteen plants, but only one which produced double flowers. That one, however, I must say, was greatly admired by all who saw it. For four weeks the plant occupied a prominent place in my employer's drawing-room; at length it was sent out, and after a little rest it commenced flowering again, from which I enclose a specimen that has been fully expanded as it is at present for the last three weeks. I may here state that all the other plants from the same packet were much inferior to Weatherill's ordinary strain, which proved a great success with us this season. *R. Russell, Gr. to Joseph J. Murphy, Esq., Old Forge, Belfast.*

A Chinese Wheelbarrow.—I have read with interest the account in your issue of the 24th ult. of a new spring barrow, which is doubtless an improvement on the common barrow, but which is still open to the great objection that a large portion of the weight is thrown on the workman. I enclose a photograph of a Chinese wheelbarrow, showing how these practical people place the entire weight on a large central wheel (fig. 131). In Shanghai thousands of these vehicles ply for hire in the streets, much as cabs do in this country, the usual load being two persons, who sit on the wooden platform on either side of the wheel, resting one arm on the framework above the top of the wheel and placing one foot in a stirrup made of rope. It is by no means uncommon, however, to see as many as four persons conveyed without any particular effort (the ground being level) by a stalwart coolie. The fare is from 2*d.* to 4*d.* per mile, according to the load. Garden and farm produce is transported in the same way, and even live stock: the Chinese farmer being much too sensible to attempt to drive his pigs to market, the barrow is often seen laden with a live

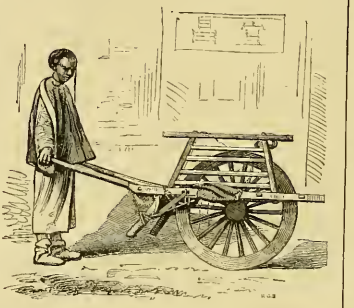

FIG. 131.—SHANGHAI WHEELBARROW.

fat hog on either side of the wheel. I cannot conceive why the Chinese barrow has not long since been adopted in England; with the barrows now used we task the strength of those who use them more in proportion than we do our horses, for who would tolerate a cart that threw half the burden on to the back of the horse? *Thomas Hanbury, Ashburton House, Croydon, May 6.*

Prince of Wales Plum.—The state of the accompanying young shoots, taken from Prince of Wales Plums in the neighbourhood of Isleworth, may possibly be of interest just at the present with regard to the effects of weather on this variety. The trees are of considerable age—one trained on a wall with a north exposure, the other in the open bed, trained as an espalier, rather more than the width of a common garden walk, to the north of the same wall. The tree trained on the wall has healthy foliage (of which I send a specimen) till just the top of the wall, but there, where the leaves are more exposed, they are yellowish, wrinkled in large patches, and with a generally unhealthy appearance. In the espalier, which is necessarily much more exposed, this difference in the state of the foliage is still more striking, a large proportion of the upper parts of the tree having the unhealthy development, and the lower and consequently more protected shoots being for the most part healthy. Whatever other causes there may be for the disease to which this fine variety of Plum is liable (which must be far better judged of by those whose experience is based on the superintendence of much greater numbers than can be observed in a private garden), still the present state of my own trees seems to point so surely to spring frosts as one cause of evil to the trees, that I venture to note the circumstance as of interest in the present circumstances. *O.*

Fruit Prospects in Derbyshire.—Summer-like weather has come at last, and fruit trees of all kinds are fast pushing into bloom. Standard Pears and on walls are now a blaze of beauty, and many already have set; and we look forward, should the weather prove favourable, for an abundant crop. Cherries are one mass of flowers; Plums are also quite as promising. Apples: many of the later varieties are now in bloom, while the early kinds will not be in flower for a few days hence. Apricots a moderate crop; as a rule, they do not thrive very well in this cold climate. Peaches and Nectarines have set an enormous crop, and are free from blight. Small fruits of all kinds promise well for a good supply. Strawberries will soon be in bloom, and are strong and healthy. The Damson orchards in this district are now one mass of bloom. I do not remember ever to have seen the gardens and orchards in this district look and promise better for an abundant supply of fruit in the coming summer. *E. Gilman, Wootton Gardens, May 5.*

Strawberry Culture in Pots: Sods v. Saucers.—Having read Mr. H. W. Ward's interesting remarks on the above subject, I beg to say I cannot agree with him when he says—"From the time the berries are set we use saucers, which every Strawberry forcer knows the value of, as they retain part of the water that passes through the pots, which the plants ultimately absorb." This is contrary to all my practice and experience in Strawberry forcing, and I think the opinion of Strawberry forcers generally is well worth asking on this important question of saucers or sods. I have always found when the pots are kept in saucers until the fruit is ripe, that, compared with those grown on sods, the former are soft, watery, and insipid, while the latter are firm, and with colour and flavour usually as good as if they were grown out-of-doors—a thing of great importance to those who have to send them long journeys by rail. The plan we adopt here—and we force 5000 annually—is: On our shelves, made of wire, we place thin sods, grassy side downwards, then put the plants on, and in a few days they are rooted through the bottom of the pots into the soil. When watering we sprinkle some over the sod to keep it damp, and, as the grass grows through the shelf downwards, it has both an ornamental and beneficial effect. *J. McIndoe, Hutton Hall, Guisborough, Yorks.*

International Potato Exhibition.—Permit me to assure "C. B." that to stimulate a rivalry between the Potato raisers on both sides of the Atlantic has not been a "chief reason" for getting up the International Potato Exhibition. The real merit of the conception is due to the great show of Potatos held at Manchester in September, 1873; and the impression then made on myself, Mr. McKinlay, and other growers, was that a great Potato exhibition was both possible and desirable in the metropolis. Added to this, we believed that the Potato had now become both commercially and socially an article of such national importance that it was at least as deserving of a special exhibition as cats, dogs, Pelargoniums, and even fungi. That the production of improved kinds is very desirable, is without doubt universally accepted; but the committee did not feel justified in making special classes for seedlings, because their appearance on the show table offers no verification as to table quality or productiveness. Moreover, the work of testing new kinds is so admirably performed at Chiswick, that it would be folly to attempt to supersede it. As to medals, I am heartily sick of them; their constant intrusion upon our notice is in execrable taste, and if I became possessed of the finest medal ever offered I would not retain it a moment longer than necessary to convert it into hard cash. With reference to the new class inserted in the schedule by the liberality of Messrs. Bliss & Co., of New York, for three varieties of American Potatos sent out in England in 1874-75, would it not be well, as the sorts included are so few, if the committee would state exactly which they are, so that no mistake might be made? I take them to be Snowflake, Alpha, Eureka, Thorburn's Paragon and Carter's American Breadfruit—that is all the new American kinds that I know of. Perhaps Mr. Hooper will kindly make an authoritative statement in the matter. With regard to Mr. J. Coutts' valuable prizes for English seedling Potatos, I should assume that "English" means raised in the United Kingdom. I would also recommend that with each variety the names of the immediate parents and the year when raised should be given. *Alex. Dean.*

Notes on a South Shropshire Garden.—Since my notes made on January 20 we have had a long period of cold weather. The month of February was a very trying time both for gardeners and for those troubled with sensitive lungs, and frequent sharp frosts prevailed all through March; but fortunately they were dry, and did not injure the blossom of the Apricots, which began to open on the 16th. There was very little genial weather till quite the end of April, but now

"Solvitur acris hiems, gratâ vice veris et Favoni;"

and all rejoice in the grateful change that blesses the

* Published fourteen years ago.

country. Swallows made their appearance on the 8th of last month, but they must have had a bad time of it for the first three weeks. The cuckoos were heard on the 20th. The thrushes now pour out their varied song in every tree, blackbirds (sad thieves) charm us with their rich contralto notes, and garden warblers on every side pour out their mellifluously happy voices—all Nature seems radiant with happiness and promise. The woods around are hurrying on their summer garb, still fresh and bright with the tenderest greens of early spring; the Hawthorns, Larches, Elms, and Oaks suffused with their respective tints, and the Spruce pouring forth a cascade of green at every branch. The Horse Chestnuts are now glorious with their flowers, and in the gardens and orchards Lilacs, double Gorse, Rhododendrons, Pears, Apples, and Cherries, charm the senses at every turn. The promise of wall fruit, now well set, is wonderfully great, and the blossom of the Pears, Cherries, and Apples, equally so. Every spring in turn seems more beautiful than the last, and the older we grow the more we enjoy the loveliness with which the earth is closed by Him who governs all for good. In our garden we are busy making preparations for the summer campaign. Our Mrs. Pollocks have disappointed us this time, and we hear the same complaint in other quarters. We have had to buy at a high price, in order to make up our required show; our Crown Imperials have been, as our double yellow Tulips are, gorgeous; Wallflowers, Narcissus, Globe Ranunculus, Auriculas, Polyanthus, Gentians, white and yellow Alyssum, and Iberis saxatilis, have kept us gay during the past and present month. Pæonies, Azaleas, and Rhododendrons, will carry us on to June, when the summer beds will be coming on with their blaze of colours. In the conservatory our Cinerarias are over, and the Azaleas which followed are waning away. Roses now reign sweetest and loveliest; our old friend, Général Jacqueminot, one of the freest as well as one of the handsomest, still holds sway. Safrano, before her buds have expanded, delights us with her constancy; we have a plant from which we have been able to gather at least one Rose during every week throughout the year. Then we have our Passion-flowers—Van Volxemi, very beautiful, with its crimson star-like flowers dangling from their long thread-like peduncles. The Manicata, a flower from which our friend Dr. Hooker figured last year in the *Botanical Magazine*, we cut back, but it has made vigorous growth, and will no doubt be as brilliant as before. Pelargoniums are at hand; then will come Fuchsias till the autumn. Rhododendron Dalhousii and Gibsoni ought to be in every well-regulated house; the one with its sulphur, and the other with its pure white flowers, are very pleasing. We are busy building a new stove, which is to help us over many difficulties, but as we are to make one boiler do the work of all the houses, the alterations necessary have interrupted the work of forcing the Vines, consequently these are not yet even in flower, but they promise well, and in another week or ten days we shall begin, and in time, we hope, for the Muscats; if so, we shall have no reason to regret the delay. No salmon have yet made themselves apparent in the pool, but we do not expect them before June; the river has been lower than last year, owing to the long-continued absence of rain. In the kitchen garden our Peas are nearly in flower; the Potatos planted before Christmas are breaking through the earth satisfactorily; the ground for Celery is made ready; Strawberries are in full bloom and profiting by the welcome showers, and notwithstanding the cold season we are quite as forward as we could wish. *S., May* 10.

On the Transmutation of Grain.—It is curious to observe how theories in plant growth are revived from time to time, and statements made with regard to them as though they were proved and admitted truths. Some few years since a statement went the round of the scientific papers to the effect that the transmutation of Oats into Barley had been effected, the process consisting in sowing Oats in June or July, cutting them down from time to time, so that they should not flower in that season, when, lo! at harvest of the following year all the Oat plants that had survived the rigors of winter and other accidents, instead of producing a panicle of Oat seeds, were said to have been transmuted into even and regular spikes of two-rowed Barley. There was no mistake about it. No intermediate states could be shown, nor were they even mentioned, as the matter was made out to be so complete; and the experiments were so often repeated with the same results that we are assured that no experimental results with regard to grain have more thoroughly taken hold of the bucolic mind, or are more implicitly believed. Well, the subject is again revived from week to week; we have had to chronicle notes upon this very subject, and, strange to say, only a fortnight since we were interrogated at market by an intelligent friend in the following strain:—"Mr. ——, did you ever sow Oats in June, cut them down from time to time, and next year they came up perfect Wheat?" Ourself: "No, nor you." Reply: "Yes, but I have, and done it more than once too; and if you will do it I will answer for its success." Observe that in this case the transmutation is into Wheat, but the general notion is that the change is into Barley. Now it so happens that we have experimented upon this very subject, but in no case have we seen even an approach to the changes so confidently predicted. We have also repeated M. Fabre's experiments with the genus Ægilops, and feel convinced from absolute results that this genus is the parent of the different forms of Wheat; and, again, our experiments with the wild Oat show us most conclusively that if the Avena fatua is not the parent of our common cultivated forms it is in itself a degenerate form from the cultivated type. We are then prepared for extraordinary results in experimenting upon grasses as these founded on experiment, but we cannot subscribe to the belief so confidently affirmed of the transmutation of Oats into Barley, or Wheat either, as the results of experimental trial or as a matter of scientific probability. It is, however, interesting to observe how the farmer is impressed with the truth of these assertions; and perhaps this is due to the fact that, although he of all men claims to be the most practical, he is yet most unpractical, from his usual want of scientific knowledge. How often have we heard it asserted that "it is dangerous to sow Italian Rye-grass, as it is sure to turn into Couch"—and this by men who have tried it and proved it over and over, as they most confidently affirm. Now we do not express our opinions upon this subject with a view to discourage experiments in the matter—as, on the contrary, we would rather encourage them—but still we cannot help thinking that if the change from Oats to either Wheat or Barley can take place, there should be some intermediate stages, which it will become the experimenter to accurately note. *B.*

Reports of Societies.

Royal Horticultural: *May* 12.—W. Burnley Hume, Esq., in the chair. The usual preliminary business of the meeting, including the election of several Fellows, was transacted, and Professor Dyer called attention to several objects exhibited before the various committees, which are more fully alluded to below.

Scientific Committee.—A. Murray, Esq., in the chair.

Insect Attacking Seeds of Cycad.—The Chairman said that the insect attacking the seeds, as referred to at the last meeting, was Antharhinus signatus, concerning which the Chairman handed in a note, which will appear, with illustrative woodcuts, in a subsequent number.

Transmission of Seeds.—A discussion ensued as to the best method of transmitting seeds to India, in the course of which it was stated that Araucaria seeds shut up in a tin can in which paraffin oil had formerly been contained, failed to germinate. The general opinion was that close soldering was bad, but on the other hand it was mentioned that Mr. Bull had succeeded in procuring the germination of seeds of Shorea which were coated with wax.

Galls on the Yew.—The Chairman made a communication on this subject, the publication of which is unavoidably deferred.

Malformed Wallflowers.—Mr. McLachlan exhibited a malformed Wallflower, on which Dr. Masters promised to report at the next meeting.

Plymouth Strawberry.—Dr. Masters mentioned that he had recently seen this plant, styled by Dr. Hogg a vegetable Dodo, in the garden of Mr. Ellacombe, near Bitton. The interest attaching to the plant was purely historical and morphological.

Phylloxera.—Dr. Masters showed specimens of the galls on the leaf produced by this insect.

Galls on Leaf of Achillea Millefolium.—Prof. Dyer called attention to a paper of Dr. Franz Löw's on this subject, translated in the *Annals of Natural History* for the present month. The nematoid worm producing it is analogous to that producing the excrescences on Cucumber roots, and is called Tylenchus Millefolii.

Effect of Cotton Wool as a Filter.—Prof. Dyer showed three flasks which contained Pasteur's solution, all three of which had been subjected to boiling and shaking. The neck of No. 1 flask, treated on March 3, 1875, was plugged, while the contents were still boiling, with cotton wool, and the fluid remains clear and unaffected. In flask No. 2, otherwise similarly treated, but without any plug, so that access of air was allowed, and of spores in the air, there was a dense growth of mould (Penicellium). In No. 3, boiled on Sept. 30, 1873, but in which the plug was removed for five seconds only on Oct. 15, 1874, a dense mould had also occurred, and putrefaction had taken place.

The meeting then adjourned.

The Pot Rose Show!—Again we adopt the Society's nomenclature for the exhibition (save the name!) of Wednesday last; and again we have to note a deplorable failure—a more complete one indeed than any we have seen before, and one so depressing in its effects upon those who came to witness the spectacle as to create a decided impression among regular *habitués* that the end cannot be far off, and the sooner it comes the better, rather than that horticulture should be made to cut such a pitiable figure as the blundering policy of the Council has brought about. The schedule included three classes for Roses in pots, and two for cut blooms; but the total number of plants staged was six, and the total number of cut blooms twelve—and such blooms, such specimens of Roses in pots, that they could not possibly get a prize anywhere else, though the 1st in each case was awarded to them on Wednesday—a proceeding which we protest against on the ground that if such plants and cut blooms are to be shown to the public as worthy of first prizes, the said public will soon not know what really are good plants, and when we go to shows at South Kensington we shall have to forget what we see elsewhere, and carry our ideas of plant growing twenty or thirty years back. So much for the Rose Show. The greenhouse Azaleas, of which several groups were shown, were not quite so bad as the Roses, but altogether so poor as to call for no further notice from us. Of herbaceous Calceolarias there were three exhibitors, but Messrs. Dobson & Sons had no difficulty in coming in 1st with nine fair-sized specimens, in which the special qualities of size of blooms, brightness of colour, and perfect form, were remarkably conspicuous beside the prevailing dusky brown flowers from their rivals. It was too late for show and alpine Auriculas, and consequently none of the former were represented, and only two groups of six of the latter—1st and 2d prizes being awarded to very poor things.

The class for eighteen hardy perennials in flower was an exceedingly good one—in fact, the only redeeming feature of the show. There were three competitors, and most people were surprised to see Messrs. Rollisson & Sons, of Tooting, come forward and beat their neighbour, Mr. Parker, for the 1st place—the latter gentleman, so far as we can remember, never having been beaten before since the revival for these charming plants set in. Frequenters of metropolitan exhibitions must be well acquainted with the admirable manner in which Mr. Parker turns out his plants, so that when we say Messrs. Rollisson had the best plants all round, the style of their productions can be easily imagined. Their group included a pot with twelve flowers of Iberis iberica, a telling plant in such a collection; the pretty blue-flowered and mottled-leaved Pulmonaria sibirica, Gentiana acaulis, very fine; and the exceedingly pretty Gentiana verna; Primula cortusoides amœna, in grand profusion and superbly coloured; P. cortusoides lilacina, also fine; Trillium grandiflorum, better flowered and finer in condition than is generally seen; Iberis Garraxiana, fine white; Phlox setacea and Nelsoni, Dielytra spectabilis, &c. In addition to the 1st prize, we believe Messrs. Rollisson & Sons were awarded a Silver Medal for the excellence of their plants. Mr. Parker's best plants were of Phlox divaricata, very distinct; Iris nudicaulis, Scilla nutans and its variety rosea, Orobus vernus, &c. Mr. R. Dean, Ealing, was 3d, his best specimens being of Lithospermum prostratum, Pansy Sulphur Queen, a fine yellow; Aubrietia Eyrei, warm rosy purple, a fine form in the way of A. Campbelli; and a large potful of plants with a dozen flowers of the scarce Irish Butterwort—Pinguicula grandiflora. This was, we think, the most interesting plant shown, being remarkably "well done," as Mr. Dean observed, "by simply letting it alone," and on account of the interest which Dr. Hooker and Mr. Darwin have created concerning its carnivorous propensities.

Floral Committee.—Dr. Denny in the chair. But very few things came under the notice of the committee to-day. From Mr. Charles Green, Botanical Nursery, Holmesdale Road, Reigate, came a plant with two flowers of the singular Senecio macroglossus, an evergreen greenhouse climber from South Africa, which, while having composite yellow ray-flowers, is in foliage and habit in all respects almost identical with some of the commoner forms of Ivy. It is figured in the *Botanical Magazine*, t. 6149, and has been growing up one of the rafters in the succulent-house at Kew for several years past, flowering in mid-winter. It is well recommended for "domestic" culture, and for covering trellises. A Botanical Certificate was awarded. M. Louis Van Houtte sent a specimen of the splendid new Bertolonia Van Houttei, which we have before alluded to, and which to-day gained a First-class Certificate. A similar award was also voted to Mr. William Paul, Waltham Cross, for his very fine new hybrid perpetual Rose, Star of Waltham, which has been shown before.

Masdevallia amabilis—no great beauty—was shown by Mr. Gray, gr. to H. Smithies, Esq., Laurie Park, Sydenham; and a box of fine cut blooms of Clapham's strain of Mimulus came from Mr. R. Dean, Ealing. Pelargonium Duchess of Edinburgh, a white-flowered show variety, of great decorative value, which was

certificated here last year, was again staged in fine condition by Mr. Braid, of Winchmore Hill, and was awarded a Cultural Commendation. Mr. J. Laing, Stansted Park, Forest Hill, showed Caladium Madame de la Deransage, a broad-leaved form, of a creamy white colour, with dark green venation and a narrow green margin. Pinguicula grandiflora, in flower, was shown by Messrs. Veitch & Sons, together with Iris florentina, a well-known strong-growing large white-flowered species, whose roots yield the Orris-root of the perfumers. Mr. B. S. Williams gained a Second-class Certificate for Azalea Flambeau, intense crimson-scarlet in colour, a very free flowerer, and remarkably firm in substance, likely to be very useful for decorative work. Mr. W. Miles, West Brighton Nursery, Brighton, showed a nice group of well-flowered plants of a dwarf strain of Mignonette, to which the committee voted a Cultural Commendation. A Pelargonium marked "cucullatum flore-pleno," shown by Mr. J. Woodward, and in the style of the old semi-double Copenhagen, but with deeper-coloured flowers of a bright rosy purple, was well worth growing to cut from.

Fruit Committee.—Henry Webb, Esq., in the chair. Mr. J. Batters, gr. to Mrs. Willis Fleming, Chilworth Manor, Romsey, sent six varieties of forced vegetables; and Mr. Sydney Ford, gr. to W. L. Hubbard, Esq., Leonardslee, Horsham, contributed eight dishes of well-kept Apples—both gentlemen receiving the thanks of the committee for their productions. A fine bundle of Connover's Colossal Asparagus came from Francis N. Dancer, Esq., Little Sutton, Turnham Green; and another good bundle of the ordinary variety was sent by Mr. Allen, gr. to Lord Suffield, Gunton Park, Norwich. A ripe fruit of Stephanotis floribunda came from Mr. Welsh, gr. to R. T. Coombe, Esq., Taunton; and very large examples of the Morel, Morchella esculenta, were sent by Mr. J. Barclay, The Durdans, Epsom. This delicious fungus seems to be very plentiful this season.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
For the Week ending Wednesday, May 12, 1875.

Month and Day.	Barometer. Mean reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 Years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 60 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Degree of Humidity. Sat. = 100.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Dew Point.	Wind. Average Direction.	Rainfall.
	In.	In.	°	°	°	°	°		°		In.
May	29.61	−0.15	56.9	52.1	14.8	57.2	+ 6.0	52.4	84	SSW; WSW	0.00
7	29.42	−0.33	55.1	46.5	8.6	49.1	− 2.2	47.6	95	SSW; S.W.	0.47
8	29.68	−0.07	52.2	51.8	10.4	55.0	+ 3.6	54.0	96	WSW; S	0.03
9	29.75	+0.01	64.2	49.5	14.7	55.3	+ 3.8	51.2	87	SSW; S.W.	0.01
10	29.98	+0.23	65.5	48.5	17.0	55.7	+ 4.2	47.3	73	W; N.W.	0.00
11	30.22	+0.48	69.1	45.1	24.0	55.3	+ 3.7	48.3	79	N.W.; WSW	0.00
12	30.15	+0.41	73.8	48.0	25.8	59.4	+ 7.7	47.0	63	S.W.; WSW	0.00
Mean	29.83	+0.08	65.3	48.8	16.5	55.3	+ 3.8	49.7	82	S.W.; WSW	sum 0.51

May 6.—Fine, bright, cloudy throughout. A very little rain fell in early morning.
— 7.—Overcast, dull; and heavy rain fell all day.
— 8.—Overcast, dull; thin rain occasionally throughout the day.
— 9.—Fine, partially cloudy, but bright. A little rain fell in early morning.
— 10.—A fine day, though cloudy and dull at times.
— 11.—A fine bright day.
— 12.—A very fine warm day.

—— In the vicinity of the metropolis the reading of the barometer at the level of the sea increased from 29.91 inches at the beginning of the week to 30.03 inches by the morning of the 4th, decreased to 29.59 inches by about noon on the 7th, again increased to 29.88 inches by noon on the 8th, and was 29.83 inches at the end of the week. The mean reading for the week was 29.89 inches, being 0.22 inch lower than that of the preceding week.

The highest temperatures of the air at 4 feet above the ground varied from 69¾° on the 5th to 55¼° on the 7th, with a weekly mean value of 63¾°. The lowest temperatures of the air ranged between 45½° on the 3d and 52¼° on the 6th, the mean value being 48½°. The mean daily range of temperature in the week was 15½°, varying from 23½° on the 5th to 8½° on the 7th. The mean daily temperatures of the air, and the departures from their respective averages, were as follows:—2d, 51°.6, + 1°.5; 3d, 55°.4, + 5°; 4th, 54°.7 + 4°; 5th, 56°.9, + 5°.9; 6th, 57°.2, + 6°; 7th, 49°.1, − 2°.2; 8th, 55°, + 3°.6. The mean temperature for the week was 54°.3, being 3°.4 above the average as deduced from sixty years' observations.

The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in sun's rays, were 128° and 135° on the 3d and 5th, but the highest reading on the 7th was 80¾°. The lowest readings of a thermometer on grass, with its bulb fully exposed to the sky, were 41½° and 42° on the 3d and 4th, but on the 8th 49° was the lowest reading. The mean for the week of the low readings was 44½°.

The general direction of the wind was S.W., and its strength very gentle.

The weather from the 2d to the 6th was fine and bright, but on the 7th and 8th it was dull, cold, the sky overcast throughout, and frequent rain fell.

Rain fell on five days; the amount collected was 0.58 inch.

In England the extreme high day temperatures ranged between 72½° at Leicester, and 63¾° at Bradford, with an average value over the country of 67¾°. The extreme low night temperatures varied from 46½° at Liverpool, to 34½° at Nottingham, the general average over the whole country was 40½°. The mean of the extreme ranges of temperature in the week was 27½°, the greatest range being 37¾°, at Nottingham, and the least 20°, at Liverpool. The mean high day temperatures varied between 67½° at Leicester and 60½° at Liverpool, the general average being 63½°. The mean low night temperatures ranged from 48½° at Blackheath and Truro, to 40¾° at Hull, with a general average of 45¾°. The mean daily range of temperature in the week was 17¾°; the greatest daily range being at Hull, 24¼°, and the least at Truro, 12¼°. The mean temperature of the air for the week was 52¾°, being 9½° higher than the value for the corresponding week in 1874; the highest happened at Leicester, 54¾°, and the lowest at Hull, 51°. Rain fell on three or four days in the week at most stations and the amounts varying from one inch and four-tenths at Truro, to one-tenth of an inch only at Newcastle-on-Tyne and Sunderland. The general average fall over the country was five-tenths of an inch.

The weather during the first five days of the week was fine and the sky nearly cloudless; but on the last two it was dull, the sky was overcast throughout, and rain fell on both days.

In Scotland, the highest temperatures ranged from 66½° at Aberdeen and 62½° at Greenock, the general average being 64½°. The lowest temperatures varied between 42½° at Leith and 40¾° at Aberdeen, with a general average of 41½°. The mean range of temperature in the week was 22¾°. The mean temperature for the week was 51¾°, being 7½° above the value of the corresponding week in 1874; the highest in the week was at Paisley, 52½°, and the lowest at Aberdeen, 50½°. Rain was measured at each of the above-mentioned stations, the amounts ranging from five-tenths of an inch at Dundee and Greenock to four-hundredths of an inch at Aberdeen. The average fall over the country was two-tenths of an inch.

At Dublin, the highest temperature was 69½°, the lowest 36¾°, the mean 55½°, and the rainfall 0.11 inch.

JAMES GLAISHER.

Variorum.

Cedar.—The stocks of Cedar on December 31 were quite excessive (4100 logs against about 2600 logs in 1873, Cuba and Honduras), and the landings much above the demands of the year, except as concerns pencil Cedar, which has been consumed more than up to the imports. While upon the subject we may mention that there were twenty-six lots of Mexican Cedar, comprising 1040 logs, put up to public sale recently, but all were bought in or withdrawn, bidding being about 3*d.* to 3½*d.*, and not very spirited, for no one seemed to want the stuff, although the selling broker gave them plenty of time. But there is a suggestion about pencil Cedar which we think is worthy of attention, although we are not prepared to vouch for the success of such an experiment. The large firm of pencil makers, A. W. Faber, has been in the habit of paying high prices for pencil Cedar imported from the United States. Upon the subject of growing the wood for their own use, M. Johann Lothair Von Faber writes as follows:—"Having previously drawn the attention of the Bavarian Government to the usefulness of the Florida Cedar (Juniperus virginiana), on account of the importance of the tree for the pencil manufacture, which is carried on more extensively in Bavaria than in any other State, and having referred to the fact that the wood of this tree is also used for many other purposes, and that higher prices are paid for it than for that of any other tree growing in our forests, we determined to import for ourselves from Florida (which, as is well known, has furnished as yet all the Cedar-wood for the pencil manufacture) the seeds to raise plants, and to hold them afterwards at the disposal of the Government for cultivation in the public forests. On my own farm I have already raised more than 5000 plants, with the best success. In consequence, and by my suggestion, planting of the Virginian Juniper has already taken place in several parts of North Germany, along railroad dykes as well as in forests." The last quotation of prices in England for pencil Cedar was 2*s.* to 3*s.* per foot cubic, and it may be quite possible that it would pay better in Bavaria to grow Cedar than here, but the Florida tree, so far, seems to thrive in Europe. *Timber Trades Journal.*

Sparrows and Crocuses.—When calling in at Mr. B. S. Williams' nurseries, Holloway, a short time back, the Crocuses there were in full bloom, and were tremendously and deplorably torn to pieces by sparrows. The long line of flowers bordering the main walk had been mercilessly attacked, so that the ground was strewn with petals, and the untidiness was positively unsightly. Many times I have seen Crocuses treated in this way, and many times have complaints against the sparrows as flower destroyers reached me; sometimes in a tone of reproach, as if I were responsible. On the morning of my visit to Holloway I saw in my own garden a good display of Crocuses, also a good display of sparrows, but not one of my Crocuses has been touched by the winged marauders, and I am bound to say, in illustration of the subject, that, during the many years that I have had about me plenty of Crocuses and plenty of sparrows, I never have seen a single Crocus of mine injured. Now, why should the sparrows destroy Crocuses in one garden and leave them wholly untouched in another? The answer is not to be found in a sentiment or a fancy; it must be somewhere and somehow wrapped up in a fact. Now, the fact, in my opinion, is one that all can understand—it is hunger! It is no reproach to people whose Crocuses are injured by the sparrows, that they do not feed them, but I am satisfied that if food were at hand, and the sparrows were not hard pushed, they would absolutely despise the Crocuses, as they appear to despise mine. I am not particularly partial to sparrows, for they plunder me beyond reason. They are always crowding about the poultry yard, and there they obtain more food at my expense than I am willing to allow them. But that is the reason they take no notice of the Crocuses, and that, I think, suggests how the Crocuses might be protected. The flowers, we will say, are just beginning to expand; there should be in readiness for the occasion a peck or two of the cheapest grain obtainable—say, half barley and half Indian corn; this should be very sparingly scattered on a piece of ground some distance from the Crocuses, and on a spot somewhat secluded if possible. About three scatterings daily would suffice to keep all the sparrows of the district on a hungry look-out. Then when the expected bounty came they would have to spend a little time in fighting and searching for the grain, and having eaten all the barley they would try to swallow the maize, and this ridiculous performance would occupy them until the time arrived for another feed. By managing this business adroitly, a very small expenditure of time and money would suffice to save any number of Crocuses. It may be that when they hack the flowers to pieces they get nothing for their pains; but it certainly is a fact that where they have a kind of open kitchen, the organisation of which, as to hours and dishes, they perfectly understand, they do not trouble themselves to prey upon Crocuses. *S. H., in "Gardeners' Magazine."*

Garden Operations.

(For the Ensuing Fortnight.)

[The subjoined directions are intended to supply general information, and must, of course, be adapted to the peculiar circumstances of each locality. Other departments of the garden will be treated on from week to week in succession, according to the requirements of the season. Special directions for the management of "The Villa Garden" will be found in the preceding columns.]

PLANT HOUSES.

Greenhouse Hard-wooded Plants.—If the houses or pits that contain hard-wooded plants in a growing state are very light, it will encourage freer growth to use a little shade in bright weather, but if, on the other hand, they are deficient in light, it would be a mistake to shade at all, and under no consideration should it be used except when the sun is powerful; even then it ought to be removed early in the afternoon. There are a few plants that require shade more than the rest; all the *Pimeleas* are benefited by it, as also by being kept more moist at the roots as well as overhead by syringing. *Acrophyllum venosum* will not bear continuous full exposure to the sun in a very light house. This is a somewhat difficult plant to manage, as evidenced by its being so seldom met with in a large healthy condition—the best examples generally being found in rather dark, or what for most plants would be considered indifferent houses; it will also do further from the glass than many plants, and likes plenty of moisture in the atmosphere. *Eriostemons, Choroezmas, Dillwynias, Boronias* and most other hard-wooded plants, when in flower, even in a small

state, are very attractive for conservatory decoration, and if allowed a moderately light situation, and removed to their growing quarters as soon as their blooming is over, they will not receive injury by being used in this way. It is a mistaken idea that this family of plants will not bear removal, even for the time of their flowering, from the houses in which they are grown, and no doubt deters many from cultivating them. Their presence in a conservatory gives variety, and if fairly treated whilst there they will not suffer by being so used.

Azaleas.—As these go out of flower let the seed-pods be at once picked off; if allowed to remain upon the plants, even for a couple of weeks, they take a good deal to support them that would be better directed to the season's growth. Attend to such as are coming into bloom, either for home decoration or exhibition. If in cool north houses, as they show colour they should be removed to where they can be kept a little warm, and the atmosphere closer and containing more moisture, syringing overhead in the afternoon until the flowers are fully expanded; this will much increase the size of the blooms, adding a lustre that is always wanting when they open in a dry, ungenial atmosphere: this treatment is also conducive to their well-being for the coming year, by assisting the young growth. When *Azaleas* are placed in the conservatory during the time of their flowering they should not be put under, or in contact with, Camellias, or other plants that are infested with scale, especially the white species; they are not subject to these insects, nevertheless the different species of scale will live upon them, and are very difficult to eradicate.

SOFT-WOODED GREENHOUSE PLANTS.—*Tuberoses*, as required, should be brought on into flower. There are few subjects with which new beginners in their cultivation more often fail than with this most fragrant plant, the cause generally being traceable to watering before they have formed roots. At the time of potting the soil should be a little but not too moist, after which they should never be stood upon dry shelves, as in such a place the soil will evidently soon become dust-dry—a condition adverse to the formation of roots, necessitating the use of water before these are produced, which the plant so much dislikes. After potting they ought to be placed in a house or pit with an earth floor, or on some moisture-holding surface, that will impart a little moisture to them. With this more than most plants it is essential to have the roots in advance of top-growth; this is best secured by plunging the pots in a little bottom-heat, at the same time keeping the top cool. A gentle hotbed, with air on night and day until the pots are well-filled with roots, is the best position to insure success; after this they may be removed to a house or pit where they will receive more warmth, giving plenty of water at the root, and keeping them near the glass, by which means they will not become so drawn as often happens. *Calla æthiopica.*—Plants that have flowered through the winter and consist of several crowns to each, may now be divided and planted out-of-doors singly, in a moderately sheltered place; so treated they make much nicer plants, and are less trouble than when grown during summer in pots; lift and repot any time about the end of September. *Pelargoniums* of show and fancy varieties will now require the assistance of manure-water; this is not only necessary for such as are required for exhibition, but even more so where the plants are wanted for conservatory decoration, and are useful in proportion to the length of time they remain in flower. To impart the strength necessary for a succession of bloom they should receive manure-water from the time their first flowers are set. Young plants of zonal varieties intended for flowering after the show kinds are over, should be encouraged to make growth by potting if they require it, the use of manure-water, and the removal of flowers as they are formed. *T. Baines.*

KITCHEN GARDEN.

Mulching, by means of surface-dressing about 3 or 4 inches thick, of partly or wholly decomposed manure, at this season, is certainly a commendable practice, inasmuch as it, in a great degree, regulates the force of atmospheric influences, and preserves an equality of moisture at the roots of plants which in this department is generally so desirable. It is also undoubtedly the best mode of applying such manure during the hot months of the year, particularly under the condition of the soil which is to be found in most gardens which have been established a series of years, and which through high-class cultivation becomes friable and more susceptible of the operating force of those elements which exist at the period referred to. We contrive to provide the necessary materials in quantity at this season, and apply them in this way annually with the most beneficial effects to such subjects as *Runner* and other kinds of *Beans*, *Peas*, *Globe Artichokes*, *Cauliflowers*, or any other crops, where it can be properly done. By this time *Coleworts* and *Cabbage* will be in abundance, and likewise spring-sown *Spinach*, therefore the stems of old plants of Brassicas and of the latter should be removed, as their presence tends greatly to impoverish even the best soil. At this season let these vacant plots be turned up with despatch, so that they may be benefited by such rains as have lately been so acceptable. Make preparation for sowing late *Peas*, selecting a well enriched piece of ground, and sow them about the middle of this month; but few varieties excel for this purpose *Ne Plus Ultra* and *British Queen*. Seed-beds of winter stuff and *Broccoli* will require constant attention to prevent the ravages of the Turnip-fly, which is very troublesome this year. Dust the plants when moist with wood ashes. Continue to thin and prick out the required quantity of these plants as they become fit. As *Broccoli* and *Cauliflower* for autumn use usually occupy plots to themselves, the intervening spaces between the foremost plants may be filled up for transplanting elsewhere. If it be needful to make a supplementary sowing of *Parsnips* or *Carrots*, it should be done now. Sometimes those which are sown early in very rich soils do not keep so well as those of later and less exuberant growth. Make preparations for the most advanced portion of *Celery* plants, which should be planted out at once if they have been somewhat hardened beforehand. Early Cabbage ground will be a suitable place for this planting. As the later planted *Potatos* advance in growth keep the soil drawn up to them, and if necessary, which it will be on heavy land, fork between the rows where these spaces are made available—for instance, between the rows of early kinds—for *Brussels Sprouts*, &c.: these should be planted there as soon as they are fit for the purpose. After the Potatos are soiled up make successional sowings of *Turnips*; attend to dusting when required, water well whenever they become dry, to accelerate their season of usefulness; and apply the same treatment to all advanced crops which are situated in warm positions. Great efforts are always needful at this important period to maintain everything in proper condition and order. About the end of the month make a sowing of *Endive*, and in the case of *Lettuce* it will be advisable after this time to sow in drills and avoid transplanting. Borders having northern aspects are now suitable places for such subjects as are improved by cool moist places. Cutting *Asparagus* will be an operation which will now require to be attended to almost daily. Where any portion of the beds will be required for forcing, and it becomes necessary to have recourse to cutting these now, it should not be continued for a long period, or the roots will be too much weakened thereby to render them fit for very early work next season. We cut every description of the "grass" until a certain period, and then let all up together. Continue to liberally water *Carrots* in frames, and draw out at the earliest period when ready every alternate one, so as to afford the rest every advantage. Harden *Tomatos* and similar subjects by degrees in cold frames, preparatory to planting them out-of-doors. As early crops of *Potatos* are removed from frames or pits, these should be occupied with *Cucumbers*, &c, for summer use. *G. T. Miles, Wycombe Abbey.*

Answers to Correspondents.

ARUM IN ESSEX: *A Constant Subscriber.* The plant you allude to is no doubt Arum Dracunculus, procurable at most nurseries.

DOUBLE CINERARIAS: *J. McIndoe.* Much better than many that have been sent to us.

DUKE OF EDINBURGH (DANIELS') CUCUMBER: In my note at p. 601 the figures should have read as follows—29 inches long and 9½ inches in circumference, instead of 27 inches long and 7½ inches in circumference. *H. W. Ward, Longford Castle, Salisbury.*

FASCIATED ASH: *S. W. B.* Such a case as yours is commonly seen; generally speaking, it results from over vigour.

INSECTS: *N. S. S.* Please send specimens: we cannot answer your questions without.—*Camjee.* The beetle found at the root of your Vine is a common species of water beetle, Acilius sulcatus. It may have come out of your water-tank, or have fallen when on the wing, as these water beetles occasionally take flight and fall on glass, which they mistake for water when in the air. *I. O. W.*

MOREL: *W. M., Ely.* Yes.

NAMES OF PLANTS: *Efford.* Scolopendrium vulgare marginatum lobatum.—*G. Wallis.* Aristolochia ringens, not new to gardens.—*O. W. D.* Senebiera coronopus.—*Westbury-on-Trym.* Oncidium sphegiferum.—*W. S.* 1, Rhododendron Falconeri; 2, R. glaucum.—*F. E. C.* Rhododendron Falconeri.—*Victor.* Trillium erectum var. album.—*J. S., Chester.* Alchemilla alpina.—*J. H. Sandeman.* The Weymouth Pine, and Photinia serrulata.

PACKING STRAWBERRIES, &c.: *B. C.* Wrap the fruit in tissue-paper and pack in single layers with cotton wool above and below them, in trays fitting into an outer box, so that they may be just held firmly without squeezing them. The smaller the trays the better, as it is the movement from loose packing, and from packing in bulk, which does most injury. Flowers travel best in Chapman's boxes, but failing these, pack on the same principle as in the case of the fruits—only they will require deeper trays. If they are quickly closed up they will not suffer much from flagging, but some subjects travel much better than others.

POLYANTHUSES: *P. Grieve.* They are bold, showy border flowers, but of no special merit; nor do we find in them any trace of the influence of Primula japonica. No. 2 is the best.

SALT: *A. W.* We cannot recommend you anything safer than salt, and it will not act as a manure if you will apply it scalding hot, in the form of brine. It must be done well to be efficacious.

VARIEGATED CELERY: *T. Simpson.* Interesting amongst other variegated subjects, but not very striking, judging from the samples sent.

VINE DISEASE: *J. R.* Your Vines are attacked by the Phylloxera in a strong form, and you did wisely in burning the plants. We should be glad to have a few more leaves, if you still have any.

*** Correspondents are specially requested to address, post-paid, all communications intended for publication to the "Editors," and not to any member of the staff personally. The Editors would also be obliged by such communications being posted as early in the week as possible. *Letters relating to Advertisements, or to the supply of the Paper, should be addressed to the Publisher, and* not *to the Editors.*

☞ FOREIGN SUBSCRIBERS.—We are requested by the Publisher to desire Foreign Subscribers sending Post Office Orders, to be good enough to write to the Publisher at the same time.

CATALOGUES RECEIVED.—Dicksons & Co. (1, Waterloo Place, Edinburgh, and Leith Walk, Pilrig, Redbraes), Catalogue of Florists Flowers.—Messrs. Carter & Co. (237 and 238, High Holborn, London), Illustrated Catalogue of Plants, &c. — Messrs. Ellwanger & Barry (Mount Hope Nurseries, Rochester, New York, U.S.A.), Illustrated Descriptive Catalogue of Ornamental Trees, Shrubs, Roses, Flowering Plants, &c.—B. S. Williams (Victoria and Paradise Nurseries, Upper Holloway, London), Illustrated Catalogue of New Plants, &c.—Dick Radclyffe & Co. (129, High Holborn, London), Illustrated Catalogue of Plants, Garden Implements, Decorations, &c.—John Harrison (North of England Rose Nurseries, Darlington), Descriptive Catalogue of New Roses, Dahlias, Fuchsias, Bedding Plants, &c.—J. Dickson and Sons (Newton Nurseries, and 108, Eastgate Street, Chester), Catalogue of Stove and Greenhouse Plants, Bedding-out Plants, &c.; also their Catalogue of Herbaceous, Alpine, and Bulbous and Tuberous Rooted Plants.—Mr. William Bull, F.L.S., &c. (King's Road, Chelsea, London, S.W.), Illustrated Retail Catalogue of New, Beautiful, and Rare Plants.

COMMUNICATIONS RECEIVED: B. S. W.—J. McI. (thanks).—E. S. D.—H. L. & Co.—Constant Reader.—J. B., Keswick.—J. J.—O.—J. P. M. M.—A. M. R.—A Young Gardener.—W. Maule & Sons (please send better specimens).—J. C.

Markets.

COVENT GARDEN, May 13.

We have to report a free supply of open-air produce, especially Gooseberries and Asparagus; of the latter there is still a considerable quantity imported, and we notice among the dealers Apricots and Cherries in boxes from the south of Europe. Apples are now a very slow sale, except for a few of the good late sorts. Some good St. Michael Pines are again in the market, from a recent arrival; English have been in moderate request. *Thos. Taylor, Wholesale Apple Market.*

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, per ½-sieve	3 0–	4 0	Oranges, p. 100	.. 8 0–	12 0
Apricots, per dozen	.. 4 0–	7 0	— Malta, per doz.	.. 2 0–	3 0
Cherries, per box	.. 5 0–	8 0	Peaches, per doz.	..15 0–	24 0
Grapes, English, per lb.	.. 4 0–	10 0	Pine-apples, p. lb.	.. 6 0–	10 0
— foreign, do.	.. 1 6–	4 0	Pomeloes, each	.. 0 6–	1 0
Lemons, per 100	.. 8 0–	12 0	Shaddocks, each	.. 2 0–	3 0
Nuts, Cob, p. lb.	.. 2 0–	.0	Strawberries, per qt.	1 0–	2 0
			Walnuts, p. bush.	..16 0–	..

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, Fr., doz.	4 0–	..	Leeks, per bunch	.. 0 2–	0 4
Asparagus, English, per bundle	.. 5 0–	6 0	Lettuces, per doz.	.. 1 6–	..
— French, p. bund.	4 0–	15 0	Mint, per bundle	.. 1 6–	..
Beans, French, p. 100	2 6–	..	Mushrooms, per pott.	1 0–	2 0
— broad, p. ½-sieve	10 0–	..	Onions, young, bun.	0 4–	0 6
Beet, per doz.	.. 1 0–	2 0	Parsley, per bunch	.. 0 9–	1 0
Cabbages, per doz.	.. 1 0–	2 0	Parsnips, p. doz.	.. 0 9–	1 0
Carrots, p. bundle	.. 0 6–	0 9	Peas, per quart	.. 4 0–	..
— French, do.	.. 2 0–	..	Radishes, per bunch.	0 2–	0 4
Cauliflowers, per doz.	2 0–	6 0	Seakale, per bundle	1 0–	1 6
Celery, per bundle	.. 1 6–	2 0	Shallots, per lb.	.. 0 3–	..
Cucumbers, each	.. 1 0–	2 6	Salsify, per bundle	.. 1 6–	..
Endive, per doz.	.. 1 0–	2 0	Sprue, French, bund.	1 6–	..
Herbs, per bunch	.. 0 2–	0 4	Turnips, per bundle.	0 6–	..
Horse Radish, p. bun.	3 0–	5 0	— French, p. bund.	2 0–	..
Potatos, old:—Early Shaws, 110s.; Regents (early), 120s.; best, 160s.; Early Dons, 120s.; and Victorias, 160s. per ton. New: Lisbons, 16s. to 18s. per cwt.					

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Azaleas, per dozen	..24 0–	60 0	Hyacinths, per doz.	6 0–	18 0
Begonias, do.	.. 6 0–	12 0	Lily of the Valley, 12 sprays, about	.. 1 0–	3 0
Bouvardias, do.	.. 9 0–	18 0	Mignonette, do.	.. 6 0–	9 0
Calceolarias, do.	.. 9 0–	18 0	Myrtles	.. 3 0–	9 0
Cineraria, do.	.. 6 0–	15 0	Pelargoniums, dble., per doz.	.. 6 0–	12 0
Cyperus, do.	.. 6 0–	12 0	— Scarlet, do.	.. 6 0–	9 0
Deutzias, do.	.. 8 0–	18 0	Roses, do.	..12 0–	60 0
Dracæna terminalis	30 0–	60 0	Solanums, do.	.. 6 0–	18 0
— viridis, per doz.	12 0–	24 0	Spiræa, do.	..12 0–	24 0
Ficus elastica	.. 1 6–	7 6	Stock, do.	.. 6 0–	9 0
Fuchsia, per doz.	.. 6 0–	18 0			
Gardenias, do.	..24 0–	60 0			
Heaths, in var., doz.	12 0–	30 0			

CUT FLOWERS.

	s. d. s. d.		s. d. s. d.
Azaleas, p. 12 sprays	0 6- 1 6	Narcissus, Pheasant's-eye, per doz.	.. 0 2- 0 6
Camellias, 12 blooms	2 0- 6 0	— do., double, doz.	1 0- 2 0
Carnations, 12 blooms	1 6- 3 0	Pelargoniums, 12 spr.	0 9- 1 0
Cineraria, p. bunch..	0 9- 1 6	— Zonal, do.	.. 0 4- 1 0
Cyclamen, 12 blooms	0 2- 0 6	Primula, dbl., p. bun.	0 9- 1 6
Deutzia, per bunch..	0 4- 1 0	Ranunculus, p. bun.	0 4- 1 0
Eucharis, per doz.	.. 6 0-12 0	Roses, indoor, p. doz.	2 0- 6 0
French Lilac, p. bun.	3 6- 5 0	— French, do.	.. 1 0- 2 6
Heliotropes, 12 spr.	0 6- 1 0	Spiræa, 12 sprays	.. 2 0- 4 0
Lily-of-the-Valley, 12 sprays	.. .. 0 6- 2 6	Stephanotis, 12 sprays	2 0- 9 0
Mignonette, 12 bun.	4 0- 6 0	Tulips, per bunch	.. 0 4- 1 0
Myosotis, per bunch	0 4- 0 9	Violets, per 12 bun...	1 0- 3 0

SEEDS.

LONDON: *May* 12.—Our Clover seed season being now virtually at an end, the attendance on Mark Lane is, in consequence, very limited, and the business passing almost *nil*. There is still some small inquiry for spring Tares; stocks having got quite exhausted, the last prices made were the highest of the whole season. In agricultural Mustard and Rape seed a fair business has been doing at full rates: a brisk demand for these descriptions is expected later on. In Canary seed a still further remarkable advance must be noted. To-day's price is £14 to £15 per quarter—a quotation almost without precedent. Hemp seed also goes in favour of holders. Of English Linseed the supply offering is short. Blue Peas have likewise got into narrow compass. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C.*

CORN.

At Mark Lane on Monday dulness was the characteristic. Wheat, English and foreign, declined, in some instances 1s. per qr. Barley was inanimate and cheaper when pressed for sale. Malt was disposed of with difficulty on rather lower terms. Oats were in limited request, and fully 6d. lower on the week, the supply being ample. Maize was weak, and from 6d. to 1s. per qr. cheaper. Beans and Peas were quiet at about late rates. The flour trade was inactive, and prices were in buyers' favour.—On Wednesday English Wheat was in short supply, but sales could only be effected at some reduction from Monday. Barley had a drooping tendency, so also had malt, while the sales for Oats were with difficulty maintained. In Maize, Beans, Peas, and flour there was little business transacted, and prices in one or two instances favoured buyers.—Average prices of corn for the week ending May 9:—Wheat, 42s. 8d.; Barley, 39s.; Oats, 30s. For the corresponding week last year:—Wheat, 62s. 2d.; Barley, 47s. 3d.; Oats, 30s. 10d

CATTLE.

At the Metropolitan Market on Monday prices for beasts were on the average better. Choicest qualities of sheep were very scarce, and in a few instances the top quotation was exceeded. Choice lambs and calves were also scarce and rather dearer. Quotations:—Beasts, 3s. 8d. to 4s. 8d., and 5s. 8d. to 6s. 2d.; calves, 4s. 6d. to 6s.; sheep, 5s. to 5s. 8d., and 6s. 2d. to 6s. 10d.; lambs, 7s. 4d. to 8s.; pigs, 4s. 4d. to 5s. 8d.—The hot weather prevailing made buyers cautious at Thursday's market, but choicest quality beasts held their own; sheep, however, were lower on the average. Choice lambs were in demand, but trade generally was dull. Calves were plentiful and lower. Trade was dull for milch cows.

HAY.

The Whitechapel market report notes the supply on sale as being rather in excess of the demand, but rates remain firm, prime Clover making 100s. to 130s.; inferior, 85s. to 95s.; prime meadow hay, 90s. to 126s.; inferior, 55s. to 75s.; and straw, 35s. to 40s. per load.—Cumberland Market quotations:—Superior meadow hay, 123s. to 132s.; inferior, 90s. to 112s.; superior Clover, 123s. to 132s.; inferior, 95s. to 112s.; and straw, 40s. to 44s. per load.

POTATOS.

The Borough and Spitalfields markets reports note that Potatos arrive in moderate quantities, but the demand seems chiefly confined to the better descriptions, the quotations for which remain firm—Regents, 80s. to 130s.; Victorias, 110s. to 150s.; Flukes, 120s. to 160s.; Rocks, 65s. to 75s.; per ton. Last week's imports comprised 12,915 bags from Antwerp, 5384 sacks and 234 tons from Dunkirk, 849 sacks from Boulogne, 2046 packages from Lisbon, 1 basket from Oporto, 69 boxes 39 barrels from Gibraltar, and 11 boxes 233 caks from Malta.

COALS.

There was an advance of 6d. per ton in house coals at Monday's market, but a corresponding decline in Hartleys. On Wednesday house coals gave way 6d. per ton, and the following were the general quotations:—West Hartley, 20s. 3d.; Eden Main, 19s.; Walls Ends—Hawthorn, 18s. 9d.; Lambton, 21s.; Pittington, 18s. 9d.; South Hetton, 21s. 6d.; Tunstall, 18s. 9d.; Hartlepool, 20s. 6d.; East Hartlepool, 21s. 3d.; South Kelloe, 19s. 6d.; Tees, 21s. 3d.

WANT PLACES.

Head Gardeners.
JOHN LAING can at present recommend with every confidence several energetic and practical Men, of tested ability and first-rate character. Ladies and Gentlemen in WANT of GARDENERS and BAILIFFS, or GARDENERS for First-rate Establishments or Single-hand situations, can be suited, and have full particulars by applying at Stanstead Park and Rutland Park Nurseries, Forest Hill, London, S.E.

Gardeners and Under Gardeners.
WM. CUTBUSH AND SON beg to state that they have at all times on their Books MEN of VARIOUS QUALIFICATIONS, whose characters will bear the strictest inquiry. Any Gentleman making application would save time by clearly stating the duties to be undertaken, wages offered, &c., so that suitable Men may be selected.—Highgate Nurseries, London, N.

To Gardeners in Want of Situations,
WHOSE CHARACTERS WILL BEAR STRICT INVESTIGATION.
THE PINE-APPLE NURSERY COMPANY devote special attention to this important matter—proper Men to suitable Situations. For a GARDENER, or for a SITUATION, please send full particulars to Mr. JOHN BESTER, the Pine-Apple Nursery Company, Maida Vale, London, W.

B. S. WILLIAMS, having at the present time several very excellent GARDENERS upon his Register, is desirous of placing them in Situations where great experience and trust are required. B. S. W. would at the same time beg to intimate that when a Gardener is applied for that the filling of the situation should be left with him, as that would prevent unnecessary correspondence and delay.—Victoria and Paradise Nurseries, Upper Holloway, London, N.

GARDENER (HEAD), where three or four are kept.—Age 30, single; fourteen years' experience. Highly recommended by present employer.—G. J., Post Office, Halfway Street, near Eltham, Kent.

GARDENER (HEAD), to any Lady or Gentleman requiring the services of a thoroughly practical Man.—Age 36. Can be well recommended. Abstainer.—T., The Nursery, Upper Tooting, Surrey, S.W.

GARDENER (HEAD), to any Lady or Gentleman requiring the services of a good practical Man.—Age 38, married, no incumbrance; understands the general requirements of a good Establishment; can undertake the Management of Grass Land, Stock (as Cows, &c.), if required. Good references.—X. V. Z., Northgate Nursery, Chichester.

GARDENER (HEAD).—J. W. LAURENCE, Gardener to the late Right Rev. Bishop Sumner, Farnham Castle, is at liberty to engage with any Nobleman or Gentleman requiring the services of an experienced Man.—Prospect Cottage, Upper Hale, Farnham, Surrey.

GARDENER (HEAD).—Has had good practice in the Cultivation of Pines, Grapes, Peaches, Melons and Cucumbers, Stove and Greenhouse Plants, and well acquainted with both Kitchen and Flower Gardening and the general Management of a Gentleman's place.—H. NORRIS, 7, Warsill Street, Battersea Park, S.W.

GARDENER (HEAD, WORKING).—Age 28, married; has a good knowledge of the profession. Three and a half years' good character.—T. W., J. Cooper, Parton, Swindon, Wilts.

GARDENER (HEAD, WORKING).—Age 35, married; thoroughly understands the profession in all its branches. Well experienced in Land, Stock, &c. Shall be disengaged in a fortnight. Long and unblemishable character.—B., 73, Hampden Road, Upper Holloway, N.

GARDENER (HEAD, WORKING).—Middle-aged, married, no family, Scotch; has had thirty years' experience both in England and Scotland in every branch of the profession. Can be well recommended.—A. B. C., Carter's Crystal Palace Nurseries, Forest Hill, S.E.

GARDENER (HEAD, WORKING).—Age 28, married; thoroughly understands the Forcing of all kinds of Fruits, Flowers, and Vegetables, also good Flower and Kitchen Gardener. Can have the highest testimonials as regards character from last and previous places.—A. B. C., Post Office, Eridge, near Tunbridge Wells.

GARDENER (HEAD, WORKING), age 38, married.—WILLIAM HENDERSON, for the last four and a half years Gardener to R. R. Robinson, Esq., Henley Park, Henley-on-Thames, is at liberty to treat with any Lady, Nobleman, or Gentleman requiring the services of a thorough practical Man, who well understands the Early and Late Forcing of all kinds of Fruits, Flowers, and Vegetables, and the Management of Fruit, Flower, and Kitchen Gardens. Wife, having no family, is qualified to take Charge of Gentleman's Residence during the employer's absence. Characters will bear investigating.

GARDENER, in a good Single-handed Place, or otherwise.—Age 23, single; has had nine years' experience in Nursery and Gentleman's Garden. Good reference given.—E. W., Mr. Newcomb, Stationer, Boston.

GARDENER, in a Nobleman's or Gentleman's Garden, under the Foreman, where he is desirous of improving his knowledge of plants, &c.; in the houses.—Age 23. Good knowledge of Outdoor-work. Three years in present situation.—A. H., The Gardens, Upper Gatton Park, Merstham, Surrey.

GARDENER (FOREMAN).—Age 23. Seven years' experience in Forcing Vines, Peaches, Strawberries, &c., Plant Forcing, and Kitchen Gardening. Good reference. Two years in last place.—J. C., 3, Henstridge Villas, St. John's Wood, N.W.

FOREMAN in a Gentleman's Garden, or as GENERAL FOREMAN.—Age 28, single. First-class references can be given. Two years in last place.—C. C., Stanley Bridge Post Office, King's Road, Chelsea, S.W.

FOREMAN.—Thoroughly understands Growing Fruit and Plants for Market.—W. SHORTEN Rabley Gardens, Barnet, Herts.

GARDENER (SECOND).—Age 23; has been accustomed to good places. Character will bear strict investigation.—Post Office, Stanley Bridge, King's Road, Chelsea, S.W.

GARDENER (SECOND), or under a Foreman in a good Establishment.—Age 20. Good references.—T. C., Post Office, Forest Hill, Oxford.

GARDENER (UNDER), as IMPROVER.—Age 20.—M. CHARLTON, Havelock Street, Barnsley.

GARDENER (UNDER).—Age 23; has been accustomed to Fruit, Flowers, and Vegetables for the last eleven years. Four years' good character from last place.—W. B., Post Office, Alphington, Exeter.

PLANT GROWER (EXHIBITION), in a first-class Establishment in the Trade or otherwise, where Plant Growing is gone into with spirit.—B., Pine-apple Nursery, Maida Vale, W.

PROPAGATOR (HARD-WOODED), and GROWER in a large Nursery.—Age 34; married. First-class references.—C. T., Thornton Street, Heaton Moor, Stockport.

TO NURSERYMEN.—A respectable young Man, with a knowledge of general Greenhouse Work. Excellent character from the Nurseryman he has just left. West of England preferred.—F. PARRY, Kingswear, Dartmouth.

SHOPMAN (HEAD), or TRAVELLER.—Has had upwards of twenty years' experience; knows the Midland Counties, Lancashire and Yorkshire, North of England, South of Scotland, and Ireland, and is well known amongst Gardeners, Stewards, &c.—M. D., *Gardeners' Chronicle* Office

To the Wholesale Seed Trade.
TRAVELLER, CORRESPONDENT, &c.—J. S. HAUXWELL is open to an engagement as above.—44, Devonshire Road, Holloway, N.

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THE

GARDENERS' CHRONICLE.

Established 1841.

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CONTENTS.

SALES BY AUCTION.

Tooting, S.W.

IMPORTANT SALE of a large quantity of extra stock of choice STOVE and GREENHOUSE PLANTS, the whole of which are in a very healthy and thriving condition, containing some New and Rare Plants; also some selected ORCHIDS, quantity of EXOTIC FERNS, several valuable PALMS, together with a fine assortment of Succulent and Hardy HERBACEOUS PLANTS, Hardy CLIMBERS in pots, &c.

MESSRS. PROTHEROE AND MORRIS are favoured with instructions from Mr. R. Parker to SELL the above by AUCTION, on the Premises, Exotic Nursery, Tooting, Surrey, S.W., on MONDAY, May 24, at 12 for 1 o'Clock precisely.

On view the day prior to the Sale. Catalogues may be had on the Premises, and of the Auctioneers and Valuers, 98, Gracechurch Street, E.C., and Leytonstone, E.

Hornsey, N.

IMPORTANT SALE of about 40,000 unusually well-grown GREENHOUSE and BEDDING PLANTS.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, the Hornsey Nursery, Hornsey, Middlesex, N., close to Hornsey Station, Great Northern Railway, on TUESDAY, May 25, at 11 for 12 o'Clock precisely, by order of Mr. M. Cleall, without reserve, about 40,000 GREENHOUSE and BEDDING PLANTS, in rich assortment, and beautifully grown, consisting of 20,000 Geraniums, the whole of which are wintered plants, including Vesuvius, Madame Vaucher, Crystal Palace Gem, Christine, and many other leading sorts; 1000 Mrs. Pollock, Lady Cullum, and other choice new Tricolor and Bicolor varieties; 3000 Calceolarias, of sorts; and the usual miscellaneous assortment, together with some choice Greenhouse Plants in bloom, comprising Azalea indica, Spiræas, Pelargoniums, Fuchsias, Ferns, Intermediate Stocks, &c.

May be viewed three days prior to Sale. Catalogues may be had on the Premises, and of the Auctioneers, 98, Gracechurch Street, E.C., and Leytonstone, E.

Stamford Hill, N.

MESSRS. PROTHEROE AND MORRIS will SELL by AUCTION, on the Premises, Allen's Buildings, Manor Road, Stamford Hill, N., on WEDNESDAY, May 26, at 12 for 1 o'Clock precisely, by order of Mr. M. Allen, about 10,000 well-assorted BEDDING PLANTS.

Edmonton, N.

To NURSERYMEN, MARKET GARDENERS, BUILDERS, and OTHERS.

MESSRS. PROTHEROE AND MORRIS will include in their next PERIODICAL SALE of PROPERTIES, to be held at the Auction Mart, Tokenhouse Yard, City, on MONDAY, May 31, at 12 for 1 o'Clock, about FOUR ACRES of highly productive LAND, situate in the Hyde Road, Edmonton, five minutes' walk from the station, and immediately available for Building purposes; or a portion could be advantageously utilised for Nursery and Market Garden purposes.

Cards to view may be obtained of Messrs. PROTHEROE AND MORRIS, 98, Gracechurch Street, City, E.C.

Magnificent Specimen and Other Plants.

MESSRS. LYTHALL AND CLARKE are instructed by Messrs. Felton & Sons (who are declining exhibiting large specimens this year) to OFFER by AUCTION, at the Midland Counties Repository, Moseley Street, Birmingham, on WEDNESDAY, May 26, at 1 o'Clock prompt, a splendid SELECTION of EXHIBITION PLANTS, in the finest possible health and every leaf perfect, including Pandanus Veitchii, 5 feet by 4 feet, leaves upwards of 4 feet long—a noble plant; Maranta Veitchii, 4 feet by 4 feet; Maranta Makoyana, 2 feet by 2 feet: Areca Baueri, 8 feet high—a noble Palm; Cocos Weddelliana, 5 feet; Dracænopsis melanochaites (true), 6 feet; Kentia Forsteriana, 5 feet; Kentia Balmoreana, 5 feet; two extra fine Curculigo recurvata variegata, 4 feet by 5 feet; Dracæna Baptisti, 3 feet; D. Mooreana, 3 feet (a splendid pair): D. gloriosa, 3 feet; D. amabilis, very fine (three plants); Dendrobium nobile, 4 feet by 3 feet, with 500 open blooms; Yucca insignis (in bloom), a very first-class variety; Crotons (new), Orchids, large Tree and other Ferns, Anthurium crystallinum, seven leaves, 2 feet by 18 inches, very fine; Caladiums (new), Pelargoniums, Fuchsias, &c.; choice new Camellias to name, and a few lots of very excellent Bedding Plants.

The collection of Plants (of which the above form only a portion) are of the rarest varieties, and are, as described, in the most perfect health, and ready for successful exhibition at any Show.

Catalogues may be obtained gratis on application to Messrs. FELTON AND SONS, 23, High Street; the Offices of the *Midland Counties Herald*; or from the Auctioneers, 1, Moseley Street, Birmingham.

Worcestershire, in the far-famed Vale of Evesham.
PRELIMINARY ADVERTISEMENT.

MESSRS. CHESSHIRE AND GIBSON have received instructions to SELL by AUCTION, in JULY NEXT, in consequence of the death of the Proprietor, unless in the meantime an acceptable offer be made by Private Contract, a very excellent FREEHOLD ESTATE of 240 Acres, known as "Seaford Grange," situated at Peopleton, within 1½ mile of the Pershore Station on the Great Western Railway.

A considerable portion of the above has been laid out as Fruit Gardens, the Trees being of the choicest kinds, now in their prime, the produce finding a ready sale at Liverpool, Manchester and Birmingham, where a very lucrative business was carried on by the late Proprietor.

In addition to a complete set of FARM BUILDINGS, with COTTAGES, there is a very comfortable and desirable RESIDENCE, replete with every convenience, and the portion of the Estate not laid out as Fruit Gardens is occupied as a FARM, and comprises Arable and Pasture of excellent quality.

A Balance-Sheet, showing the profits for the last five years, has been prepared, and may be obtained of the undermentioned Referees.

Further particulars and plans will be issued in due course, in the meantime further information may be obtained of H. G. GOLDINGHAM, Solicitor, or A. BUCK, Estate Agent, both of Worcester; or to the Auctioneers, Messrs. CHESSHIRE AND GIBSON, 93, New Street, Birmingham.

TO BE SOLD, a small FLORIST'S BUSINESS. Eighteen years' Lease. Price, including Stock, &c., £150.
T. P., The Race Horse, Elm Grove, Brighton, Sussex.

Victoria Estate, Kansas, U.S.—To Farmers and OTHERS.

FINE STOCK FARMS of 640 Acres and upwards, to be SOLD, Freehold, from 12s. to 50s. per acre. Grass in its natural condition unsurpassed for feeding Sheep and Cattle. For PAMPHLET containing full particulars respecting this Property, apply to
ROBERT W. EDIS, Esq., F.S.A., 14, Fitzroy Square, London, W., Architect to the Estate.

FOR SALE, an Orchard and Plant-house SPAN-ROOF RANGE, length 65 feet, width 24 feet, height 12 feet, with 297 feet heating pipes and 4 valves, Iron Ratchet-worked Ventilators, Shelves and Stages, all in excellent condition. Inquire of
Mr. WOOKEY, Heybridge Garden, near Malden, Essex.

THE FREEHOLD for SALE, or to be LET on LEASE a NURSERY doing a large Trade in Cut Flowers with the principal London Florists. Valuation about £500. Address by letter only,
Mr. DICKSON, Centre Avenue, Covent Garden, W.C.

Window Glass, Sheet Lead, Paints, &c.

THOMAS MILLINGTON AND CO., IMPORTERS and MANUFACTURERS. New LIST of PRICES, very much reduced, on application.
87, Bishopsgate Street Without, E.C.

NOTICE.
Royal Vineyard Nursery, Hammersmith.

MESSRS. J. AND C. LEE beg to GIVE NOTICE that
Lee's Nursery, Albion Gardens, Hammersmith,
where a Sale is advertised to take place,
Is in no way Connected with this Establishment.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION, for the relief of decayed Farmers, their Widows and Orphans.

Patron—HER MAJESTY THE QUEEN.
President—HIS GRACE THE DUKE OF RICHMOND.

Allowances to Pensioners.

Married	£40	per annum.
Male	£26	,,
Widow and unmarried Orphan Daughters	£20	,,

Every information to be had of the Secretary, by whom Subscriptions and Donations will be thankfully received.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.—THE FIFTEENTH ANNIVERSARY FESTIVAL, in aid of the Funds of the Institution, will take place at Willis's Rooms on SATURDAY, June 5, at 6 o'Clock.

H.R.H. The PRINCE OF WALES, K.G., in the Chair.

Dinner tickets, 21s., application for which should be made to the Secretary not later than May 22.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.—The ANNUAL GENERAL MEETING will be held at Willis's Rooms, St. James's, on WEDNESDAY, June 16, at 11 o'Clock precisely, and the ELECTION of PENSIONERS will take place on the same day, at half-past 11 o'Clock.

All Subscriptions shall be deemed payable on January 1 in each year; and no Contributor shall vote in respect of an Annual Subscription while the same is in arrear.

Offices of the Institution—
No. 26, Charles Street, St. James's, London, S.W.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.

Patron—HER MOST GRACIOUS MAJESTY THE QUEEN.
President—HIS GRACE THE DUKE OF RICHMOND.
Founded 1860.

For the Relief of Decayed Farmers and their Widows, and for the Maintenance and Education of their Orphans.

The FIFTEENTH ANNIVERSARY FESTIVAL, in aid of the Funds of the Institution, will take place at WILLIS'S ROOMS, King Street, St. James's, W., on SATURDAY, June 5, at half-past 6 o'Clock—

H.R.H. the PRINCE OF WALES, K.G., in the Chair.

Preliminary List of Stewards:—

His Grace the Duke of Buckingham and Chandos	Sir Edward C. Kerrison, Bart.
His Grace the Duke of Manchester	John Baldwin, Esq.
The Most Noble the Marquis of Exeter	Frank Battcock, Esq.
The Most Noble the Marquis of Hertford	Thomas Beddall, Esq.
The Most Noble the Marquis of Huntly	John B. Brandram, Esq.
The Rt. Hon. the Viscount Bridport	William Cunliffe Brooks, Esq., M.P.
The Rt. Hon. the Earl of Dunmore	J. W. Brown, Esq.
The Rt. Hon. Lord Egerton of Tatton	Chas. S. Cantrell, Esq.
The Rt. Hon. Lord Fitzwalter	George Cavendish Bentinck, Esq., M.P.
The Rt. Hon. the Earl of Hardwick	John Collins, Esq.
The Rt. Hon. the Earl Spencer, K.G.	Joseph Druce, Esq.
The Rt. Hon. Lord Mahon, M.P.	John Floyer, Esq., M.P.
The Rt. Hon. the Earl of Malmesbury	J. K. Fowler, Esq.
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The Rt. Hon. Lord Rivers	A. H. Johnson, Esq.
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The Rt. Hon. Lord Vernon	Hanslip Long, Esq.
The Rt. Hon. Lord Walsingham	John Marten, Esq.
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	B. B. Hunter Rodwell, Esq., Q.C., M.P.
	George Russell, Esq.
	Thomas Cowille Scott, Esq.
	Charles Shaw, Esq.
	Abel Smith, Esq., M.P.
	William Vivian, Esq.
	Thomas Wagstaff, Esq.

Dinner Tickets 21s., application for which should be made to the SECRETARY, at the Offices of the Institution, 26, Charles Street, St. James's, W., not later than May 22.

Alteration of Date.

THE EXETER ROSE SHOW will be held on JUNE 18, instead of JUNE 25, in consequence of the alteration of the Crystal Palace fixture. Prizes offered, £125. Schedules on application.
T. W. GRAY, Hon. Sec., Exeter.

ROYAL BOTANIC SOCIETY, Regent's Park, S.W.

EXHIBITION of CLEMATIS, in the Gardens, from MAY 5 to MAY 25, Sundays excepted. GEORGE JACKMAN AND SON, of the Woking Nursery, Surrey, beg to announce that their Exhibition of Clematis will be on view (as above) daily.

ALEXANDRA PALACE.—The GREAT ROSE SHOW will take place on THURSDAY and FRIDAY, June 24 and 25. Last day of Entry, Thursday, June 17.

NOTE.—Rule No. 7 of Schedule will be altered, making the time for Specimens to be ready 10 o'Clock instead of 9 o'Clock.

SCHEDULES of PRIZES, &c., may be had on application to A. McKENZIE, Alexandra Palace, Muswell Hill, N.

THE HORTICULTURAL CLUB is NOW OPEN for the use of Members. Dining, Drawing, Smoking, Reading, and Billiard Rooms will be at the disposal of the Members. The situation is central, and occupies one of the best sites in London, viz., Adelphi Terrace, overlooking the Thames Embankment, and close to the Charing Cross Station. The Entrance Fee is at present Two Guineas, and the Annual Subscription Two Guineas. Many of our leading horticulturists have already joined.

All communications to be addressed to the HONORARY SECRETARY, 3, Adelphi Terrace, Strand, W.C.

Cauliflower Plants.

H. J. HARDY begs to say he has a few thousands of the above to offer at a very moderate price. The Plants are well-grown, strong, and healthy, and have been pricked out from the seed-bed and well established.

Carriage paid to any Railway Station in England for 20s. worth. Cash or reference. Post-office orders made payable at "Bures." Apply to
H. J. HARDY, Stour Valley Seed Grounds, Bures, Essex.

Adiantum farleyense.

MESSRS. JOHN STANDISH AND CO. have a number of magnificent specimens of the above splendid FERN, fit for immediate exhibition. They are in 16 and 22-inch pots, and of perfect form. Also a few well-grown specimens of ADIANTUM GRACILIMUM, fine plants, 18 inches through, in 8-inch pots.

Further particulars and price on application.
Royal Nurseries, Ascot, Berks.

Lawn Grass Seeds.

FRANCIS & ARTHUR DICKSON & SONS' Mixture of LAWN SEEDS is composed only of the FINEST and DWARFEST EVERGREEN GRASSES, and is very superior to mixtures generally offered, quickly forming a close velvety turf. For New Lawns sow 60 lb. to 80 lb. per acre. To Renovate Old Lawns sow 10 lb. to 20 lb. per acre. Price 1s. per lb. Orders over 20s. Carriage Free.

The Old-Established Seed Warehouse, 106, Eastgate Street, Chester.

Cheap New Roses from Paris.

LÉVÊQUE AND SON, NURSERYMEN, &c., Ivry-sur-Seine, near Paris, beg to state that they have, in strong and healthy plants, all the new sorts of 1874, 1875, and the following, at per 100:—Hyp. Jamain, Diana, Amelie Hoste, Ant. Mouton, Bernard Verlot, Marie Sisley, Jean Ducher, Casimir Perier, C. F. de Serenye, and others (75 sorts). Also, at per 100 of each, Captain Christy, Madame Louis Lévêque, and Perle de Lyon, at low rates. Prices on application.

Bedding Roses.

CRANSTON'S CRIMSON BEDDER: strong plants, in 5-inch pots, 30s. per dozen.

TEA-SCENTED, CHINA, NOISETTE, and HYBRID-PERPETUAL ROSES, in 4 and 5-inch pots, 9s. to 15s. per dozen.

Now is the best time for bedding-out the Tea-scented and China Roses, and Hybrid Perpetuals, on their own roots.

Address, CRANSTON AND MAYOS, King's Acre Nurseries, Hereford.

NEW CLEMATIS, to be sent out by JOHN STANDISH AND CO. on MAY 10:—

ASCOTIENSIS.—The flowers are considerably larger than Jackmanni, and are well shaped, containing six petals each; colour, a fine azure-blue; it throws a profusion of flowers the whole summer long, and is of a very vigorous habit. 10s. 6d. each.

MRS. QUILTER.—A magnificent white flower, containing eight petals: it is the largest, smoothest, and purest of all the whites, and a very free bloomer, with strong habit. 10s. 6d. each.

The above are decided acquisitions, and should be in every collection. Orders are now being booked for them.
Royal Nurseries, Ascot, Berks.

Tree Ferns.

THE NEW PLANT and BULB COMPANY having received large importations, Tree Ferns need no longer be considered a luxury. They can be had in all sizes and in a fine growing condition, from 10s. 6d. each. Detailed Lists of sizes and Prices, just published, free on application.

FILMY FERNS, LOMARIAS, POLYSTICHUMS, and other FERNS from New Zealand, all suitable for a Cool Fernery, for planting out, or pot culture, shortly to give effect, at the prices of ordinary pot plants.

ORCHIDS are being constantly received in splendid condition in fine pieces. We respectfully invite Cultivators of these to send their Names and Addresses, that particulars of consignments, as to condition and quality, may be forwarded from time to time, as all are sold at a moderate profit. For present consignments, see Lists, free on application.

AMARYLLIS.—Hundreds of these now throwing up fine flower-spikes.
CYPRIPEDIUM JAPONICUM.—See Catalogue.
FREESIA LEICHTLINIANA. — For particulars of this grand bulbous plant, see *Gardeners' Chronicle*, May 7, 1875.
LILIES and other BULBOUS PLANTS.—An unrivalled collection.
Lion Walk, Colchester.

SATURDAY, MAY 22, 1875.

CHEMICAL WORKS AND TREES.

WHAT trees and shrubs will grow and flourish in seaside localities? is a question which has long occupied the attention of horticulturists; and a list of those which experience has shown to be suitable for such localities might easily be compiled from our own pages and those of other gardening periodicals. But there is another question which is of equal interest and importance, although perhaps to a smaller number of people, and that is—what trees will best resist the influence of the noxious gases which are, in too many instances, allowed to escape from the various manufactories which are the necessary accompaniment of our commercial progress? A recent visit to a locality which has suffered greatly from this cause has put us in possession of certain facts connected with this subject which may not be without interest to some among our readers.

The barren aspect of the immediate neighbourhood of the great Lancashire centres of commerce must have struck even the most casual visitor to those regions, and may be looked on as inevitable, or rather as beyond remedy. But the especial case which we have in view is one of a somewhat different kind. About 4 miles from Runcorn in Cheshire are the pretty and formerly well-wooded grounds of Norton Priory, the seat of Sir Richard Brooke. Runcorn itself is of the ordinary type of a manufacturing town, and emulates its neighbour, Widness, in the number of its chimneys and the quantity and density of the smoke which issues from them. Nevertheless, the surrounding country is pretty enough. The little village of Halton, perched picturesquely on a neighbouring hill, has its share of trees and flowers, and the grounds of the Priory are scarcely, if at all, injured by the Runcorn chimneys. Unfortunately, however, there are other works even nearer than Runcorn, and to them is clearly traceable the havoc which has been wrought among the trees and shrubs of the estate. The evidence which fixes the blame upon one of these in particular is nothing short of conclusive. Blasts of chlorine vapour and hydrochloric acid are allowed to escape from these works; and the result is that the trees and shrubs in their course have been literally scorched up.

At Norton there is a small wood which until a certain night in April two years since—for the very date of the damage can be fixed—was as thick with trees as it yet is with Bluebells. In that one night hundreds of these trees were either crippled or killed; and hundreds of them are yet standing in evidence of the cruel treatment to which they were subjected. Some, notably Beeches, are altogether destroyed; others, especially Oaks, put out a few leaves upon some of their branches, while others have escaped with the death of their tops or more prominent shoots. In the Priory grounds the effects among the shrubs are equally disastrous, and present some striking contrasts. Rhododendrons growing almost side by side will exhibit perfect health and absolute destruction; and when the reason of the difference is sought, it is found in the fact that the dead or dying shrubs are exposed to the wind from the quarter in which the works referred to are situated, while the survivors are protected from it either by other trees, or by a situation slightly out of the current.

We state the damage done thus at length because we desire to put the case in the plainest and most straightforward manner. It would not be difficult to adduce other circumstances, which show yet more clearly how great is the extent of the evil. For example, not only will the rain-water of the district at certain times give a distinctly acid reaction, but it will even kill the grass, where it forms little pools, either at the foot of trees or in the open; and we were informed—though this we did not ourselves observe—that the young leaves of Beans are notched and burnt should rain fall upon them during one of these discharges of hydrochloric acid gas. The soil from beneath some of the trees, at the foot of which the rain-water has accumulated and formed pools, has been taken up, but nothing will grow in it.

As a practical outcome from what has been said, it remains to state what trees are found most proof against this serious nuisance; for, although legal proceedings may be talked of, and even carried out, the fine which might be levied on the offending works could not restore the splendid Oaks, whose stumps yet remain in evidence of their former grandeur, or reanimate the dead and dying Beech trees, which may be counted by scores. It is found that Sycamores, Austrian Pines, and Scotch Firs, are to a very great extent uninjured by the gases; Acer platanoides, too, is fairly successful. Oaks and Beeches suffer most of all; Elms are less injured; Larches will not grow. It would appear that the best policy of the proprietor of the estate would be to constantly cut down the dead and dying trees, and to plant Sycamores and other gas-proof trees in their places; but it must be remembered that these latter have not yet attained their full height, and when they have done so they, too, may succumb like their predecessors.

The experience of other proprietors of estates, should there chance to be some as unfortunately situated as Norton Priory, would be interesting for comparison. "It is an ill wind that blows nobody good;" and, although the wind which carries with it a devastating blast of hydrochloric acid gas is about as ill a wind as could be met with, it may, nevertheless, result in the discovery of trees which will resist its noxious influence.

THE ROYAL ACADEMY.

LAST week our notes concluded with some remarks on Miss D. M. Mutrie's excellent flower subject, the "Cottage Window," No. 391. This lady's pictures are always successes, not only because Miss Mutrie can draw and paint flowers to perfection, but because she never attempts anything she cannot thoroughly well execute. One may look in vain amongst Miss Mutrie's paintings for certain flaming Masdevallias, magenta herbaceous Phloxes, &c., because she never attempts such plants, their colours being simply unattainable by art. A good artist never attempts any subject that cannot be well executed, and it is said to be one of the greatest miseries endured by those unfortunate men who paint for nurserymen that the plant-merchants in nearly every instance select for portraiture such plants as, from the splendour of their colour, no art can reproduce.

392, "Home from Gleaning," Val. C. Princep, is notable for its perfection of drawing. 398, "Eastern Slinger Scaring Birds in the Harvest-time: Moonrise," F. Leighton, R.A.—a study of a copper-coloured figure against a slate-grey sky; the Poppies and Corn blue-bottles in the foreground corn, are mere dabs of colour. In 399, "Old Gentility," H. Goodwin: apart from the figures we have a truthful study of a quiet river side with yellow Water Lilies. 416, "Elinor and Ethel, daughters of the Hon. Henry Edward Butler," E. U. Eddis. Portraits of two young ladies disguised as ragged vagrants, one with sticks and the other awkwardly holding a basket of Marsh Marigolds which she is litter-

ing out. 415, "Hoppers on the Road," one of W. Linnell's gorgeous landscapes, with road and precipitous banks. 438, "The Path by the River," G. D. Leslie, A.—low in tone but nevertheless a perfect picture: observe the prostrate trunk and the reflections in the water. 439, "The Samphire Gatherer," J. C. Hook, R.A. This is an excellent painting of a rosy-cheeked girl with a basket of Samphire on the top of a cliff: the view of the distant sea and breaking waves below is beautiful, and the Samphire in the basket is the true plant. 443, "The Mountains and Plain of Denderah on the Lybian bank of the Nile, Doum and Date Palms, Sont trees, &c.," E. W. Cooke, R.A. This is, altogether, one of the most beautiful landscapes and studies of rich colour in the exhibition. The sky is suffused with various shades of purple, green, orange, gold, and scarlet reflected from the setting sun. Against these tints the dark trees stand out in bold relief, and are reflected in the rippling water. The trees are uncommonly well worked out, and correct. Notice the glariness of the water under the trees near the shore. 444, "Winter," H. R. Robertson. This is in strong contrast with the majority of the landscapes of this year's Academy. An old woman in a black dress and red hood is sawing by the side of a ruinous hovel and equally ruinous dog-kennel. The distance is market-garden-like, and the sky is slate-coloured, with a white streak on the horizon. In the foreground are Cabbages. Mr. Robertson has painted several pictures from Mr. Smee's garden at Hackbridge, but Mr. Smee, we are sure, would decidedly disapprove of these apocryphal Cabbages. What, however, can be expected from the gardening of an old woman who is a sawyer as well as a horticulturist? 456, "Sunset on the Moors," J. T. Linnell: a richly coloured stormy sunset. In 463, "At Ashfordly, near Melton Mowbray," J. M. Barber, we have another well painted river-side picture, with yellow Water Lilies, and the foliage of the Giant Coltsfoot. 478, "Among the Birches," A. J. Lewis, is a beautiful picture of woodland scenery, which only requires a group of the Birch-loving Agaricus muscarius to make it perfect. 481, "The Fallow Field," J. W. Oakes, is a spring landscape of the greatest beauty, with showery sky, and the sun lighting up a valley in the distance—Primroses and flowering Blackthorn in the foreground: observe the effect of the deep shadow over the distance on the left, and the sun just glancing over the field, as shown by the shadows cast by the distant trees. 489, "The Crofter's Moss," T. Graham, is a powerfully painted mountain subject. 503, by J. MacWhirter, and 513, "Loch Scavaig," Vicat Cole, A., are both magnificent studies of mountain and flood. 507, "Farewell Summer," Miss A. F. Mutrie, is a picture of Pompons, Roses, "modern antique," fan of peacock's feathers, &c., and is one of this artist's masterpieces; every part of the picture is worthy of close study: observe the effect of the sweet amber colour of the glass beside the deep purple and blue jar. 517, "The Gloom of Glen Ogle," J. Smart, is a most impressive painting of huge masses of slate-black rocks and heavy dark sky. 520, illustrative of some lines by Kirke White, H. H. Cauty, is a lovely picture of a pleasant sylvan walk and sandy path, beside a wooden park fence and overhanging trees: observe the position and importance of the black dog in this subject. 526, "Near Torquay," C. Simms, is a pretty little picture of a shady walk, but the attempt to paint the sunlight on the grass is hardly a success. 533, "Early Spring," E. Earle, is a charming woodland picture, with sloping banks covered with Primroses. 554, "Wild Water," B. W. Leader, is a picture of woodland and stormy flood; the water with the light upon it from the opening clouds is a masterpiece of painting. 566, "Twilight," P. Graham, a moorland scene, with black tempestuous clouds sailing over the picture. 585, "A Ferry on the Upper Thames," H. R. Robertson. This we esteem as one of this artist's best pictures; the effect of the evening sunlight on the piles, trees, and rippling water, is very pretty, and the plants of Centaurea nigra on the right are very good; the picture is less low in tone than other works by this painter. 613, "La Charge des Cuirassiers Français à Waterloo," Philippoteau, is notable as a successful battle piece after the many dismal failures of former years. 615, "Isabel; a Portrait," Val. C. Prinsep, is a picture of a lovely girl (with a very pale face) carrying a bird's-nest in a large branch of Hawthorn, the latter rather carelessly executed.

According to the sequence of numbers the water-colour room is now reached. 635, "Magnum Bonum Plums," J. Sherrin, is a masterpiece of manipulation, after Hunt's style. 642, "Trentham Wood from the Garden," John O'Conner, is a beautiful garden sketch, with a great deal of sky. 663, "Primulas," Miss Isabella Green, is a neat little drawing, but not specially good. 674, "A Beech Forest," J. M. Fergusson, is an excellent picture of gigantic ruinous Beeches, such as one sees at Burnham. 684, "Hyacinths," 701, "Hyacinths," both by S. J. Whiteford, the first a white and a purple Hyacinth, but without any special excellence; the latter a white and a pink Hyacinth and Camellia bud in an old earthern pot, well painted and brilliant. 712, "Snowstorm on the Glydders, North Wales," J. J. Cwmock; this is a magnificent water-colour of mountains and mountain streams, with an approaching storm of snow. 714, "In the Canterbury Meadows," C. Earle, is a good river-side picture, but to us a little unsatisfactory. 720, "The Chestnut Avenue, Cowdray Park, Sussex," T. J. Soper, fails to give us a true idea of Chestnuts. 738, "Chrysanthemums," Miss C. Philip. In this the work is imperfect and laboured, with the leaves unnatural and out of perspective. 780, "Green Gages and Apricots," P. Dolan, seems up to the average, but the picture is towards the top of the room. 793, "Primroses," Miss M. Naftel, is very good, and in the style of Hunt, but really one has seen so many water-colours of Primroses in this room that the very name of "Primroses" seems to predispose one against them. 798, "Gum Cistus and Sweet William," J. J. Hardwick, is a pretty and brilliant bit of drawing and colour, and a relief from its freshness of subject. 808, "The Thames at Bolney, near Henley," W. Gosling, is a very fine piece of water-colour painting of trees and water; the horses and oxen, as seen lit up by the sun through the opening in the trees, is very pretty. 822, "Plums and Apples," W. Hough—Apples, Plums, Cob-nuts, and fruits of the wild Rose: our remarks on 635 exactly apply to this picture.

We now come to the remaining paintings in oil. 834, "The Baron's Dessert," W. Hughes: this is a picture painted in Lance's style, with a huge salver, bunches of Grapes, Nuts, and Pears (or Quinces), all well done, with a sombre background and the never-failing glass of hock. 846, "The Ornithologist," J. H. Hague, is an excellent picture, which includes, besides birds, fishes and other animals; it is a study of good drawing and colour: observe the tint of the sky as seen through the window as contrasted with the coat on door, and the colour of the ornithologist's nether garments, and the dish of rosy Apples on the ground. 853, "The 28th Regiment at Quatre Bras," by Miss Elizabeth Thompson, deserves a word of notice in passing to 860, "Gaffing a Salmon," J. Docharty, a Black Pine forest on the banks of a rocky stream. 1157, "Fruitful Boughs," W. Hughes, represents large branches of Plums and Apples, perfectly painted. 1158, "Great Sport," P. H. Calderon, R.A.—an altogether excellent and pleasant picture of two children in a flowery meadow, one with a net catching butterflies, the other with a basket to preserve them in when caught: the happy children are up to the waist in grasses, Mullein, Lychnis, Dog-Daisies, and Dandelions. 1191, "A Good Bargain," H. Woods. A country huckster driving a bargain in a country garden, in the beds in the foreground of which and in pots are flowers boldly and well painted and thoroughly true to life. 1193, "On the Banks of the Thames, A.D. 200," G. D. Leslie, A. An excellent picture of (judging from the seat, tesselated pavement, &c.) a Roman lady; growing in the deep bed of the Thames is the white Water Lily, and on the seat may be seen blooms of Camellia japonica. Such a lady as this must have had a very improving effect on the naked natives, who (if the *Commentaries* are truthful) were in the habit of painting themselves blue at the time when Julius Cæsar's soldiers crossed the Thames. We presume, after all, it must have been Septimus Severus who introduced Camellias from China to our forefathers in blue, and helped them to put up their first flues and boilers. 1199, "Summer Days for Me," A. W. Hunt. There is an unpleasant chalkiness pervading this landscape, which is otherwise well painted. 1213, "Summer Noon," Vicat Cole, A. This is one of the most finished and perfect landscapes in the Academy. Observe the admirable dashing drawing and perfection of colouring in the group of Ferns in the foreground—one of the most difficult of all botanical subjects either to draw or paint well. 1215, "Lever's Water, Coniston," S. R. Percy: another highly-finished picture of mountain, rock, and water. Notice how uncommonly well-painted are the lowering clouds and the deep blue of the distance under the cloud on the right and just above the huge jutting rock. 1218, "The Disputed Toll," H. Hardy, is a picture abounding in quiet humour, and should be examined before leaving the room, if only to notice the placid, contented face of the elephant with its little twinkling, watery eyes. 1222, "Flowers, Fruit, and Vases," J. Robie, is the most highly finished and elaborate of all the fruit and flower pieces at Burlington House; the objects, both animate and inanimate, are the things themselves. 1235, "Daffodils," W. J. Muckle, is an unusually good picture, and includes Azaleas, Violets, &c.; the colour is thoroughly studied: observe the intense purple Azaleas at top, the sulphur Daffodils below, the blue jar to the left and the pale rose-coloured Azalea on the right.

Any one of the pictures above adverted to would look much better removed from the walls, for a picture always requires some sort of isolation to bring out its qualities. The neighbouring pictures of a gallery always have an influence for good or bad on each other.

New Garden Plants.

MACROZAMIA PLUMOSA, HORT. BULL.*

Among Mr. Bull's rich collection of Cycads is one of great beauty, introduced from Queensland, and called by the garden name of M. plumosa. Although it is a very unsafe thing to attempt to identify certain species of Cycads from small specimens, especially when cones are absent, yet it seems probable that the plant of which we give a figure is the Macrozamia Paulo-Gulielmi of Mueller's *Fragmenta*, i. 87 (1858), Bentham's *Flora of Australia*, and other works. M. plumosa is a peculiarly graceful plant, with a marked spiral twist in the leaves, the slender linear pinnæ of which are also in many cases spirally twisted. This is well shown in Mr. Worthington Smith's drawing, where also a plan of the spiral arrangement is given. The pinnæ spring from the edges of a flattened rachis, and are quite glabrous, 6—8 inches long, $\frac{1}{8}$ inch wide, channelled along the upper surface, and with a more or less prominent midrib, the lower surface is marked

* *Macrozamia Paulo-Gulielmi*, F. v. Mueller, Fragment. i., p. 86; ii., p. 179.—Trunk scarcely raised from the ground, covered with the woolly imbricate bases of the old petioles; leaves otherwise glabrous, 1—3 feet long, the rachis narrow, but often flat on the top; pinnæ numerous, very narrow and often almost terete, contracted and sometimes callous at the base, the longer ones 6—8 inches long and 1—1½ line broad, thick and obscurely veined; cones on woolly peduncles of 1—3 inches, the males oblong-cylindrical, scarcely above 3 inches, the scales about 4 lines broad, somewhat thickened at the apex, with a short point; fruiting cones about 4 inches long, 2 inches thick, the larger scales about 1 inch broad and rather thick, those of the lower part of the cone narrower and thicker, the apex almost prominent with a very short point. (Benth. Flor. Austral. vi. 251; A. D.C. Prod. xvi., sect. ii., p. 536, 1868, Queensland and New South Wales). To this species probably belong M. tenuifolia, Hort. Bull. [M. tenuifolia, Hort. Bull., appears to us not to belong to this species. Ens.], and M. plumosa, *vide supra*.

M. spiralis, Miq. Mon. Cycad. 36, t. 4, 5.—Trunk short: leaves glabrous, 2—4 feet long, the rachis usually more or less raised longitudinally on the upper surface between the two rows of pinnæ; pinnæ numerous, flat, straight, or slightly falcate, the larger ones 8—10 inches long and 3—4 lines broad, marked on the under side with longitudinal parallel veins, slightly contracted and callous at the base, ioserted longitudinally, and the lower margin slightly decurrent, the lower pinnæ much smaller, and sometimes passing into a few small teeth, a gland-like callosity at the base of the pinnæ on the upper side, sometimes prominent, sometimes very obscure; male cones 6—10 inches long, 1½—2 inches thick, the scales much flattened, the apex, however, thicker than in M. Preissii, about ½ inch broad, tapering into an incurved point, very short on the lower scales, ¾ inch long or more on the upper ones; fruiting cones varying much in size, but usually shorter and thicker than the males, the apex of the larger scales 1—1½ inch broad, and usually 3—4 lines thick, with an incurved point usually short. Benth. Fl. Austral. vi. 251 (1873); A. D.C. Prod. xvi., ii. 535 (1868).—*Zamia spiralis*, R. Brown, Prod. 348; *Encephalartos spiralis*, Lehm. Pugillus, 6.—Of this species Bentham admits as varieties —1, var. corallipes, Bot. Mag., t. 5943; 2, var. secunda; 3, var. cylindracea (a garden name for a form with the narrow foliage of M. Paulo-Gulielmi, but with a glabrous trunk and more terete rachis); 4, diplomera.

with several longitudinal nerves. The segments or pinnæ are very numerous, and some of them are deeply bifurcated, as in the variety of M. spiralis called by F. v. Mueller M. spiralis var. diplomera. It is probable also that the peculiar spiral twist of the foliage is to a large extent peculiar to the young plant, though according to F. v. Mueller not wholly so. In any case we have in this plant one of the most elegant of this noble family. The very slender elongate leaf-segments give the plant a very graceful appearance, and render it a very valuable plant for decorative purposes. Mueller describes the stem of M. Paulo-Gulielmi as subterranean, the number of pinnæ as nearly eighty. M. plumosa differs from M. spiralis in the raches and leaflets, in addition to the cones. The seeds of some of the allied species are collected by the natives as food. M. Paulo-Gulielmi was first found by Mr. W. Hill, near Moreton Bay, and afterwards by Gregory in the "Expedition Range Mountains." The trunk is said by both gentlemen not to be visible above ground, whereas in Mr. Bull's plumosa there is, as seen in the sketch, a short but well marked trunk.

We append in the foot note an extract from Bentham's *Flora Australiensis*, which may be serviceable to those not in possession of the original work.

Fig. 132.—MACROZAMIA PLUMOSA, HORT. BULL (PAULO-GULIELMI?).

It is only necessary to caution the reader against confounding the Encephalartos Friderici Gulielmi of Lehmann, now referred to E. cycadifolius, and a native of South Africa, with the Macrozamia Paulo-Gulielmi of Queensland. *M. T. M.*

× ODONTOGLOSSUM MURRELLIANUM.*

Nulla dies sine linea! If not "dies," let us modestly say "hebdomas." There is, indeed, no end to our learning in Orchidology, getting wider, clearer views, having answers for old questions, and new unsolved questions arising from those answers ever teaching us how much is to be learned. Here is once more such a lovely novelty as one could scarcely have imagined. Take a raceme of a good Odontoglossum nævium, but with blunter sepals, petals and lip, not wavy at all; imagine all those organs washed with a light tinge of purplish violet and with some such darker blotches distributed with the greatest irregularity, and put on the base of the three-lobed narrow lip those lamelliform toothed calli of O. Pescatorei of the most splendid yellow and before some yellow calli of O. nævium, and give to the column oblong toothletted wings and some purplish violet and yellow blotches. To show to excess the hybrid nature, there was no candicula, no glandula, and the pollen masses themselves were not waxy but soft.

This lovely plant, unique, as far as we know, has just flowered in the garden of Mr. W. Burnley Hume, so well known for his having flowered the first Batemannia Burtii. The plant, a small thing, quite like a plant of O. Pescatorei, was observed with a lot of that species. The lucky possessor wished it to be named in honour of his gardener, Mr. Murrell, who appears to be very successful from the copious splendid inflorescences I once saw under glass bells in Mr. Burnley Hume's drawing-room, arranged with artistic skill by Mrs. Hume. *H. G. Rchb. f.*

* × *Odontoglossum Murrellianum*, H. G. Rchb. f., n. hybr.—Racemo laxiflore; sepalis et tepalis lanceolatis acutis planis; labello ab ungue late dilatato trilobo, lobis lateralibus semiovatis denticulatis, lobo antice ligulato acute crenulato; lamellis supra lobos laterales incrassatis adnatis extrorsum serratis; callis duobus oblongis dentatis cum carina mediana interpositis carina forcipata anteposita; columnæ trigonæ curvæ auriculis oblongis denticulatis. (Odontoglossum nobile [Pescatorei] nævium.) Flores albi violaceo-purpureo lavati maculis irregularibus obscure violaceo-purpureis. Calli labelli pulcherrima flavis. —Ex Nov. Granada importatum.

FRITILLARIA (AMBLIRION) DASYPHYLLA, *Baker, n. sp.**

This is the Asia Minor plant joined with Caucasian

* *Fritillaria* (*Amblirion*) *dasyphylla*, Baker, n. sp.—Bulbo

tulipifolia in my monograph upon the examination of imperfect dried specimens. Now upon the study of the living plant and a fine stock dried by Mr. Elwes in Asia Minor, I have no hesitation in separating it. The leaves are more numerous than in the Caucasian plant (which is well figured in *Botanical Magazine*, t. 5969), and not at all glaucous. The flower is much less purple, and the stamens considerably shorter in proportion to the perianth. The station where it was found by Mr. Elwes is in light sandy soil over serpentine between Moolah and Aidin, 2000 feet above the sea level. Both this and the other flower in England in the latter part of April.

Bulb globose, under ¼ inch thick, with membranous tunics. Stem 3—9 inches above the soil, bearing 6—12 fleshy green leaves, the lowest oblong, 1½—2 inches long, ½—⅝ inch broad, the upper close, linear, 1¼—2 lines broad, mostly all scattered. Flower drooping, usually solitary, broadly funnel-shaped, under an inch long, pale purple on the outside, yellowish within, quite untessellated, the nectary oblong obscure, greenish, the outer divisions oblong, ¼ inch broad at middle, the inner obovate-cuneate, 4 lines broad above the middle, with a puberulent tip. Stamens 5—6 lines long; anther oblong, obscurely pointed, less than half as long as the pubescent filament. Ovary ⅜ inch long, clavate, deeply 6-sulcate in the upper half. Style filiform, as long as the ovary, falling decidedly short of the perianth-segments, quite entire and filiform, with a capitate stigma. *J. G. B.*

THE HANDSWORTH NURSERIES.

A FEW miles from the smoky busy town of Sheffield are situated the very extensive and noteworthy nurseries of Messrs. Fisher, Holmes & Co. An ordinary observer would be apt to think that one large nursery must be very like another, but though there is necessarily a considerable similarity there are always special points of interest arising from local circumstances, or from the tastes and acquirements of the proprietors. Such is the case in the present instance, but although we were prepared from the repute of this old established firm to find large collections of hardy ornamental trees and shrubs, especially Hollies and Rhododendrons, we did not expect to see such complete collections in other departments, nor were we prepared to see such a display of clever manipulation and successful propagation as is here apparent. The least little scraps of variegated Conifers are made to strike. Such things as "miffy" subjects, or such adverse conditions as "damping off," seem not to vex the souls of the proprietors—their root-grafted Clematis, their grafted Daphnes, their layered Lapagerias throwing up a shoot from every "eye," and a hundred other subjects, evince the extreme neatness and success of the operators. Out-of-doors our attention was principally attracted to the fine show of early Rhododendrons (time, end of April), many of them in fine specimen plants, not a few—the original types, as a botanist would say—raised in the nursery. These Rhododendrons are growing in a stiffish loam, and some hundreds of varieties are kept in stock. Among those we noted as most remarkable at the time of our visit were—Venus, with very fine blooms, flushed with pink; Cathcart, Sebastopol, Paxtoni album, a fine variety; Brightness, crimson; Handsworthianum, a variety now of thirty years' standing, but still holding its own by virtue of its compact trusses of lilac-pink flowers; strictum, an old white variety; Blanche, various forms of arboreum and argenteum, some of which proved tender in 1860; other varieties referable to campanulatum. One of these latter, named Robustum, has very large leaves, covered beneath with the rich orange-brown pubescence of campanulatum, and with large lilac flowers. R. Falconeri also stands out-of-doors here.

Hollies form another speciality of this nursery, Mr. Fisher having for years taken great interest in selecting the seedling varieties. Consequently we find here noble specimens of varieties well known to lovers of these plants, such as Shepherdi, at least 20 feet high, and well furnished to the bottom; platyphylla, Golden Queen, Whittingtonensis, Handsworthensis, and one in particular like I. camelliæfolium, but with a loose habit, rapid growth, and producing abundance of fruit on the old wood. It was interesting to see on one variety, with leaves with a silver central blotch, a sport producing leaves with a green disc and a golden edge; and equally curious to see the great variation in size and appearance in seedlings of the same age, taken from the same tree and grown in the same seed-pan. Ornamental Conifers are represented here in quantities, amongst others is a fine variety of Deodar with foliage so dense and compact as to give the branches the appearance of a clipped lawn. Another Deodar of forty years or more was hardly recognisable from a Cedar of Lebanon. Golden Yews in abundance and variety are to be found, and among them a new variety of Taxus adpressa called aureo-marginata, with neat compact habit and very bright golden edge—a decided advance on any similar variety known to us. The Parsley-leaved Bramble is grown here in considerable quantities. Trained to an arcade of wire, its foliage is ornamental, and it produces an abundance of large juicy fruits. As may be expected in so old-established a nursery, fine specimens and old "stools" that rejoice the heart of a propagator are to be seen here in plenty. Among others we noticed a Japanese Maple some 12—14 feet high and between thirty and forty years old. This nursery was also the birthplace of the very elegant and free-flowering × Berberis stenophylla, the parents of which are said to have been B. Darwinii and B. empetrifolia. For this alone gardeners owe their gratitude to the firm. We must leave the reader to imagine the acres of forest trees and hardy shrubs, the endless quarters of fruit trees, the thousands of Roses, and we must pass with the mere mention the collections of herbaceous plants.

In the houses a very large general collection of stove and greenhouse plants is got together. The object is, not to grow specimen plants, but to secure a large and healthy stock, and this is effectually done by the aid of the clever propagators, whose art is so conspicuous in this nursery. The houses themselves are light and serviceable, many of them built by Messenger of Loughborough, and all provided with that very handy latch introduced by Mr. Simpson of Wortley. To enumerate the contents of these houses would be to write a list of the best Orchids, the best Ferns, the best and popular stove and greenhouse plants of the day. Seedling Echeverias are raised here in quantities, and indeed there seems to be a general tendency hereabouts to make use of succulent plants for bedding purposes. Among Azaleas Lizzie Tillery is noticeable as a free-flowering variety with salmon-pink flowers laced and edged with white. Lycopodium Lyallii and Actiniopteris, plants that do not succeed well with all folks, are here growing away vigorously. Aralia Veitchii is propagated by being worked on A. reticulata, and such is the skill and economy practised that a single eye and a leaf are found sufficient. Daphne elegantissima is also propagated largely, as its value as a hardy variegated shrub is likely to be great. This nursery has served as the training school for some who are now among our leading nurserymen, and when we see the extent of the establishment, and the business-like way in which it is managed, we are not surprised at the progress of the pupils.

Those who have the opportunity should not fail to visit this fine establishment, where they are pretty sure to find much to interest and not a little to instruct them, especially if they should have as a cicerone the head of the firm. Such, at least, is the experience of *A Rambler*.

GREYA SUTHERLANDII.

AMONG the many important contributions to botanical science for which it must ever be indebted to the amiable and lamented Dr. Harvey, his *Flora Capensis*, or "Plants of South Africa," is not the least important. While engaged in its preparation he was one day sitting in his rooms in College with some dried specimens of South African plants lying before him. With one of these, as Dr. Moore, of Glasnevin, happened to call on him, he just then appeared to be specially occupied. Handing the specimen to him, coupled with the remark that some eminent botanists with whom he had been in communication with regard to it were puzzled as to the order to which it should be referred, he asked Dr. Moore to look at and say where he thought this interesting nondescript should be domiciled. Having examined the specimen carefully, Dr. M. returned it, confessing at the same time that he was a good deal puzzled, but that he thought, if not actually belonging to, it came very near Saxifragæ. "Good," replied Dr. Harvey; "it is exactly there I have placed it." While they were speaking Dr. Moore noticed something like seed or a seed capsule, we are not sure which. This was promptly laid hold of, carried home to Glasnevin, sown, and the result was, raising in that establishment—for the first time in Europe—plants of Greya Sutherlandii, than which we believe a more telling or more sensational subject has been or could be taken in hand by the intelligent and high-class plant grower. For the first time in Ireland this remarkable plant has quite recently flowered at Glasnevin. This and once at the Chelsea Botanic Garden are the only occasions on record, we believe, of its flowering in Europe.

This very striking and beautiful shrub, though existing in several parts of Cape Colony, was first made known by the dried specimens forwarded thence by Dr. Sutherland to Dr. Harvey, and was named by the latter and Dr. Hooker in honour of Sir George Grey, K.C.B., who was at the time Governor of Cape Colony, and who, in the words of Dr. Harvey, invariably took "a warm interest in developing the natural history of South Africa." But hold. Plantsmen, to whose special notice we are anxious to commend it, will care more to know what our plant is like than to be told of its whereabouts in system or little episodes in its history. Well, then, let them fancy an overgrown Pelargonium of the woody or "show" section—not Zonal or variegated—rather long-jointed, and having smooth glossy leaves, exactly resembling those of a Pelargonium, clustering mostly towards the points of the branches. Instead, however, of Pelargonium-like flowers rising from their midst, we have a glorious, dense, many-flowered upright spike, or raceme, several inches long, composed of brilliant crimson flowers, bristling notably with the remarkably elongated white-anther-tipped stamens. Each flower has twenty of these arranged in two rows, those of the outer row are abortive, and are exceeded by many times in length by the inner or fertile ones, whose prominence and appearance add not a little to the general effect of the magnificent flower-spikes. We do not know a subject we should rather see taken in hand by the successful and enthusiastic plantsman than this. It may be objected that it is, as seen at present, somewhat leggy and bare in habit, but we all know what has been done in getting over these in the case of Poinsettia, Cyrtanthera, and other less promising subjects; and the man who can subdue this magnificent South African, and will be the first to place it in similar form as we now see these on the exhibition stage, will produce a sensation and effect something to be proud of. Well might the lamented and rarely-gifted Wm. Henry Harvey write—"A more interesting addition to our conservatory shrubs has not been made for many years." *Irish Farmers' Gazette.*

USES OF THE COMMON RUSH.

IN previous numbers of the *Gardeners' Chronicle* (1871, p. 740; 1874, ii., 385, 417) attention has been directed to the uses of the common Rush, and other points of interest connected with it in our own country. Dr. Hance publishes in the current number of the *Journal of Botany* some notes upon its employment among the Chinese which contain some interesting facts supplementary to those which we have already recorded. The pith is sold in Canton in little bundles folded longitudinally, and then secured by the ends, being wrapped round spirally, just as one might make up a hank of twine, the whole forming a cylinder about 4 inches long and half an inch in diameter. The pith thus prepared is employed in Chinese domestic medicine, being simply boiled in water, and the water drank; it is said to be "of sovereign efficacy in febrile affections." The use of "rushlights" among ourselves is paralleled by the employment of this plant for lamp-wicks among the Chinese. "The ordinary light is a saucer, or a lamp like a candlestick, but with no aperture for the reception of a candle, the top being slightly excavated to hold oil, and the pith wick laid across this, and one of the ends lighted; or sometimes oil is poured into a glass half filled with water, the wick being held in a spiral tube of wire, with three hooked arms to attach to the edge of the vessel." So extensively is the Rush employed in this manner that it is cultivated for the purpose in one district of Canton, the pith being extracted by women, who run a blunt needle along the stem, splitting it up, and stripping off the pith entire. The species used is our common soft Rush (Juncus effusus); the Sinpus capsularis of Loureiro, which he describes as being similarly employed both in medicine and for domestic purposes, is no doubt the same plant; a Cantonese name signifying "lamp-wick grass" is common to both.

But perhaps the most important use of the Rush is in the manufacture of sun hats, of which Dr. Hance says:—"I had always been under the impression that these hats were manufactured from rice-paper (Fatsia papyrifera); but the dissection of a hat at once disproves this. In making these hats the *modus operandi* appears to be as follows. The interior shell is first formed of pasteboard, then four or five pieces of pith, in lengths of between 2 and 3 inches, are taken and rolled up in a piece of the extremely tough paper always used by the natives for deeds and other legal documents, and which is made from Broussonetia. These rolls are packed in the shell until the required thickness is attained, the outer case is added, and the whole covered with silk or cotton." Dr. Hance says that these hats are almost universally worn in summer

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parvo globoso tunicato; caule 3—9-pollicari sæpissime unifloro; foliis 6—12 viridibus infimis oblongis vel oblanceolatis superioribus linearibus omnibus sparsis vel raro supremis vel infimis oppositis; perianthio late infundibulari 8—9 lin. longo flavo-purpureo haud tesselato, foveolis oblongis obscuris, segmentis exterioribus oblongis, interioribus obovato-cuneatis; staminibus perianthio triente vel subduplo brevioribus; stylo filiformi antheras superante ovario æquilongo; stigmate capitato. — *F. tulipifolia var. dasyphylla*, Baker, Linn. Journ. xiv. 266.

by foreigners in the East, and suggests that it would be worth while for our English manufacturers to utilise this very common plant in the same manner, as the manufacture is easy, and the demand for such light and effective sun-protectors would probably be very extensive.

It may be noted here in connection with the paper upon "Rush-bearing," which appeared in our last volume (p. 385), that the practice of strewing the floor of Norwich Cathedral with Rushes upon great festivals is not at present maintained. For this information we are indebted to the Dean of Norwich, Dr. Goulburn, who has not been able to ascertain the date of its discontinuance. As the statement that the custom still exists is copied from one book to another, as if true of the present day, this note may be of interest.

UPTON HOUSE, DORSET.

A QUARTER of an hour's ride from the Bournemouth west railway station brings us to the town and port of Poole, from whence a walk of less than an hour will bring us to Upton House, known only before as a pretty house and estate in Dorset, but now of world-wide notoriety, thanks to "Sir Roger." Trudging along, enjoying the fresh and verdant beauties of the surrounding scenery, we come to the borders of the Canford estate at Hamworthy; and here we pause awhile to notice the model cottages built for the labourers on his grounds by Sir Ivor Guest, Bart., the wealthy proprietor of the splendid manor. Neat and comfortable looking dwellings, with pretty flower gardens in front, they form a charming contrast to the "Dorset hovels" of which we have read so much, and strike us as a redeeming feature in the ugly picture lately drawn in which landowners, farmers, and labourers have figured so boldly.

Arrived at the lodge gates leading into the beautiful park at Upton, we get a peep through the railway arch of a pretty landscape picture, into the charms of which, however, we must allow neither our steps nor our pen to wander to-day. The drive from the lodge gates to the house is nearly half-a-mile long, bedded on each side with plants and evergreens, serving to screen the railway embankment running parallel to it on the one side, but on the other to intercept some pleasing views of Poole Harbour and the surrounding country. The park contains Spruce, Larch, Birch and Scotch Firs, the latter of which emit a perfume not unlike that which greets the olfactory nerves of the visitor to our unique and pretty watering-place, and similar to that of the Eucalyptus globulus, a native of New Holland, which is found to be hardy also at Bournemouth.

Under the umbrageous shelter of the fine trees that stud the ground we would fain linger, but Time says "pass on," and proceeding through the kitchen gardens and pleasure-grounds we arrive at the fine old mansion, which is in the Grecian style of architecture, and tastefully covered on one side with trellis-work. The house contains about fifty rooms, having a large entrance-hall, handsome dining and drawing-rooms, with a library, the doors of which are unique in their construction, so closely resembling the crowded bookshelves as to deceive the eye, and leave the stranger a prisoner until a spring is touched by a more practised hand, and the doors swing back. There is also a pretty little chapel for family service. From the upper windows of the house we can see that the beautiful lawn below is extensive; and raising the eyes we find spread out before us, over the tops of the trees, splendid views of the surrounding country miles away. We are informed that the pleasure-grounds of the mansion spread over 13 acres, and an hour's saunter through them reveals to us a superb collection of Roses, fine specimens of the Magnolia purpurea, and a splendid mass of Rhododendron Cunninghamii, 40 yards in diameter and 15 feet high, in a blaze of scarlet bloom. Here, too, are a couple of large plants which claim especial notice—the Araucaria brasiliensis, which appear to be quite hardy, as also the three varieties of the Cedrus—atlantica, Deodara, and Lebanon. And now we stand in the shade of one of the finest Virginian Cedars we have ever met with—a magnificent fellow, standing about 45 feet high, and measuring some 18 inches through the stem. Mr. Newton, the eminent landscape architect, at present superintending the laying out of the winter garden for Bournemouth, and a man of great experience in his profession, says of this tree that it is the finest stem he has seen out of Virginia, and recommends the planting of it, not only for ornamental purposes, but for profit in this district. Passing on we find some Junipers, averaging 40 feet high and 18 inches in diameter, and a number of large Purple Beeches that form a pleasing contrast to the eye. To the right of these is a beautiful little geometrical flower-garden, laid out in grass and surrounded by some choice specimens of Silver Firs. A path from this leads us again into the kitchen-garden, at the entrance to which stands one of the finest Camellias we ever saw, trained to spread over the garden wall. Mr. Crabb, the head gardener, to whose courtesy we acknowledge our indebtedness, informed us that this tree had been planted before his time, and he reckons thirty-nine years on the estate. It covers 400 feet of surface, is perfectly hardy, and in full bloom. The Camellia-house is also well-filled with choice blooms, and we noticed a remarkable specimen of the Wistaria sinensis, which in another week or so will be well worth seeing. The kitchen-garden is well-stocked, and the walls are covered with Pear, Apricot, and Fig trees, foremost amongst which stands a splendid Marie Louise Pear. *Bournemouth Observer.*

BRITISH GARDENERS.—XVIII.

DAVID T. FISH.

MR. D. T. FISH was born in the year 1822, at Old Scone, Perthshire, and was educated in the parochial school of New Scone, where sound instruction was imparted, including mensuration, land surveying, mathematics, and the ability to read Latin. His first school of horticulture, he tells us, was the garden of the Earl of Mansfield, Scone Palace, Perthshire, then under the able management of Mr. James Dodds, who, during the three years of his apprenticeship, was assisted by three most efficient foremen—Mr. W. Purday, who succeeded to the curatorship of the Botanic Gardens, Calcutta, and died some years ago; Mr. Alex. Blackie, of Revesby Abbey; and Mr. John Lamont, of Dickson & Company, Edinburgh—a trio of worthy men who did much by their own enthusiasm in botany, floriculture, and kitchen gardening, to evoke similar qualities in the young men under their charge. Mr. Dodds was also able and energetic, seldom giving direct instructions, but rather teaching by example, and now and then by a pregnant saying, such as was addressed to him one Saturday, when working hard to clean the long range of houses, "That's right, Davy; cleanliness is the parent of health"—a sentiment that was soon made the common property of all the lads and men on the place.

No doubt, as Mr. Smith has observed, Scone was a good school for the learning of the art of gardening as a handicraft. Work was not only plentiful, but had to be well done. It mattered not whether it was mowing from 5 to 9 in the morning, hoeing, digging, raking, nailing, no "scamping" was ever allowed. Those marvellous Morello Cherries adverted to by Messrs. Smith and Ward were looked up to with a sort of veneration, and the honour of being allowed to nail them was coveted as much as a senior wranglership at a university. The curriculum for apprentices was also a useful and an unvarying one. One year (the first), fires and houses; the second, serve the kitchen; and the third, work in the flower garden. Custom generally gave a fourth as a journeyman, to establish more perfectly "'prentice hands" by practice in all departments before changing to another place, or going into an Edinburgh nursery.

"Fortunately," observes Mr. Fish, "a better opening than either of these was made for me by my brother, Robert Fish, for many years gardener at Putteridgebury, Luton, Beds. I arrived there in the middle of November, 1842, and remained at Putteridge as second and first foreman till the spring of 1845. These years were among the busiest and happiest of my life. They were distinguished by hard work, harder study, warm brotherly and sisterly sympathy—for my sister, Mrs. Erskine, then kept my brother Robert's house at Putteridge—and wise help. In the garden Robert was a strict impartial master—no favour to any one; his Spartan rule was to get the most work in the shortest time, of the highest quality, from every man and boy in the place. Out of the garden no man could have had a more affectionate brother, nor a truer friend. At Putteridge the far-reaching issues of gardening as a science began to unfold themselves, and assumed new and higher aspects. Chosen at first from a mere youthful love of flowers, and a romantic desire to tread in the footsteps of my two brothers, Robert and John, and the distinguished botanical collector David Douglas—all of whom graduated in Scone gardens under Mr. Beattie—gardening now revealed itself as a fine art, on a level as a means of culture and in ennobling influence with poetry, music, or painting. The flower-garden at Putteridge first suggested the idea of a beautiful poem without words. From the moment these high ideals took possession of the mind, gardening was pursued with the ardour of a passion; no labour was accounted too severe, no study too hard, no application too unwearied, to master its principles or carry out its details. The one thought and purpose was, not how to make gardening of use to me, but how best to qualify myself for serving it. Thought and work were the more obvious modes of service; and in these easy-going times, when so many young men seem to have made up their minds to glide on to success and win fame on the lazy steeds of indolence or indifference, it may be useful to cut out the plan of an evening's study from my note-book of those times.

"First reading, then writing, composition, and finally drawing. The reason for this order was that reading, being less of a mental effort than writing, sooner led to drowsiness. As soon as that came on the book was exchanged for the pen, copying first in a book extracts, then direct composition, which acted as a powerful stimulant, and drove away sleep. The final remedy was found in drawing, which was done standing, and not till sleep mastered me with compasses in hand were the studies relinquished. This course may be looked at as an example in two ways—to be avoided as well as imitated. But such was the sort of voluntary forcing to which I subjected myself at Putteridge, and doubtless it had its influence in calling out the encomium from my first mistress—'an old head on young shoulders.'

"From Putteridge to Knight & Perry's nursery was indeed a change. The spring of 1845 was so severe that we had to take turn about up all night with the fires; and to fortify (so it was thought) us youngsters, the man on night duty went in at 11 P.M. to Mr. Perry to report temperature, and drink up or carry forth with him an enormous glassful of brandy and water—a sure recipe for stupidity or the sleep of insensibility to duty to those who drank it off. Mr. Knight's manner with young men was a useful model. He never let an opportunity escape of giving them a word of reproof, instruction, or correction, if need be. He gave me my first lesson in the application of closet sewage to pot plants at an old pump behind the orangery, and, seeing how distasteful it was, supplemented it by a useful lecture on the uses made of such materials in the culture of Orange trees and Camellias on the Continent. 'Old Joe,' as we all called him, gave me many a sly smile as he passed the pits of young Camellias that were duly liquored by me twice a week from that date, stopping to point out one day how much darker green the foliage was since the rich food had been given them in their liquor.

"This incident led to the study of the sewage question and to the conclusion, though rather a novel one at that time, that the only possible solution of it was the conversion of dead matter into living, and to change poison into food, through the ministry of plants and the cleansing agency of the earth. The sanitary powers of plants and the ability of the earth to deal with the residuum of life, labour, combustion, decomposition, have now been practised, tested, and proved sufficient for nearly a quarter of a century. The nursery is a most useful school for young men, and all ought to pass through it. A fuller knowledge of men, business, and plants can be gleaned in nurseries than in private gardens. The mental culture and intellectual advancement of the men in the nursery were also stimulated and cared for at that time, and in the prizes of books for drawings of hothouses (*Price on the Picturesque* was won by Mr. Manders while I was in the nursery), the establishment of the study, &c., we had the germs of those more perfect arrangements that have been made by the Messrs. Veitch and others for the intellectual culture and physical comfort of the men in their employment.

"The West London Gardeners' Association was then in full vigour, under the able presidency of Mr. John Caie, then of Bedford Hill, and now for many years lost to horticultural literature in the far north gardens of Inverary Castle, Argyllshire. Mr. Caie welcomed me for my brother's sake, and at that time Messrs. Keen, Gray, Mitchell, Peel, Doran, and many others gave life, animation, and great usefulness to the meetings held at Parson's Green, Fulham.

"Amid all these engagements time sped swiftly, and with the middle of the summer came the offer of a head place. This offer proved my first great professional trial. From the summit of my ideal I was brought suddenly down to the lowest level of everyday life by the offer of a situation at £30 per year, with board, and the half of a footman's room for lodging. Hardly had these terms escaped 'Joe's' lips, when my indignation blazed forth, much to the good man's amazement. 'Why,' I asked, 'couple the knowledge and culture of professional men with the rewards of a livery servant?' Joe, with all his knowledge and tact, could not answer that question; and it may be added that notwithstanding all that has been said and done since it still needs an answer. Rewards should bear a closer relation to qualification, service, and character, than they yet do in horticulture.

"In this first struggle, which was partly successful, was laid the germ of those efforts which I have never ceased to put forth for the bettering of the condition of gardeners.

"About July 1, 1845, I entered the service of Sir Philip Broke, Bart., of Broke Hall, Nacton, Ipswich, a near relative of Sir Wm. and Lady Middleton, of Shrubland Park, Ipswich. At that time Mr. Beaton was in his prime, and it must be recorded to the honour of his memory, that from the time of my entry into Suffolk until his death he treated me as a father,

and delighted to pour his rich stores of knowledge and fertilising streams of practice into the young man who was all ear to listen and afterwards to learn. If James Dodds and his staff of assistants had some hand in hammering the school-boy into a shapely workman, Robert Fish and Donald Beaton finished the horticultural man for his best work. The discipline of Broke Hall was also useful—new houses had just been built, and the first business was to plant them with Vines and Peaches. No sooner was this done than advice gratis poured in upon Sir Philip from all quarters, and being a novice in gardening he not only wished to take it all, but actually asked for more from every possessor of a garden in the neighbourhood. There were, in addition, the usual contests between Sir Philip and Miss Broke, his sister, who was fond of plants and looked upon the new houses as a means of wealth to her greenhouse and drawing-room, &c. Sir Philip, a post-captain in the navy, also wished to control temperature on the same principles as he ordered the steering of his wooden walls, and to this end furnished the houses with indexed thermometers, and carried the key or magnet for setting them in his pocket; this, with a programme of temperature framed by myself, he held, and used the whip-handle without mercy. Within about six months I had talked and grown myself out of all these and other difficulties. The critics were silenced by results, the magnet was lost, the confidence of employer won and kept till the last. Difficulty only sharpened diligence and strengthened the determination to succeed; never were Vines, trees, or plants nurtured as these were. No hand touched them but my own. Air, water, food, heat, were all dealt out as if life and death hung upon the issue. Baskets of sweet decomposing manure were held in reserve throughout the evening, to be changed and turned in the vineries to charge the atmosphere anew with ammonia at every visit. Whole hours were passed in study under the Vines, that the respired carbonic acid might add to their strength. And the reward was won when, not only Sir Philip and his friends, but the late Sir Wm. and Lady Middleton, and, better than all, Donald Beaton, came over—saw—praised, and were satisfied.

"Broke Hall, though a good start, hardly afforded elbow-room enough; and Glevering Hall—then one of the finest places in East Suffolk—becoming vacant, I (one of sixty applicants, so it was said) obtained that situation. Broke Hall was left with much regret, after writing to London for a successor; and as illustrative of the terms on which I left, and the kindness of heart of my first master, who has now been dead many years, it may be stated that, on his first visit to Glevering after my arrival, he left his carriage at the front door and walked straight into the garden to seek and find his young Scotchman, and to wish me success and happiness in my new place, where he hoped I would find sufficient scope for my abilities. Sir Philip's visit was more expressive than words.

"The chief characteristics of Glevering were its large kitchen garden and shrubberies, lawns and flower gardens, extensive ranges of vineries, plant stoves, large conservatory, and choice collection of Pears on walls, and a nice lot of Orchids. Unfortunately about six months after my removal to Glevering the late Mr. Arcedeckne's father died, and the place was let, and likely to continue so, and this led to my leaving it. About this time, too, an offer was made to me by Mr. Nesfield to lay out his plans at Bylaugh in Norfolk, and had not certain delays occurred in regard to the prosecution of this work, I should possibly have devoted the remainder of my days to work of this kind, which is, perhaps, my favourite branch of gardening. But, weary of waiting, I accepted a situation, previously offered by Mr. Weeks, of Chelsea, to go to Kirkleatham Hall, near Redcar, the seat of Mrs. Newcomen. This was the easiest situation I ever filled. Having lived about ten years in housekeeper's rooms, I left on account of some difficulty in the way of getting a home of my own. Living in the house, if one is perfectly sober—a total abstainer—is not without its advantages. One learns the wants and ways of households, and young men lose the rawness of garden life, and take on a little polish from the men and maidens with whom they are brought in contact. And though gentle manners will neither make men nor gardeners, they add grace and smoothness to everyday life, and render gardeners more agreeable to their employers—a point which even such a great statesman as Lord Palmerston was keenly alive to, for we find him in his biography complaining that his new gardener was a much less pleasant companion than his old one.

"Arrived in London one of my first calls was upon Dr. Lindley, at 21, Regent Street, then the headquarters of the Horticultural Society of London. His eye looked me through and through as he was informed who I was, and what I wanted. In an instant he called me a fool point blank for staking a comfortable situation on a matrimonial venture, but relented instantly, and added that were I only one-tenth as clever as my brother Robert I was fit to fill the best place in England. Nothing, however, came of the formal registration in the books, and again my attention was turned to landscape gardening, and while engaged in such work a letter was received from Lady Cullum, offering me my present situation. It seems that kind friends in East Suffolk had not forgotten their old neighbour, and, hearing of a vacancy, had recommended me to Sir Thomas and Lady Cullum while I was yet ignorant of the place being vacant. The novelty of the offer, coupled with the presentiment, which had grown into a firm conviction from the time of first seeing Hardwicke, perhaps ten years before, that I should one day live there, made the way to an engagement easy.

"I find that I arrived at Hardwicke on April 2, 1855, over twenty years ago. The late Sir Thos. Cullum, who died before my arrival, was a great planter and an accomplished horticulturist. Lady Cullum was also devoted to gardening, and distinguished by refined and highly cultured taste. Hardwicke is largely their creation, and in its planning and furnishing they were ably assisted by the late Rev. Frederick Cheere and some good practical gardeners—Mr. Smy, who is just dead, my immediate predecessor, and Mr. Saml. Barret, still land steward at Hardwicke. Of my own doings here it would ill become me to write, or to say more than that all the changes and extensions have been planned and executed with a view to preserve the old beauties of the place while adding new ones to

B. J. Fish

them, and, in a word, to endeavour to fill the garden and glasshouses with plants, and adorn them with beauty all the year round.

"How far I have succeeded or failed in this ideal it is not for me to record; suffice it, that through all these years I have been able to give pleasure and satisfaction to an employer who long since merged the authority of the mistress in the kindness of a friend; have added somewhat to the beauties of a place not destitute of natural and artificial charms; have formed and boldly expressed my convictions on all public questions; have continued to advocate in public and in private all measures tending to the elevation of horticulturists and the advancement of horticulture; to diffuse among all classes a deeper love and a truer knowledge of gardening as one of the strongest antidotes to debasing pleasures and sweetest allurements to virtue; and to be, in a word, in some humble means worthy of a profession that is allied to all that is beautiful in Nature and skilful and refined in Art, that condenses the vegetable wealth and plenty of the world into the limited areas of gardens, embodies the revelations of science, the scintillations of genius, and the results of the most successful practice into profusely illustrated poems of stately measure and well-balanced rhythm, or weaves them into finished pictures flushed with beauty and filled in with plenty—an art that, in fine, affords to all its votaries, of whatever rank or station, some of the purest and most satisfying pleasures that fall to the lot of man."

Since the above was written, some months since, Lady Cullum has died, and Mr. Fish, writing of this, says, "The sun of Hardwicke seems put out."

MASDEVALLIA POLYSTICTA.

THIS plant was introduced by M. Roezl from Northern Peru in the spring of 1874, in company with two others, viz., M. caloptera and M. melanopus, all of which were described and named by Professor Reichenbach in the *Gardeners' Chronicle* for March 14, 1874; since then we have had the pleasure of seeing it flower, and it is, as M. Roezl described it, "a little wonder." It is very distinct from all other known Masdevallias, as it produces several developed flowers on the same spike at one time; the colour of the flower is pure white, thickly covered with a quantity of purplish brown spots; the tails are bright yellow. This is a very free-flowering species, and, therefore, cannot fail to recommend itself to all lovers of Orchids. The plant here figured (fig. 134) flowered with Mr. B. S. Williams, of the Victoria and Paradise Nurseries.

Foreign Correspondence.

THE ADELAIDE BOTANIC GARDENS.—These gardens are situated on the banks of the River Torrens, which flows between the two great divisions of the city of Adelaide, and is a portion of the park lands surrounding the city on all sides, which for extent and natural beauty are not surpassed, and which contribute in no small degree to the health of the citizens. This wise provision made in laying out the city will be felt with greater force by each succeeding generation as population increases in number and density. The course of the river is from east to west, and the gardens are on the south side. The surface is of an undulating character, falling gradually from the level of the elevated plateau on which the larger and most important portion of the city stands to the level of the valley of the river. The grounds comprise about 50 acres of rich chocolate loam, with a substratum of limestone on the higher grounds to alluvial on the flats. A creek runs through the grounds, on the course of which some fine sheets of water have been formed, covering about 6 acres. The main entrance to the gardens is near the north-east angle of the city. The entrance-gates are of ornamental cast-iron. From thence the main walk, which is 20 feet wide, leads in a straight line through the gardens. It is intersected by a fine sheet of water about the middle of the grounds, over which it is intended to erect a handsome bridge. The walks which intersect the grounds in different directions are all laid out in the highest style of landscape and artistic gardening. The walks are beautifully made, and the curves are perfect lines of beauty. The edges to the walks and borders and the lawns and flower beds are all kept in the highest order. The trees, shrubs, plants, &c., are all arranged with the best possible effect. Statuary, fountains, and rockwork, adorn the grounds, and meet the eye of the visitor in every turn in the walks, and the skilful distribution of the trees renders the gardens eminently interesting. The great object in laying out a public garden, not to compel visitors to crowd together too much in one place, but to disperse and meet again as their inclinations may direct, has been attained. The visitor has choice of three routes on entering the gardens, either by the centre avenue, or to the right by the Pine grove and arboretum, or to the left, which leads to the greenhouses, stoves, conservatory, fernery, &c.

The Director's residence is to the left of the entrance, and is a handsome two-storeyed house. The lower storey is covered with trelliswork, over which climbers are trained of the rarest sorts. The Doctor's library is here, and comprises all the newest works on botany and floriculture, &c. Here also are a number of fine chromolithographs of scenes and incidents in the Doctor's travels on the Orinoco with his late brother, Sir Robert Schomburgk. The grounds surrounding the house are very tastefully laid out as a flower garden and shrubbery. From thence we pass on to the greenhouses, stoves, conservatory, fernery, &c., which altogether form a very handsome and extensive range of glasshouses.

In the greenhouses we noticed a magnificent display of Camellias, Pelargoniums, Cinerarias, Gloxinias, Primula sinensis, Puchsias, and other showy greenhouse plants, all in splendid order. We might particularise some remarkably fine Begonias, seedlings, grown by Dr. Schomburgk, and far superior in size or beauty of flowers and foliage to the old varieties. The plant-stoves and conservatory contain a magnificent collection of plants, and are in the very highest order, both as regards luxuriant growth and handsome appearance. The plants are too crowded, however, but the Director will remedy this as soon as the very magnificent Palm-house about to be erected is finished.

In the conservatory we particularly noticed some very fine Tree Ferns, amongst others Alsophila excelsa and A. Cooperii, Dicksonia antarctica; also some fine Strelitzias, and fine collections of Palms, Dracænas, and Crotons. Amongst single plants we noticed Tillandsia splendens, the beautiful Bornean

Fig. 134.—Masdevallia polysticta (nat. size).

Cypripedium Lowei; also a magnificent specimen of Calanthe veratrifolia, Theophrasta imperialis, Pandanus Veitchii, Randia macrophylla, Rhopala magnifica, Cycas revoluta, Cochliostema Jacobianum—a most superb stemless monocotyledonous plant with masses of beautiful flowers, which issue from the base of the leaves in large racemes; Æchmea Mariæ Reginæ, a stove Bromeliad with beautifully-coloured bracts. In the Orchid-house there is a fine display of beautiful and healthy plants. In the early attempts to grow these it was found that the dry hot winds did them much injury in spite of all that could be done to keep them in a congenial atmosphere during their continuance, and the Director hit upon the happy expedient of placing all the plants in moss (sphagnum), which is imported, as our native mosses were after trial found unsuitable. There is here a fine collection of Cypripediums, amongst which may be noticed C. caudatum, niveum, and Hookeriæ; Miltonia spectabilis, &c.; Stanhopeas, Oncidiums, Cattleyas, Dendrobiums, Epidendrums, &c. In the houses at the rear of the conservatory there are many rare and beautiful plants. Amongst others there are some very fine Gloxinias, also a nice collection of the genus Ixora; a good Pitcher-plant (Nepenthes distillatoria); Dieffenbachia Pearcei, picta, and Weirii; a very beautiful plant of the Yam family (Dioscorea metallica), with splendid bronze-like leaves; a species of Coffee (Coffea liberica), which the Director believes will grow well in Port Darwin; a new Peperomia, very fine; and Godwinia gigas, new. There is a fine collection of Achimenes, and we saw some in baskets which looked really splendid. In the Fern-house there are some magnificent specimens of the beautiful genus Adiantum. The following genera are well represented:—Alsophila, Aspidium, Blechnum, Dicksonia, Lycopodium, Polypodium, Pteris, &c. On the whole nothing can exceed the beauty of the arrangement, and the fine healthy appearance of the

plants. Adjoining the fernery there is a museum. The building is of rusticwork, and is, we believe, an exact model of the Pantheon of Athens. It is open to the public, and contains a splendid collection of upwards of 2000 specimens of vegetable products used in the arts and sciences and in domestic economy, including dye-stuffs, resins, gums, medicinal products, drugs, and beautifully-prepared sections of woods from different countries; also samples of the first prize Wheats from the late London and Paris Exhibitions, and a large collection of beautifully-executed models of fruits, all neatly arranged under glass and correctly named.

We must also notice the aviaries, which form quite an ornamental adjunct to the range of glass-houses, and which give quite a pleasing variety to the gorgeous floral display; nor must we forget to notice as we pass along the beauty of the close green turf of the lawns, the beautiful masses of flowers artistically arranged in beds on the lawn, the fountains and rockeries, and the single specimens of ornamental trees and shrubs which dot the lawn here and there, and show off their full proportions on all sides to the visitors.

Proceeding from the glasshouses we pass some fine trees, amongst which may be noted Sterculia acerifolia; Arbutus Unedo, var. coccinea; Bauhinia purpurea, a magnificent plant, in full flower, which looks at a little distance like a huge Rhododendron ponticum: it seems perfectly hardy, and is growing with great rapidity. We now reach the large lake, which lies to the right of the walk we are upon. Here the banks of the lake are margined with magnificent Weeping Willows, which afford a delightful shade for visitors. Seats are liberally distributed throughout the garden, and may be found under every tree affording shade. Here are some fine vistas. On looking over the lake glimpses are to be obtained of the gardens beyond. A most beautiful effect is produced by an island in the lake, on which there is a magnificent display of Verbenas, artistically arranged as to colours. Here also may be seen the Bamboo (Bambusa arundinacea), upwards of 40 feet high, and several other types of oriental vegetation, which, with statuary peeping out from amongst the foliage, gives to the place a charm and novelty not often to be met with. On the banks of the lake, in addition to the magnificent Weeping Willows, we noticed a very fine Poplar (Populus alba), also the Alder (Alnus glutinosa), and Betula alba var. pendula.

Passing on we reach the open space which has been set apart for the magnificent Palm-house about to be erected. The building will be 100 feet long by 35 feet wide. The dome will be 40 feet high, and the wings 25 feet. Double glass walls will be provided. It will be the finest structure of the kind in the southern hemisphere, and like the one recently erected in Bremen, of which it is an exact model. We observe that the contract for the building is now let, and in a few months we may hope to see it finished. It is estimated to cost £1800, which will include the cost of the structure and the completion of the earthwork of the raised terrace, formation of parterres, walks, &c. Adjoining this is the class ground, about 2 acres in extent. Here all the families of the vegetable kingdom are well represented, comprising about 130 orders in the two great divisions of Monocotyledons and Dicotyledons, occupying respectively the centre compartments and the outer borders. It is laid out in oval form, with walks dividing it into an inner and outer circle, with others intersecting, and in the centre is a handsome cistern with fountain intended for five orders of water plants. Here the student, with Balfour, Lindley, or Wilson in his hand, may soon acquire a practical acquaintance with the Jussieuan system of classification, which has now completely superseded the Linnean. The plants throughout the garden are all correctly labelled, having the generic and specific names and the natural order to which the plant belongs, together with its native country, neatly painted on. Dr. Schomburgk had considerable difficulty with the labels in his early experience. He has now, however, discovered a method of preparing them by brushing over the iron with a chemical preparation, on which a coat of black paint is applied. When dry the name is painted on in white; it is then coated over with fine white sand while the paint is still wet. These when dry effectually resist the action of the weather, and are beautifully distinct and clear to the eye. Near here is a fine shady walk, having a row of Pinus insignis on each side. They have been planted nine years, and are now quite 50 feet high, and present a perfect picture of symmetrical beauty and regularity. Here are also some noble trees on the lawn—Ficus spuria, very fine; Cedrus Deodara, a very large and handsome tree; Hymenosporum flavum, a very fine specimen, in full flower. At this point we notice various cages and enclosures for animals, most tastefully arranged, and all in perfect keeping with the rest of the garden. We here cross the main avenue at a point midway between the lake and the boundary between the gardens and the park. It is here lined on each side by the Moreton Bay Fig (Ficus macrophylla), which for luxuriance, symmetry, beauty of foliage, and regularity of growth cannot be excelled. They stand about 15 feet high, and have only been planted eight years. A little to the right of this point is the rosery, which contains about 400 varieties. They are nearly all grown as standards, arranged in amphitheatre form, the dark varieties at the back, and shaded down to the lighter-coloured in front. As you approach the rosery the first thing that attracts attention is the magnificent show of pillar Roses. These are trained to cast-iron pillars, 12 feet high, with festoons, 20 feet in length, between the pillars. The season for Roses was nearly over when we visited it, but some few of the late sorts were in full bloom, and amongst these Aimée Vibert shone conspicuous. The large clusters of pure white flowers were really gorgeous, and the delicate perfume was delightful. Everything here as elsewhere is in the highest order. The spaces between the standards were planted with double-flowering Stocks; when these go out Globe Amaranth and Zinnia elegans will take their place. Portulaca (double) occupy the space round the edges of the borders, and the whole is surrounded by a low hedge or edging of the dwarf China Rose (macrantha). A fine bronze equestrian statue of the Amazon occupies the centre of the rosery, with fountains on each side, all of which assist in rendering this portion of the beautiful gardens a real gem.

Proceeding onwards towards the north-east we pass through a portion of the arboretum. Here are a large number of trees from all parts of the world growing side by side, and all appearing as luxuriant as if in their native climes, and this is one of the most marked features in the garden. We noticed Phytolacca dioica, a native of South America, which measures 2 feet in diameter at the base of the main stem, and 25 feet high, and is only three years planted; the Umbrella-tree of Queensland (Brassaia actinophylla), doing well; Pisonia grandis, doing well; Sophora japonica pendula, Cytisus Laburnum pendulum, Liriodendron tulipiferum. These form handsome trees for lawns, and present a striking contrast to the upright growing species.

Amongst a number of other specimen trees and shrubs we noticed the following:—Macadamia ternifolia, Leucadendron argenteum, Paulownia imperialis, doing very well; Argania Sideroxylon, doing well. Seeds of this were imported by Sir Henry Young when Governor of this colony, from the neighbourhood of Marocco, where it is a native, and produces a large nut, which is much relished by cattle. These seeds were then distributed to numerous persons throughout the colony, but we believe few succeeded in raising plants from them, and this is the first we have seen of it. Lagunaria Patersoni, Platanus acerifolia, three years planted and 15 feet high; the weeping Elm, Ulmus fulva var. pendula; and a large collection of Eucalyptus, including E. marginata, maculata, calophylla, 25 feet high; E. Risdoni cornuta, in bloom; tetragona, &c. The clump of Eucalyptus globulus at the lower end of the garden are magnificent trees, and must be at least 70 feet high, with straight, tapering trunks, 30 or 40 feet long, without a branch. *G. M'Ewen, in "South Australasian Register."*

Notices of Books.

Text Book of Botany, Morphological and Physiological. By Julius Sachs; translated and annotated by Alfred W. Bennett, M.A., assisted by W. T. Thiselton Dyer, M.A. Clarendon Press (Macmillan). Large 8vo. Pp. 858.

This book is issued in a form and manner worthy of the Oxford University Press, and consonant with the esteem in which the original work is now held in Germany as the text-book of physiological botany. Its publication in an English guise is, we think, opportune. English botanists have become of late somewhat dissatisfied with the position which their science occupies in this country. While great progress has been made in systematic botany, in classifying and cataloguing the plants of various countries; while important additions have been made to our knowledge of the geographical distribution of plants; and while—thanks especially to Mr. Darwin, and the immense impulse he has given—certain departments of the life-history of plants have been studied with zeal and excellent result; yet in other departments, especially in those connected with minute anatomy, pure physiology, and the application of physics and chemistry to the unravelling of the problems of vegetation, British naturalists have in the main lagged far behind their German fellow-workers. One great reason for this is that, with few exceptions, this great country is absolutely destitute at once of competent teachers, and of physiological laboratories and appliances suitable for the use of students in vegetable physiology.

The ordinary courses of lectures at the several medical schools, till lately the only places where anything like systematic instruction in botany was given, naturally include those portions of the science only which can be most readily demonstrated. For want of time, and particularly for want of means and appliances, vegetable physiology, properly so called, has been most ineffectually and imperfectly taught. Latterly there have been indications of the rise of a better state of things. In the School of Science and Art at South Kensington, under the superintendence of Professor Dyer, special classes have been formed for direct practical instruction in physiological botany; and the manner in which those classes have been conducted and the pupils made to teach themselves, instead of trusting merely to lectures or books, has been, so far as we have had the opportunity of seeing, admirable. In the older Universities—as at Oxford—we are glad to learn that a similar plan is about to be adopted by Professor Lawson and Mr. Ray Lankester. Immediately such classes are established and professors have to work with, and not merely talk to, their pupils, then immediately will be felt the want of some text-book embodying all the most important facts that German patience and ingenuity have brought to light of late years. None of our English text-books, good as some of them are in their way, are fully up to the mark in this particular. On these grounds, then, and in the interest of professors and of advanced pupils, we cordially welcome the present work, which has evidently been laboriously and carefully edited and translated. Several notes have been added, and advantage in many cases taken of the important annotations made by Van Tieghem in the French edition.

From a morphological point of view we are sorry Professor Sachs has not more boldly grappled with the evils at present arising from the use of misleading terminology. We have in these pages the old terms, cohesion and adhesion, applied, as is customary, where there is neither the one thing nor the other. It is true that an attempt is made to give the correct explanation of the apparent cohesions and adhesions, but the attempt is not always very successful. It would require an advanced student, we expect, to understand without difficulty such an explanation as this:—"Coherent perianth-whorls are produced after the formation of the distinct foliar structures at the circumference of the receptacle, by the common zone of insertion of these distinct structures being raised up by intercalary growth as an annular wall, and forming as it continues to develope the part common to the whole whorl of floral leaves." This is rather an obscure way of stating that the tube, whence the several parts of the perianth spring, gradually emerges from the axis which bears it.

The necessity for a clear understanding of what these "cohesions" and "adhesions" really mean is more than ever urgent since the upspring of Darwinian principles. These latter, based as they are to a large extent on genealogical considerations, and on the adaptation of particular parts to fulfil certain offices, demand, on the part of morphologists, the most careful inquiry into the history and mode of development of the plant or animal. The inquirer now-a-days cannot rest satisfied with ascertaining that the structure and arrangement of parts is so-and-so—he must know why, how, when, under what circumstances, and to what purpose all the varieties of conformation he meets with are present.

The more perfect our knowledge of the mode of growth and of development—their arrest, their perversion, their exaltation—the more easy will be our investigations into the history (using that word in its widest significance) of living beings, the more complete our appreciation of the office they fulfil.

It is, however, with the physiological portions of the book that our readers will probably be most interested; and they will feel it, as we do, a great boon to have the views of a master condensed into so small a compass. Those who have the opportunity will still, we imagine, prefer to make use of the same author's *Handbuch der Experimental Physiologie*, of which a good French translation was published a few years since by M. Micheli; but, for many reasons, the present volume will be specially looked up to as the standard reference book on the subject of vegetable physiology. This, moreover, if we except certain special departments, is one of the branches of science that has been too much neglected in Great Britain. It is, in particular, a great misfortune for agriculture and horticulture that we have so few practical cultivators who are at the same time competent and disposed to undertake physiological experiments—men, for instance, of the stamp of Thomas Andrew Knight, men who would do for other departments of physiology what Darwin has done in those which came within his allotted scope. The *Theory of Horticulture*, in which our gardeners still place implicit confidence, is thirty-five years old, and what a vast difference that period makes in the history of vegetable physiology. The want of such a man, too, is specially felt, when we come to look into special subjects, on the true solution of which the gardener's practice should depend. Let us take a single instance. Ask any gardener whether plants absorb water or watery vapour by their leaves, and he will, of course, tell you Yes. He regulates his proceeding accordingly—he syringes, "damps down," waters overhead, and

the like; and his practice, whatever the explanation be, is unquestionably right. On the other hand, ask a physiologist whether leaves absorb water or watery vapour, and he will give you a negative, or at best an uncertain answer. Sachs, in the work before us, p. 613, asserts that they do not, except to a limited degree. In this he follows the opinion of Unger, Duchartre, Prillieux, and many others. Indeed in those cases where the epiderm is coated with wax, it is difficult to see how absorption could take place.

Knop, Baillon, Bonnet, Cailletet, de Lanessan, and others, seem to prove that plants can absorb water by their leaves.

Now here is a matter which one would have supposed easy of determination—one of great importance to cultivators, but one upon which skilled experimenters are diametrically opposed. The truth appears to be that water, or watery vapour, is absorbed sometimes, and at other times not, according to circumstances not yet fully known. The wisest thing for the cultivator, in that case at any rate, is to continue to follow the practice which experience and general usage have told him is the best to follow, and to await the proper explanation till the physiologists have come to a definite conclusion. Then, most likely, he will be able to learn something to his advantage, as he may do already from the researches of Darwin, Lawes, Gilbert, and other experimentalists.

We have adduced the above illustration to show the need that exists in this country of a physiological laboratory or laboratories, with competent chiefs, and attached to some experimental garden, where such really vital questions as that we have alluded to could be investigated. The book before us, and which has suggested these remarks, would form, and is likely to do so for some time to come, the best reference book for advanced pupils; and we cannot bring our remarks upon it to a close without expressing our thanks to all concerned for the production in an English dress of so valuable a work of reference.

—— A new journal, devoted especially to music and the sister arts, has just been started, under the title *Concordia*. Judging from the prospectus, and still more from the contents of the first number, we shall have a journal of high merit and interest, not so conventional and narrow as musical and artistic reviews are apt to be. The present number, in addition to articles interesting specially to professed musicians or skilled amateurs, contains several which may be read with profit and pleasure by those who can make no pretensions to such acquirement. A high standard of criticism will be aimed at, and means taken to secure early and full reports on all matters connected with music and the drama. Messrs. Novello & Co., of Berners Street, are the publishers of this new venture, to which we heartily wish every success.

—— The *Botanical Magazine* for the present month contains plates of Crocus chrysanthus, a yellow-flowered, sweet-scented species, re-introduced from the Levant by Mr. Elwes; Odontoglossum Warscewiczii, Rchb. f., in *Gardeners' Chronicle*, 1875, p. 270, a charming species flowered by Messrs. Veitch, and allied to O. vexillarium and O. Phalænopsis; Hemichona fruticosa, a yellow-flowered Mimulus-like undershrub from Guatemala; Dichorisandra Saundersii, with flowers prettily variegated with white and violet; Galanthus Elwesii, a fine species, evidently nearly allied to G. plicatus. It was introduced from the mountains north of Smyrna by Mr. Elwes.

—— The last issued part of the *Transactions of the Arboricultural Society* contains Dr. Cleghorn's inaugural address, an interesting article on the literature of Scottish arboriculture by Mr. Hutchison of Carlowrie; Mr. Gilchrist contributes a paper on forestry in Aberdeenshire, Mr. Bayne one on draining plantations by open or curved drains, Mr. Hutchison one on the conservation of old and remarkable trees in Britain—a very suggestive and valuable paper on the method of averting decline and promoting vigour in trees; Mr. McKenzie treats of the use of steam power in forestry; Mr. Gorrie on the advantage of planting in groups; lastly, Mr. Buchan supplies a report on meteorological observations in Lanarkshire and on the influence of forests on climate and rainfall. Among the results obtained it was found that during the annual rise of temperature in the spring and summer months, the highest temperature of the day inside the wood was 1°—2° higher than that outside the wood; and during the annual fall of temperature in autumn the highest temperature of the day inside the wood was on the mean about half a degree lower than that outside the wood. In spring and early summer the air inside the wood is warmer and moister than that outside, but during the fall of the year it is colder and damper.

—— The first part of M. de Tchihatchef's translation of Professor Grisebach's *Vegetation der Erde* has been issued by Theodore Morgand, Rue Bonaparte, Paris, under the title of *La Végétation du Globe suivant les Climats*. This will be a great boon to those to whom the original is as a sealed book.

TETRANYCHUS TAXI (?).

In 1869 Professor Westwood described and figured in the pages of this journal (p. 841 of that year) a mite, which was then and has been since very injurious to the young buds of the Currant. It is in the young

Fig. 135.—Gall on yew

state that it does its chief mischief, and Professor Westwood's description was mainly devoted to that stage. A similar and allied species (also doing its mischief in the young state) has recently been brought

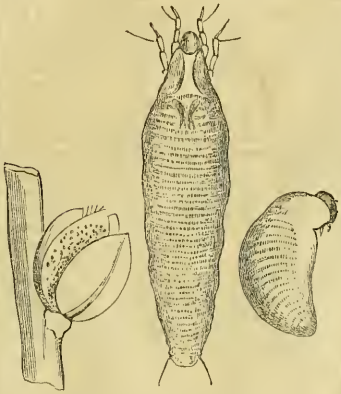

Fig. 136.—Currant bud mite.

under my notice, which I now propose to describe, and it may be convenient, for comparison with it, that Professor Westwood's figures should here be reproduced.

Fig. 137.—Mites from a yew bud.

At a recent meeting of the Scientific Committee of the Royal Horticultural Society, Professor Thiselton Dyer drew the attention of the committee to the species I refer to. He found it apparently causing considerable damage to the hedges of the Yew trees in the Society's garden at South Kensington by injuring the buds, many of which were going back and decaying without any obvious cause. On examining the buds great numbers of a minute Acarus were discovered in their folds. They were all of the same four-legged type figured by Professor Westwood, and are, no doubt, the young of a six-legged, or possibly an eight-legged, species. Professor Westwood was of opinion that they probably belonged to the genus Tetranychus, and, in the absence of any other information, I am quite satisfied to follow him as a guide, who very rarely fails to lead us right. The accompanying woodcut (fig. 137) represents the insect* taken from the Yew buds, in different aspects, and it will be seen that, although in general appearance it is very similar to the Currant species, it yet differs in some material respects. It does not taper so much towards the head, and the body, instead of being covered by minute transverse striæ, is smooth and glossy, which in certain lights enables us to see the segments of which it is composed. I make out the head, then two large segments, followed by six smaller ones, which are no doubt the abdomen. The two anterior segments of the body contain a curdy milkiness, which obscures the interior, but the abdominal segments are without it. The creature is fleshy, milky-white, and translucent. It has no eyes, neither had Professor Westwood's. He was unable to detect the parts of the mouth, and I have not been more fortunate—the difficulty in observing the parts of such minute creatures being that when the animal is dead the parts become shut up, and cannot be defined at all, and, when living, they may in the first place not be displayed, or if displayed they are in constant motion, it being impossible to keep the creature still, so that it is only a passing momentary glance that one can get—too instantaneous to allow any confidence to be reposed in it.† Professor Westwood considers that the structure of the mouth will doubtless "consist of a central sucker, defended on each side by an articulated palpus or feeler."

At the tail of Professor Westwood's figure (fig. 136) will be seen two bristles, which he believes to be the rudimental fourth pair of legs. I hesitate to adopt this view, because the terminal penultimate segment of the body (to which the bristles are attached) does not seem a part from which we could expect limbs to be developed. Professor Claparède, in his *Studien an Acariden* (Leipsig, 1868), shows that in the development of the limbs the two anterior legs belong to the head segment, the two next to the pro-sternum, the two next to the mesosternum, and the two last to the metasternum, which of course leaves the whole of the abdomen behind the last pair, and in conformity with this so far the anterior pair here certainly seem to spring from the cephalic segment, and the next pair, which is very close upon them, springs from the prothoracic segment. In the present species the bristles seem to belong to the termination of the penultimate segment, and it is to be remembered that in very many Acari in the perfect state two strong bristles stick out, one on each side of the end of the abdomen, next to the anal segment. These bristles, no doubt, assist the insect in locomotion, but the tail itself is used as a sucker for this purpose. A common attitude of the insects is to raise themselves upon their tail and wave the fore-part of their body about, reminding one of the manners of the Falkland Island seal at the Zoological Gardens. When in this position the tail seems at times to expand on either side, like a flap, which may possibly have given rise to the statement made to Professor Westwood by one of his correspondents, that besides the bristles and legs one of them had two projecting appendages at the termination of the abdomen.

The progress of the Currant mite has been traced onwards at least one stage further, and in its next stage has been found to be a six-footed creature; it remains yet to be seen whether further development converts it into an eight-footed species. Whatever may be its course of growth, we may be pretty sure that that of the Yew-bud species will be the same; they are obviously too closely allied for us to expect any material difference in this respect.

Dr. Masters mentioned, at the meeting of the Scientific Committee, that he had been informed by Mr. Albert Müller that the curious abnormal tuft of leaves (fig. 135) at the ends of the shoots which may not be unfrequently seen in the Yew tree, was the result of an injury inflicted by a species of Cecidomya, and he suggested that the mite referred to by him might be the species now in question. I have been unable to trace the species named by Mr. Müller, but it seems very possible that this may be the insect he alludes to. *Andrew Murray.*

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* I hope no systematist will take exception to my calling an Acarus an insect. I do it not in ignorance or *per incuriam*, but deliberately, because, according to my view, the spiders and mites have been separated from the insects on insufficient grounds.

† It must be remembered that these creatures are so minute that, if brushed off from the bud upon a slide of glass, the unaided eye often fails to detect them. We may see the tiniest suspicion of an atom of dust such as may dance in a sunbeam, but it is only when we bring the glass to bear upon it that we find the apparent speck of dust is an animated mite.

HORTICULTURAL EXHIBITIONS, 1875.

MAY.

31.—Coventry and Warwickshire Floral and Horticultural Society's First Show of the Season. Sec., Thomas Wigston, 3, Portland Terrace, Lower Ford St., Coventry.
31 to June 4.—Bath and West of England Society's Exhibition at Croydon.

JUNE.

1 and 2.—Royal Western Horticultural Society's Exhibition at Plymouth. Hon. Sec., F. B. Bond, 16, Penrose Street, Plymouth.
2.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees. Great Summer Show.
9, 10, and 11.—Leeds Horticultural Society's Twelfth Annual Summer Show. Sec., James Birbeck, Delph Lane, Woodhouse, Leeds.
10.—South Essex Floricultural Society's Exhibition at Leyton. Sec., G. E. Cox, Leyton.
16.—Royal Botanic Society, Regent's Park. Summer Exhibition. Sec., W. Sowerby.
16.—Glasgow and West of Scotland Horticultural Society. Midsummer Exhibition. Sec., F. G. Dougall, 167, Canning Street, Glasgow.
16.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.
17 and 18.—Lee and Blackheath Horticultural Society's Exhibition. Sec., C. Helmer, 5, Boones Road, Lee.
18.—Scottish Pansy Society's Exhibition at Edinburgh. Sec., W. M. Welsh, 1, Waterloo Place, Edinburgh.
18.—Exeter Rose Show. Hon. Sec., T. W. Gray, Exeter.
22 and 23.—The Kingston and Surbiton Royal Horticultural Society's Eleventh Exhibition, at Norbiton. Sec., J. Kirk, 2, East Villas, East Road, Richmond Road, Kingston-on-Thames.
23.—Fareham and South Hants Horticultural Society's Show. Sec., Harry Smith, Fareham.
24.—Royal Horticultural Society of Ireland. Great Summer Exhibition. Sec., A. Balfe, 28, Westland Row, Dublin.
24.—Bristol, Clifton, and West of England Rose and Strawberry Show at Clifton.
24 and 25.—Great Rose Show at the Alexandra Palace. Manager, A. McKenzie.
26.—Crystal Palace Rose Show. Sec., F. W. Wilson.
30.—Royal Botanic Society, Regent's Park. Exhibition of Fruit and Cut Flowers. Sec., W. Sowerby.
30.—Wisbeach Rose Show and Horticultural Exhibition. Hon. Sec., Charles Parker, Wisbeach.

THE

Gardeners' Chronicle.

SATURDAY, MAY 22, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	May 24	Linnean Society: Anniversary Meeting at 1 P.M. Sale of Stock at Mr. R. Parker's Nursery, Tooting, by Protheroe & Morris.
TUESDAY,	May 25	Sale of Bedding Plants, &c., at the Hornsey Nursery, Hornsey, by Protheroe & Morris.
WEDNESDAY,	May 26	Royal Botanic Society, Regent's Park: First Summer Exhibition. Crystal Palace: Great Flower Show.
SATURDAY,	May 29	Annual Exhibition of the Central Horticultural Society of France, at Paris (until June 6).

A SPECIAL MEETING has been called by the Council of the ROYAL HORTICULTURAL SOCIETY, to be held on Tuesday next, at South Kensington, at 3 P.M., for the purpose of receiving a communication from the Council respecting the future prospects and condition of the Society.

We are not in a position to state what the nature of that communication may be, but we have good reason to fear that it will not be of a satisfactory nature. It behoves those, therefore, who are interested in the Society to watch very narrowly what is done at that meeting, and if it be not possible to devise then and there some scheme of reorganisation, at least to secure the adjournment of the meeting.

It is a question whether, in the event of the communication of the Council being unsatisfactory, it will not be a wise step to nominate an independent committee of inquiry into the affairs of the Society.

The first thing to do is, at least, to endeavour to vindicate the now tarnished honour of the Society by taking immediate steps to keep faith with the exhibitors and prize-takers. For this purpose a subscription must be organised among the Fellows, if no other means be forthcoming. The re-organisation of the Society is the next step, and that upon the basis of horticulture only. We have had enough of adventitious assistance and outside aid. See what it has come to: Horticulture is nowhere—the South Kensingtonian party want to keep the manger to themselves, and won't even furnish the corn and hay to stock it with. The horticulturists—those among them who are not disgusted with the whole affair—have no cohesion among them, and are the tools of whomsoever will manipulate them most effectually, and Her Majesty's Commissioners look on waiting till they can find somebody who can or will treat with them on reasonable terms, fearing the while to take any overt step, lest they should prejudice themselves in the eyes of the public.

We believe, nevertheless, if they would take more decided action they would earn the gratitude of the Fellows of the Society. Meanwhile, the question to be solved, as it has been for a very long time past, is, what is to be done? The present Council, in spite of its ardent protests, has done no better than the former one. We do not believe any Council will do better which is not composed of working horticulturists—amateur and professional; and we do not believe in the regeneration of the Society unless some manager is placed at the head of the administration who is horticulturist enough to know personally what are the proper functions, horticultural and botanical, of a horticultural society, and what is the best means of fulfilling them. For this purpose a first-rate man should be selected and a first-rate salary paid him. Yes, but where are the funds? is the question that will be asked. Well, let the financiers consider these two points—1, that a very large part of the income of the Society is now diverted, perverted we would rather say, to purposes only very remotely connected with horticulture—and this will continue to be the case all the time the Council and officers of the Society are to a large extent non-horticultural; 2, that at Sheffield last year, at a flower show in the Botanic Garden, there were taken, as we are assured, on one day, in sixpences, more than seven hundred pounds. This week, too, has shown what Manchester can do of a like character. Assuming, as we have every right to do, that these statements are substantially correct, we see in them two prominent reasons of the Society's decline and sugestions as to the means for its regeneration. It will be well if horticulturists would ponder these facts, and meet together to discuss them on Monday next, at 3 P.M., at the Horticultural Club, 3, Adelphi Terrace, Strand—the rooms of which will, by permission of the Committee, be open for that purpose. It may then be possible to consider what are the best steps to be taken at the general meeting of the Society on the following day.

SOME of our readers may have been amused at the revival on the part of Mr. CLARE SEWELL READ of the old story of the possibility of, or rather of the actual TRANSMUTATION, under given circumstances, of OATS into WHEAT. Far be it from us to deny the possibility of the occurrence. Many things as strange, and seemingly unlikely to happen, have happened, and will happen again. But while admitting the possibility we must, with all deference to a man deservedly so highly esteemed by his fellows, confess that we are at present utterly sceptical that any such change really has happened. Until some more satisfactory evidence is put before those competent to judge in the matter we are likely to remain so. Of course we shall receive, and we have received, letters more or less supporting the assertion; but up to this time we have heard nothing but opinions and assertions, often at second-hand, without confirmatory evidence of any value. Knowing the great difficulty experienced in many cases by trained observers rightly to interpret facts, we can readily understand how easily untrained observers may be deceived and arrive at false conclusions. We have had but too many illustrations lately, and some of a very glaring character, of this inability, even on the part of intelligent upright men, who would shrink from conscious falsehood or misstatement, to appreciate evidence. Some one says such a thing without the least intention to deceive, and some one else believes the assertion because he has heard it "on good authority," and so the statement comes to be accepted as true without inquiry or investigation. The worst of it is that even if inquiry or investigation be systematically made, there is still a large class of people who prefer what they call "the evidence of their own senses" to any evidence which other people can offer. Suppose, for instance, some competent botanist were to pronounce after due examination that this Oat-Wheat of which Mr. READ speaks was not Wheat at all, the class of whom we are speaking would hesitate to accept any such verdict; to them it would be Wheat, whatever the professor might say. The only hope in such a case is that they may feel interest enough in the matter to investigate for themselves, and then it is possible, but not certain, that the fallacy would be detected, and the real explanation of the alleged fact be arrived at. It is the occurrence of such cases as these which leads us to doubt the benefit of farm experiments in different counties, such as Professor WRIGHTSON advocated in the lecture before the Society of Arts, which elicited the assertion of Mr. READ. Unless such experiments can be initiated, watched, carried on, and completed by some competent experimenter—some one provided by Nature and experience with the requisite knowledge, skill, patience, and ability to observe and reason correctly—their value is likely to be but slight. They will have a value, no doubt, and by their multiplication errors may be eliminated; still, on the whole, we do not think the results likely to be obtained by the average farmer are likely to be very trustworthy.

The problem to be solved is a far more complicated one than it appears to be at first sight, and we are at present destitute of many data absolutely necessary for its accurate solution.

The application of a certain quantity of manure to a given area of ground carrying a certain crop might seem a simple matter enough; but even the admittedly rough experiments made for practical purposes only, and cited in Professor WRIGHTSON's paper, show, by their varied results, that it is not so. We are getting a better knowledge of the chemical history of manures; analysis of the soil and of the crops teach us much that is valuable. Meteorological investigations show us, at least, how much heat and how much water our crops have received in any given period, and how much on the average they are likely to receive in a similar period. But averages fail when applied to individual cases; no two individual plants are alike in all points; no plant is ever subjected precisely to the same conditions as its fellows; assuredly no plant is ever surrounded by precisely the same "environment" as its predecessor. Where our knowledge is at fault is in the history of the chemical and physical changes which take place in different soils when manures are added. No doubt something is known, but not sufficient; we want especially comparative investigations upon this point upon soils of different characters and water-holding power. But if our knowledge of the mutations which take place under different circumstances in the soil is defective, still more so, or rather would we say still more profound, is our ignorance of the mutations which occur in the plant. We know that certain manures stimulate the plant; we see their effects in their increased vigour and size, in their enhanced colour, in the yield of the crop. But when we come to inquire how all this is brought about?—what is the reason of it?—how these actions

are carried on or modified?—we are met with an obstacle—ignorance—that physiologists have as yet only very imperfectly overcome.

What makes the matter more difficult is the fact that plants (we confine our remarks to plants, though the same holds good in the case of animals)—that plants evidently very closely allied are yet affected very differently by the same conditions.

There are two grasses very common in most meadows—Poa trivialis and Poa pratensis. These two grasses are so much alike that it requires a practised eye to discriminate them, and yet the effects of manures on them, as proved year after year in the experimental plots in Mr. LAWES' park at Rothamsted, are (we speak in general terms) diametrically opposite. Several instances of a similar character have been observed at Rothamsted. Again, in some cases the two halves of the same experimental plot, treated to all appearance and intention in identically the same manner, vary considerably in the results they yield. We mention these instances to show the difficulties in the way of arriving at correct results, and to show the necessity for carrying on experiments with greater care and supervision and less risk of the introduction of sources of fallacy than are likely to be met with, except in very exceptional cases, by farm experiments such as those advocated by Professor WRIGHTSON.

—— A SPECIAL GENERAL MEETING OF THE ROYAL HORTICULTURAL SOCIETY will be held in the Council-room, South Kensington, on Tuesday, the 25th inst., at 3 o'clock, P.M., for the purpose of receiving a communication from the Council respecting the future prospects and condition of the Society, and to receive an answer to proposals made by the Council to Her Majesty's Commissioners.

—— We are requested to state that the meeting of the Scientific and Fruit and Floral Committees of the ROYAL HORTICULTURAL SOCIETY, South Kensington, fixed for the 26th inst., has been postponed on account of that day being Derby Day. The next meeting of these committees will take on Wednesday, June 2.

—— On Wednesday afternoon last the open space lying between the Bethnal Green Museum and St. John's Church was declared open and dedicated to the public for ever by the First Commissioner, Lord HENRY G. LENNOX. The site of the new garden, which is about 2 acres in extent, together with the ground on which the Museum stands, was originally the site of the old green, a browsing-ground for donkeys, kept up in accordance with the terms of a will of some benevolent testator, a receptacle for the dead members of the canine and feline races, and a perfect disgrace to the neighbourhood. In 1868 the local parochial authorities purchased the rights of those who claimed the privilege of grazing under the terms of the before-mentioned will, and handed the ground over to the Government on condition that it should be kept only as ornamental ground. Some eight years elapsed before the Government in power could be induced to carry out their engagements, and it was not until the present First Commissioner came into office in 1874 that the work was set about in good earnest, with the result that in much less than two years that has been completed which it took eight years to begin, and the East-enders have now, in addition to the beautiful Victoria Park, the free use and enjoyment of a recreation ground which, we are sure, when the trees shall have grown up, will prove a fitting ornament to any locality. The ground is almost square, and has been levelled, laid out, and planted under the direction of Mr. MCINTYRE, the Superintendent of Victoria Park, who, thoroughly appreciating the wants of the immense population of the district, has given as much grass and as many good broad paths as it was possible to afford in consistence with the development of his general plan, which we hope shortly to place before our readers, with details of the planting, &c. The opening ceremony, which was of an extremely modest character, took place during a drenching downpour of rain, in the presence of the members for the Tower Hamlets; Sir ANTONIO BRADY, whose deep interest in all that concerns the welfare of the East End is highly appreciated; the Rev. SEPTIMUS HANSARD, and a number of gentlemen connected with various local boards. Mr. FOREST, the churchwarden of St. John's, having briefly welcomed his lordship, Sir ANTONIO BRADY and the Rev. SEPTIMUS HANSARD had each something handsome to say on the accomplishment of so good a work, and the good results likely to accrue from it; and Lord HENRY LENNOX, after a happy speech, which was enthusiastically applauded, proceeded to the main gates, and opened them to an immense crowd, who at once took possession of every available part.

—— CRASPEDIA RICHEA is flowering in the herbaceous ground at Kew. It is a curious member of the Compositæ, with ornamental globular yellow-flowered capitules, elevated on stalks a foot high. The foliage is not unlike some species of Gnaphalium. The lower leaves are spathulate, lanceolate, and petiolate, gradually becoming smaller and sessile up the stem. It is described as an annual, but is at least sometimes a biennial, and in either case deserves cultivation. The capitule is composed of a number of lesser capitules, stalked and involucellate, though the head is so close that it cannot be observed without dissection. "This is one of the many remarkable genera of Compositæ peculiar to Australia." The present species has a wide geographical range, being a native of Tasmania and South-eastern Australia, and it is also recorded from the Swan River.

—— We understand that Mr. W. A. LINDSAY has resigned the post of Secretary to the Royal Horticultural Society, from his inability to concur in the policy of the Council. We believe that it would be most advantageous to the Society if some paid officer were selected to fill his place—such officer to be highly paid, and to be, not only a thorough administrator, but one conversant by practical experience with horticulture and garden botany—able to appreciate their requirements, and influential enough to fulfil them.

—— SAXIFRAGA PELTATA is in flower on the strip of rockwork devoted to the genus in the herbaceous ground at Kew. From its peculiar and distinct character, combined with a considerable amount of beauty, it must find favour with cultivators, though not strikingly ornamental. The leaves are just appearing, and of the known species of the genus this is the only one in which they are peltate, requiring for it

FIG. 138.—STREET SCENE: TARTAR CITY, PEKIN.

the sectional distinction of peltophyllum. It is one of the largest in habit. The rhizome creeps on the ground, partly buried. The petioles are erect, from 1 to 2 feet high, supporting a peltate blade 6—12 inches in diameter, 6—10 lobed, laciniated and toothed, depressed in the centre. The scape is erect, as long or longer than the petioles, and the flowers are produced in dense subcapitate branching cymes, with a diameter of from 3—9 inches. The colour is usually pale pink. It is a native of California, where it is known as the "Umbrella Plant." The best treatment is that given to subaquatics, although it will succeed in a comparatively dry position.

—— In Mr. INGRAM's experience at Belvoir, BLACK HAMBURGH and ALICANTE VINES do not inarch with successful results. The Alicante is, indeed, improved in quality, but its maturity is hastened and its keeping powers deteriorated.

—— On Tuesday evening last the ANNUAL FLOWER SERMON was delivered at the church of ST. CATHERINE CREE, Leadenhall Street, by the Rev. W. M. WHITTEMORE, D.D. The occasion was the twenty-third since the institution of the service, which is intended wholly for the young; and all attending it are requested and expected to carry with them a bouquet of flowers. The preacher, after some introductory observations, announced as his text a portion of the eleventh verse of the sixth chapter of the Song of Solomon—"I went into the garden to see whether the Pomegranates had budded." His congregation knew, he said, that on these occasions he never took any notice of grown-up people. Many grown-up people who ought not to be there had smuggled themselves in. The church doors were open, and could hardly be closed against them, but this service was especially intended for boys and girls. He thanked a friend who for the past twenty years had on these occasions sent him a nosegay to set in the pulpit as a text for his flower sermon. Twenty-three years ago he had resolved to have a garden wherein in place of flowers and fruit he would train children, and on this especial day he had ever since come down to see how the young plants grew and developed—he came down into the garden to see whether the Pomegranates budded—whether his plants gave in the youthful flower of their habit and inclination any promise of future piety and usefulness. In the course of his introductory remarks the preacher lamented that, owing to the old-fashioned and box-like form of the pews, it was impossible for the flowers borne by the youthful members of the congregation to be seen, and expressed a hope that by the time at which the next flower sermon came to be preached a donation of £500 would have put it in his power to modernise the internal arrangements of the church."

—— Among others in flower on the rockwork at Kew are the following:—Chlorogalum Leichtlini, long erroneously known as Camassia alba; it is rather handsome, with tall racemes of Camassia-like flowers. A splendid plant of Phlox divaricata evidently delights in the shade here afforded; it is about 1 foot high, and covered with lilac-purple coloured blossoms. P. setacea var. violacea is also very showy; it is similar in habit to P. frondosa, and the much darker flowers recommend it for the same purpose of spring bedding; why called violacea, if this is the plant intended, it is difficult to see. A good tuft of Androsace imbricata has its dense silvery foliage almost hidden by the pure white flowers which from the shortness of their stalks appear sessile. The rare and choice Erysimum pumilum is very beautiful, and looks a diminutive of Cheiranthus alpinus, itself a small plant, except that the leaves are in greater subjection to the flowers.

—— At Belvoir recently we saw an ingenious mode of forming a HEDGE WITH LILAC BUSHES at intervals. The hedge was of Privet, and every here and there Mr. INGRAM had grafted on to the Privet a Lilac. Any one on a first glance would have thought the Lilacs were standards on their own roots.

—— The large exhibition tent in the Botanical Garden at Old Trafford, Manchester, is to be planted at the termination of the present exhibition with an assortment of Rhododendrons from Messrs. H. LANE & SON'S nursery at Berkhampstead, where, it will be remembered, they are grown in pure loam. Some 1500 plants have already arrived in the gardens, and they give every indication of a fine display of blossoms, which may be expected to commence opening at the end of the month.

—— We understand that Mr. BENNETT has resigned his appointment as gardener to the Marquis of SALISBURY, Hatfield House, Herts, and has taken the Rabley Nursery, near Barnet, which contains some very extensive ranges of glass. Here, after June 6, Mr. BENNETT will offer his services to the public as a consulting gardener and garden architect, and carry on the business of a florist, seedsman, &c. Mr. BENNETT has for many years been well known to the gardening world, and has been a highly prized contributor to our columns for the past twenty-four years, besides having held some of the best places in the country, and taken a very active part as censor at various exhibitions. We trust that success will attend his efforts in this new sphere of work.

—— Dr. ASA GRAY has recently published, in the tenth volume of the *Proceedings of the American Academy of Arts and Sciences*, a conspectus of the North American HYDROPHYLLACEÆ. We observe that among the cultivated species Nemophila atomaria and N. discoidalis are referred as varieties to N. Menziesii. Eutoca viscida of BENTHAM is Phacelia viscida of TORREY, Whitlavia grandiflora of HARVEY is Phacelia Whitlavia of GRAY, Eutoca divaricata and Wrangeliana are both referred to Phacelia divaricata.

—— In the same publication Mr. SERENO WATSON has published a useful revision of the genus Ceanothus, of which he admits twenty-eight species, all American.

—— AZALEA LINEARIFOLIA, the most remarkable of the genus, is flowering in the temperate-house at Kew. It is beautiful as well as peculiar, and though one of the choicest plants for a botanic garden, deserves still further cultivation. The leaves confer individuality from their extreme narrowness; they are about 3 inches long, ciliated, and light green. The lobes of the corolla are divided nearly, if not quite to the base, are very long, and, being also narrow, seem to assume the leaf form. The colour is pale rose. Suitable cuttings are easily rooted. It is a native of Japan, whence it was introduced by Messrs. STANDISH. A figure is published in the *Botanical Magazine* of 1869.

—— Some time since we had occasion to speak of some tinned CRANBERRIES which were forwarded to us from America. Lately we received other samples in bottles from the New Jersey Cranberry Association, upon which we can report even more favourably than of the first consignment. We have no doubt that, when better known in this country, they will be in request as affording a pleasant variety to our fruit diet. It is hardly necessary to add, that Cranberries so grown and prepared are totally different from what we usually get in this country. It is obvious, too, that there are Cranberries and Cranberries even in America; and we would suggest to our Transatlantic friends to turn their special attention to the thin-skinned varieties.

—— As an edging plant, EUONYMUS RADICANS VARIEGATUS is most valuable from its free but low growth and bright appearance. It is much used for the purpose indicated by Mr. INGRAM, at Belvoir.

—— We are informed that Mr. ANDERSON, of Meadowbank, has had a splendid bloom of AMARYLLIS this season. The seedlings have turned out particularly good, being specially fine in regard to variety of colouring, as well as highly meritorious in regard to form and substance. We believe that Messrs. VEITCH have also something good in this way, of which the public will learn in due time.

—— The managers of the Alexandra Park have made arrangements with the Messrs. JOHN WATERER & SONS, of Bagshot, Surrey, for a display of their RHODODENDRONS. They will be exhibited beneath a large tent prepared expressly for their reception, and from the celebrity of the firm for this magnificent class of plants, a grand treat may be expected throughout the month of June.

—— DEEP PLANTING, we are told, in a recent number of the *Journal de la Société Centrale d'Horticulture de France*, has been generally accepted as a necessary condition to ensure the success of APPLE AND PEAR TREES in the south of France and in Algeria, in order to enable them to escape the fatal effects of heat and drought. But experiments made with several thousand young trees at Hamma, in Algeria, have fully demonstrated the fallacy of this idea. At a meeting of the above-named Society, in February last, Mr. A. RIVIÈRE exhibited a number of vigorous specimens of young Apple and Pear trees, whose roots were all near the surface, to establish this fact. We have so often seen the bad effects of deep planting, and we have repeatedly pointed them out, but it is still practised to a great extent, partly to save the trouble of staking, but more frequently under the mistaken notion that the trees are more likely to flourish. We certainly should plant a trifle deeper in a light sandy or gravelly soil than we should in a stiff loam or clay, but not more than 3 or 4 inches.

—— Mr. RIVIÈRE reports (*Bulletin de la Société d'Acclimatation*) on the plantations of EUCALYPTUS IN ALGERIA, and the beneficial results gained from a sanitary point of view. Indeed, he affirms that certain places formerly noted for their unhealthiness, arising from miasmatic exhalations, have become comparatively salubrious! In 1868 and 1869 the *Société Générale Algérienne* planted about 30,000 Eucalyptus on the borders of Lake Fezzara, where they thrived so exceedingly well that it was decided in 1870 to increase the number to 100,000. Previous to 1868 there was no woody vegetation in this locality, which at that time was almost uninhabitable. Now the banks of this lake are covered with a little forest of Eucalypti, those planted in 1870 having attained a height of 20 to 25 feet, and, what is more, the unhealthy exhalations have almost ceased. This is a double success, and doubtless much unproductive land in Africa will in this way be reclaimed from the desert waste.

—— It is stated that Lady SMITH, widow of Sir JAMES EDWARD SMITH, the President of the Linnean Society, on Tuesday entered her 103d year. Lady SMITH is in perfect health.

—— M. DE LANESSAN has recently presented some observations on the ABSORPTION OF WATER BY LEAVES to the Linnean Society of Paris, and which go to show that leaves do absorb water if they are previously flagging from excessive evaporation. A branch of Lysimachia nummularia, for instance, weighing 30 centigrammes when in a fresh condition, was immersed in water for twenty-four hours without any augmentation in weight. The same branch was allowed to become withered by exposure to the air for ten hours, at the end of which time it weighed only 20 centigrammes. It was then placed again in water, and when taken out after twelve hours' immersion it weighed 30 centigrammes, as it did at first.

—— We are informed that the number of visitors to KEW GARDENS on Whit-Sunday was 21,536, on Whit-Monday 60,619, and on Tuesday 25,070. We are further gratified to learn that not a plant indoors or outdoors was damaged. This intelligence is eminently satisfactory, and is creditable to all concerned.

—— The POPLAR WEEVIL, Crytorhynchus lapathia, appears to continue very destructive in some parts of France and Germany. It not only attacks the Poplar, but likewise the Alder and Willow and other trees that grow in wet places. In a plantation at Val d'Yèvre, of about 50 acres extent, the loss has been 500 trees a year. The larva of this insect devours the pith of the tree from the collar of the root upwards, and the slightest wind blows down the injured tree. Various remedies have been suggested, most of them too tedious to be practicable or injurious in themselves. One writer recommends the application of a coating of coal-tar before planting young trees, from the roots upwards, about 5 feet of the stem, or higher if there are any traces of the presence of the insect. Care must be taken, he adds, not to put any on the roots or branches, for it will inevitably kill them. We do not like the remedy, and doubt its efficacy, but it would be difficult to find an easy and cheap method of destroying a burrowing insect.

—— Mr. BARNSBY, director of the Botanic Garden of Tours, has been trying the relative HARDINESS of different species of EUCALYPTUS. The species planted were E. rostrata, gigantea, colossea, and globulus, the first of which appears to be the hardiest. In nearly every case the stems were killed to the ground, but the plants threw up again from the base. They withstood the winter of 1873-4, and during the past winter they have been subjected to 14°.4 Fahr. of frost. In Vendée, E. globulus has stood eight winters without any injury. According to Baron MUELLER, E. rostrata thrives equally well in the latitude of Melbourne and within the tropics, and it certainly is one of the handsomest of the genus, as the figure lately given in the *Botanical Magazine* will testify.

—— Mr. BARR has sent us an interesting bunch of SCILLAS, including as extreme forms S. nutans and S. campanulata, with divers intermediates, such as patula, belgica, &c., of various colours. With them came flowers of two little-known Narcissi—N. gracilis and N. triandrus.

—— The *Revue Horticole* having described the flowering of the offsets of Agave americana (to which we referred at p. 594, of May 8), it is interesting to place on record a similar case which occurred at Kew. In the Palm-house, about two years ago, was in flower a fine specimen of A. JACQUINII, and after the central panicle had flowered, the suckers (two?) also threw up panicles, which did not exceed the height of the leaves. It was an unusually fine specimen of the species, but the age was unknown.

—— A new TURF PLANT for hot, dry countries, LIPPIA ÆGYPTIACA, is very favourably spoken of by Mr. QUIHOU, the head-gardener to the Acclimatisation Society of Paris. Mr. DELCHEVALLERIE, a gardener in Egypt, was struck with the verdure of a plot of this plant met with on one of his excursions,

and he transferred some of it to the gardens under his care. The result was highly satisfactory, and it has since been tried in France. It spreads rapidly, rarely flowers, and it is of a beautiful dark green. It is hoped that it will prove valuable for forming a turf in the south of France and Algeria, where grass lawns are scorched up and sometimes killed outright during the summer. It will be good news to many if this little Verbenaceous plant should fulfil these expectations, for nothing is more depressing than to see the grass of a lawn all burned brown, notwithstanding all the pains taken to preserve its verdure.

—— There is nothing more showy and attractive in the herbaceous department of the Royal Botanic Society's garden, Regent's Park, at the present time than a nice patch of Aubrietia Campbellii. Compared with A. purpurea growing beside it, CAMPBELL'S Aubrietia is a much superior thing, being a stronger grower or "a better doer," as gardeners say, and having larger flowers of a violet-purple colour, and which are thrown up in abundance. It produces a brilliant bit of colour whenever seen.

A STREET SCENE: TARTAR CITY, PEKIN.

ON October 13, 1860, the Anting Gate (the northern entrance to Pekin) was surrendered to the European allied forces, and at last the interior of the mysterious city was revaled.

Some idea may be formed of the size of the town when it is appreciated that the wall extends over 16 miles in circumference. These walls, which exceed in size the famous walls of Babylon, are upwards of 50 feet in breadth, very nearly the same in height, in excellent repair, and paved on the top, where, with a little management five coaches and four could drive abreast. This causeway is broken at intervals by large massive fortresses at each gateway. These gateways, one of which is shown at the end of the street (in fig. 138, p. 661), are defended with several tiers of cannon, but many of the embrasures are only occupied with make-believe dummies. Besides the fortified gateways there are also bastions at intervals.

The Chinese city, which lies to the south of the Tartar town—from which it is divided by a wall and fosse—is much cleaner than the Manching city, the streets broader and better paved. It is the Paris of Pekin, and here are all the theatres, parks, merchant's houses, wealthy shops. The main streets, one of which is here depicted, in the Tartar portion are broad and straight, but can hardly be termed handsome. The centre or highway is much broken and full of ruts and holes—a mass of mud when wet and deep with dust when dry. This centre way is flanked by two roads on either side close to the houses, which are low and mean. Observe in the foreground the *monocycle* wheelbarrow—a clever contrivance, on the same principle as that mentioned by Mr. Hanbury at p. 632. These huge wheelbarrows, so constructed, carry very heavy loads, and as collision with them would be serious, the coolies who wheel them make a wonderful noise, bawling at the people in their path.

The covered carts, too, remnants of the original nomad customs of the Tartars, are strongly made, and look not unlike oblong boxes on wheels. They are covered over so as to afford protection from sun and rain, and it will be observed that the tilt is extended in front to shelter the mule or horse which draws the conveyance. There are regular stands of these carts in Pekin.

The shop fronts in Pekin are quaint and picturesque. Three, four, or more poles divide the front of the shop into equal parts. At a convenient height from the ground a signboard fills up the space between the poles, and has magnificent characters upon it, giving the title and calling of the trader. The tops of the poles are higher than the roof of the shop, and are surmounted with carved and sometimes gilded ornamentation.

Vegetables and fruits are abundant, whilst Grapes and Peaches are plentiful and fair in season. Pears are very common, although Fortune noticed that the most highly-flavoured and melting species of Pears were unknown in Tientsin, 70 miles to the east.

The nursery gardens of Pekin are to the south-west, in the suburbs, at some distance from the walls, in which direction the whole country is covered with them. As elsewhere in China and Japan the nurserymen, like the other trades, have formed themselves here into a community or guild. Among the hardy plants here propagated will be found the Jasminum nudiflorum, Prunus triloba, the Judas-tree, Weigela rosea, Honeysuckles, and the Banksian and other Roses. *S. P. Oliver.*

THE PROTECTION OF POLLEN.

A GREAT many plants, it is known, are fertilised by the agency of the wind, which carries the abundant, fine, dry pollen from one plant to the female flowers of another of the same species at a distance. The lightness and the large quantity of pollen in such cases insures the occurrence of a good fertilisation. In another large class of plants the fertilisation is done by means of insects, which carry away the pollen from one plant to the flowers of another, which they visit in search of nectar. In such cases the pollen must wait till the insect visits the flower, and must be kept intact for that event, and so it requires special means of protection at once against premature removal and the injurious action of the weather. The arrangements met with in Nature for this end form the subject of a recent investigation by M. A. Kerner, from whose paper in the *Archives des Sciences* the following information is taken :—

The reproductive organs themselves are often charged with protection of the pollen. Thus in Iris the stigmas are developed into large petaloid plates, which are turned towards and meet the parts of the perianth. In this way they enclose the stamens perfectly in a kind of narrow canal, through which the insect must violently force itself to collect the nectar, but to which neither rain nor wind can penetrate. In the genus Aspidistra the flower takes the form of a widely open cup, at the bottom of which the stamens are very short. The stigma is developed into a large disc situated about half-way up the flower, and quite closing it, protecting the anthers, and leaving only a narrow passage for insects. In the Oleander, &c., the stamens have at their point a sort of prolongation in the form of a spoon, and the style is surrounded by a band of long hairs. The combination of these two organs forms a perfect roof for the pollen. In the Compositæ the tube which arises from the union of the stamens, and within which the pollen lies, is a protection till the insects come.

Often the protective covering is afforded by the perianth. A large number of plants have a part of the top of the flower developed into a true roof over the pollen. This peculiarity of organisation characterises some very important families—Labiatæ, Scrophulariaceæ, Orobanchaceæ, Gesneriaceæ, Utricularieæ, Polygaleæ, Violaceæ, many Papilionaceæ, some Ranunculaceæ, &c.

In other cases, the upper portion of the petals of the corolla remains united during the first part of the development of the flower, and so protects the filaments and the style ; or, as in Trollius, the flower-leaves, very concave inwards, unite at the top of the flower. In other cases the tube of the corolla which incloses the stamens is so narrow that the water cannot penetrate, the air can find no exit, and remains behind as in a Bladder, keeping the pollen dry ; or (what is more frequent) the entrance of the tube is closed by hairs, scales, &c.

The spathes of many Aroideæ, and the leaves of certain Musaceæ, and of the Linden, often cover the flower like a true umbrella.

If any part of the flower is not constructed in such a way as to be capable of protecting the stamens against external injuries, the result sought is attained either through periodical movements of the perianth, or through bendings of the axis.

In the first category we find, especially, all so-called ephemeral flowers, the flowering of which lasts only a day (Villarsia, Tradescantia, Convolvulus tricolor, &c.). The anthers open, and let the pollen escape into the bud ; this, on the other hand, opens only in the hottest hours of the day, when the sun is bright, and the insects swarm from all sides ready to effect the fertilisation. The flowers which present a like structure, but whose complete development lasts several days, are ruled by similar laws ; they close in the coolest hours, when the dew might injure the pollen, when the weather is rainy, and when there is little activity of insect life. Some among them love the twilight only ; they open a little before sunset, closing in the evening. Their usual visitors are naturally the insects of twilight, and to attract these, they assume lively and shining colours. Others have quite dull colours, but their presence is manifested by a penetrating odour unobservable by day (Pelargonium triste, Hesperis tristis, Nyctanthes arbor-tristis). But these cases are quite exceptional, and the very large majority of flowers with periodic movements open in the brightest hours of the day ; this is the time when, in gardens and meadows, the flowers of Gentian, Crocus, Anemone, Ranunculus, many Compositæ, &c., are brightest.

The flower-leaves resume, when they close, the position they had in the bud, and so bring the filaments and anthers quite under cover.

When fertilisation is insured through curvature of the flower axis, the perianth forms a protective roof over the organs of reproduction ; its form, and also the degree of bending, depend naturally, in great measure, on the length of the filaments. When, as in the Lily of the Valley, they are quite short, a little developed perianth and a simple bending to one side is sufficient to attain the desired end. Where, on the other hand, as in Fuchsia, the anthers are on long filaments, the perianth is much more expanded radially, and the flower is quite pendent.

For the rest, there are all degrees of curvature in Nature ; sometimes the phenomenon is observable from the bud, sometimes it appears only at the moment of expansion. When fertilisation is completed the young fruit mostly turns backwards, at least where it is not fleshy, and so too heavy to be again moved by the elasticity of the peduncle.

It sometimes occurs that the bending of the axis, like the closure of the perianth, is periodical ; this is the case with the flower of Oxalis Acetosella, which during the day is directed quite upright, forms an arc of more than 100° at sunset, and at length is bent quite towards the ground. The periodic changes of elasticity in the tissue of the peduncle, which this motion indicates, is shown in many other plants under influence of an external stimulus, and many flowers that usually stand erect, sink to the earth and so protect their anthers, if they are shaken by the wind or by the fall of raindrops.

Lastly, in the Boraginеæ and some other families whose inflorescence is scorpioid we find the development of the flowers successively in all kinds of positions to the horizon ; they mostly open in such a way that at the moment when the pollen would be exposed to injury the opening of the flower is directed towards the ground, and the rain may hit it without doing damage.

Such are the various peculiarities of organisation, which all have the special object of facilitating the fertilisation of the flowers, inasmuch as they protect the pollen against what might injure it, without, at the same time, preventing the free entrance of insects which aid in this function. Of course these various means are often combined, and where, *e.g.*, a flower which closes every evening leaves an opening at the point, it is found on a stalk that is more or less curved.

In general it may be said that the pollen is more perfectly protected the less abundant and coherent it is, the more absolutely the fertilisation depends on insects the shorter the time of complete opening of the flower, and the more unfavourable the climate.

The Orchideæ present, perhaps, the most perfect combination of all means of protection ; which fully agrees with the nature of their pollen and the small number of their flowers. In the Pomaceæ and the Amygdaleæ, on the other hand, the anthers are very numerous, and the flowers are so abundant that, if only the half were developed to fruit, the tree could not carry its load. Accordingly, in this case the means of protection are very rudimentary.

A superficial glance, even, at the flora of a country will generally show an intimate relation between the character of the climate and the structure of the most largely distributed families. A cold and damp region, where the fertilisation must always be difficult, where the flowers must sometimes wait several days for a sunshine favourable to the excursions of insects, will not fail to exert a remarkable influence on the character of its flora. Thus on the Alps, where the dew is very heavy, and persistent clouds cover the mountain summits for days together, the prevailing species have all perfect means of guarding their pollen (Gentiana, Primula, Andromeda, Soldanella, Pedicularis, Campanula, Euphrasia, Veronica). There are here no plants with ephemeral flowers ; the anthers never rise much above the crown of the flower. If we compare the flora of South Australia (a region where during the whole flowering season not a drop of rain falls), the Mimosæ, the Myrtaceæ, the Proteaceæ, which are here so abundantly distributed, have all stiff flowers with very short perianths, and very long stamens, which leave the pollen quite exposed.

Some apparent exceptions confirm, on closer examination, the above rules ; and in those cases in which there is an unprotected though dependent pollen the injury to fertilisation thus rendered possible is compensated by an enormous quantity of the pollen and a very long time of persistence of the flower. *A. W. M.*

FLY-TRAPS.

As this is a time when certain plants are on their trial for their carnivorous propensities, it may be worth while, on the score of fair play, to hear counsel on both sides. Not that I am prepared to measure weapons with the advocates on the other side, but I think that certain statements of facts, well known to plantsmen, should be put in, in time to save the reputation of the plants in question ; for not only are they charged with slaying their victims, but also with devouring them, and, finally, with digesting them. As I have been familiar with these plants for some thirty years or more, I may state their behaviour under my own observation.

The Sundews (Drosera rotundifolia and D. longifolia) abounded until lately in all the bogs round Manchester, so that I could send specimens by post to distant friends, who admired these curious tiny herbs; but the hot summer some years ago burnt up all the Sundews of our mosses, and since that time I have had to go far a-field for specimens. The pretty little Pinguicula of our moist moorlands is also blamed for eating flesh; but the most notorious offender in this way is the Venus' Fly-trap (Dionæa muscipula), whose machinery when set in motion is quick as thought in securing its prey. The Side-saddle plants (Sarracenias) are clumsy pitchers, holding dirty water for ants and flies to drown in; and the same may be said of the true Pitcher-plants (Nepenthes). Now, if any one goes into an Orchid-house he may see shallow shrimp pots with treacle and water in the bottom, and thousands of ants, some in good health, tempting their fate, some dying, and thousands dead; but the shrimp-pot has no digestive powers; it is simply a fly-trap, and differs in nothing from the vegetable traps of Nepenthes and Sarracenias, with their thimblefuls of water, and half a pitcherful of dead ants and flies, usually ending in the destruction of the ornamental pitcher instead of manuring the plant.

In Dr. Drummond's *First Steps in Botany* he mentions a shrub found at the Cape called the Flag-bush, whose botanical name he gives as Roridula dentata [A near relative of Drosera. EDS.], and whose leaves, he says, are furnished with glandular hairs, so that people keep it in their houses to catch flies, as we do twigs smeared with birdlime. This plant ought to stand at the head of the class of fly-catchers. I counted 200 dead flies on a piece of treacled paper less than a foot square in my own kitchen in this year of grace, and it was due to the clammy coating, and to nought else, that the feet of these 200 flies got fast, and their life was sacrificed. There was nothing to be laid to the score of acrimony or impalement, as in the case of the Sundews, whose clammy secretions are said to be deadly, which they need not be, as the pretty globules at the tips of their hairs are viscous enough to hold the fly, and it could hardly escape coming in contact with half-a-dozen red bullets when, feeling entangled, it began to struggle. Out of the thousands of Sundews, however, that I have seen when young, and in flower and in seed, I have never seen one with a fly half-digested, or with any other mark by which one would suspect it of carnivorous proclivities; and as the plant grows in wet bogs, usually in company with living Sphagnum, the carcase of a fly could be of little avail in such a case, where clean water, or water tainted with peat, was the chief dietetical element. As this tiny British plant has no protection against storms and heavy rains, two things become evident—the one, that the rain would wash off anything like dust or dirt from the foliage thus fully exposed to it, and the other, that the rain never does wash off the transparent globes at the tip of every hair; thereby proving that this clammy substance is not of the nature of dew. The "vertues" of this plant are set down in books as a perfect cure for warts, and powerful enough to blister the skin; it may be so, but many such "vertues" in Herbals, &c., are rank quackery.

It is well for the Sensitive Plant (Mimosa pudica) that nothing of this kind can be laid to its charge, for its leaves have only to be lightly touched, even with a single hair, to droop as if fainting; and not only do its leaflets drop one after another before one's eyes, but the footstalk follows suit, as if the soft infection ran through its too delicate tissue. This has amused children greatly. The movements among plants are far more common than most people think, for we find in the flowers of the common Barberry that when its filaments are touched on the inside they suddenly contract, and impregnate the flower by striking the anther against and so depositing the pollen on the stigma. The tendrils of the Pea feel their way all round for a support, like a blind man groping for his staff. In frosty weather the Rhododendrons hang their leaves as if dying, like the Sensitive Plant, but they very soon get starched up again as soon as mild weather comes. The daily opening and closing of flowers is a slow process, but not the less sure, nor the less marvellous, for the heat and the light do not always explain the mystery. Thus we find the night-flowering Cereus (Cereus grandiflorum) blooming in the dark, and the night-scented Stock (Mathiola tristis) giving out its grateful odour only when the sun goes down [for the benefit of night-flying insects]. The Broom (Spartium scoparium) and the Gorse (Ulex europæus) sow themselves, for the pods burst open with a loud crack and fling the seeds on to fresh soil, yet few wonder at the deed or praise the design. It seems, however, evident that the still life of the vegetable kingdom was not to exist alone, for we find that the impregnation of many flowers could not be well done without the aid of insects that move as well as live. Hence the beautiful fitness of the honey-bee for its work, and of the peat-clad mountain with its square miles of blooming Heather and its honey to attract the bees, whose disturbing movements were wanted to get fertile seed; and the wonderful impregnation of the Orchids as explained in Darwin's works only shows the fitness of the tropical insect for the wants of the tropical plant, just as the bee of Britain is for the Heather of that ilk.

I have often wondered whether the Northern national music of the bagpipes with its drones and chanter, had been borrowed from the humming song of the honey-bee—for when bees are about to sting they give you their music in quite another key, their battle-cry being sharp and shrill as compared with their airs when gathering honey. Therefore much of the charm to Scottish ears of the Highland bagpipes may lie in the sound being so like that of the bee on his native hills.

Whoever would study the habits of Pinguiculas should traverse the Scottish moors and fens, where Heather of various hues and floods of water meet like friends, and deck each other's charms.

It is unfortunate that all the plants blamed for this vice of eating their visitors are rare. The Dionæas, Nepenthes, and Sarracenias are all rare exotics, and I have already stated how scarce Sundews have become in our bogs, and as for Pinguiculas Smith gives them a habitation and a name—P. vulgaris in swamps and fens, and P. grandiflora in Irish bogs, rare.

I do not dispute any of the facts adduced. I have shown that movements in plants, flowers, and seeds are no arguments in favour of plants impaling insects, or of eating them, still less of digesting them, when applied, as they must be, at the wrong end; for plants feed by their roots [and by their leaves also], and as for their "inward digestion" that is not yet a settled question; but is it not upon the small mole-hill of the impregnation of an Orchid that we are to place the lever that is to overturn the world? Verily we must not then despise small matters. *Alex. Forsyth.*

P.S.—A very exalted personage lately made the remark that he sympathised with learned men and bore with their errors, because, he said, their dear good heads were so filled with learning that they had no room for "common" sense. Some years ago I had the misfortune to spoil a good theory of a very learned man. A light fall of snow lay over the land of South Devon in April, or, as the almanacs have it, "thereabouts;" and toads, which were on their way to their spawning-beds, left a curious track in the snow as of some animal with a hoof. The print of the hoof was figured in the papers, and reports poured in from all quarters. In one case the animal had come to a haystack, and the track was seen beyond it, and the question was how did this animal get over the stack. Worse than all, it was traced to the water's edge, and here it took to a navigable river, reminding one of the lines—

"He stayed not for brake, and he stopped not for stone,
He swam the Esk river, where ford there was none."

To cut the matter short, the learned Professor gave it as his opinion that the badger put one foot before the other when he walked straight forward, and it could only be the track of a badger; but I found on the high road the same track—a toad's, and also his bruised and mangled body crushed by a cart-wheel. There were no further tracks of this humble traveller beyond that spot. So it is sometimes wise to wait for facts before we jump at conclusions. *A. F.*

Home Correspondence.

The Fruit Manual.—I thank you for the favourable notice you have given of my book in your last week's number, and at the same time I ask permission to be allowed to make some explanations in reply to what your reviewer calls "its deficiencies." I have used my best efforts to make systems of classification by which the names of fruits might be ascertained, and in this I have succeeded in all cases except in Pears and Strawberries. The arrangement of Apples which I have discovered is based on characters so fixed and natural (or at least as fixed and natural as arrangements usually are) as will, I believe, serve the purpose intended; but I have not been able as yet to place the numerous varieties in their proper divisions, from some of the characters upon which the system is based not being found in the published descriptions of the fruits. In such a case as this the pomologist has difficulties to contend with which the botanist has not. The latter has merely to make use of the many well-stored herbaria which are so easily accessible, whereas the pomologist must wait patiently for times and seasons to supply him with materials for his work. The basis of classification which my reviewer suggests to me are not what I should have expected to have been proposed by a man of science, such as I believe most of your reviewers profess to be. What his ideas of "Pearmains, Pippins, Reinettes, Codlins, &c.," are he does not explain. [That is for those who use or adopt the terms to do. It is the ordinary practice for an author to specify the sense in which he uses certain terms; but we find no such definitions in the *Fruit Manual.*] In former days I had some crude notions on the same subject, but I have failed to mould them into anything that I considered creditable to my own ingenuity or useful to the study which it has been my object to promote. Five and twenty years ago I published a classification of Apples much on the plan of the "definite if arbitrary rules" which the writer suggests, but they were not definite enough, and they were so arbitrary they would not work, and after all these years, during which I sometimes used and sometimes abused this classification, I gave it up as a delusion and a snare. I must therefore ask my reviewer and the beginners for whom he pleads, to frame a classification such as they require for the present, on rules which their own minds dictate as most "definite if arbitrary" to satisfy their wants. [Why ask a beginner to do that which should be done for him by the hand of experience?] Such system may suit very well for nurserymen's catalogues, but in a work which makes some slight pretension to scientific claims it would be as great an anachronism in the present day to adopt such classification as my reviewer proposes, as it would be for a botanist to classify plants on the system of Cæsalpinus or of any of the old herbalists. Another deficiency in the book complained of is that no mention is made of the "stock" Apples of which there is a collection at Chiswick. So far as I am aware, only one out of that collection has borne fruit in the garden, and as it is not on record that the whole collection has been fruited, I do not quite see how is was possible for me to give a description of them. If the knowledge is in possession of the writer, he will confer a favour on many who are interested in the subject if he will publish the description with figures in next week's *Gardeners' Chronicle.* [See 1874, vol. i., p. 541, where the general characters, apart from the fruit, are given.] The French Paradise, which is the only one that has fruited in the garden, ripened its fruit after the first 150 pages of my book were printed; and to show that I was neither negligent nor ignorant of the fact, the fruit was figured and described by me in my *Gardeners' Year-Book* last November, within two months of the time when it was produced. There are many "fine Nectarines" I dare say about the country, which are not mentioned in the new edition of the *Fruit Manual*, besides the Welbeck Seedling. I have many "fine" fruits of all kinds sent me from time to time, which are not new, though they may be seedlings. In saying this, I do not attempt to depreciate the Welbeck Seedling, which I know nothing about. It has never been submitted to me, nor, I believe, to the Fruit Committee; or, if it was, it received no approval; neither am I aware that it has met with the approval of any competent authority. It may be one of those seminal productions, for aught I know, which so frequently occur, and of which an example was given in the extract taken from my book on Grosse Mignonne Peach. Mr. Rivers throws away dozens of "fine Nectarines" every year, which he has raised from seed, knowing that they are not required, and which, if named and cultivated, would only swell the pages of the fruit catalogues without adding to the value of our collections. As to the omission of any notice of some of the Nuts figured and described in your pages for 1873, I can only say you must excuse my criticising that article. If I had thought that it contained any contribution to pomological science, I would have asked your permission to make use of it; but as I conceived that it did not, and that all that is of any importance in it was already contained in the *Fruit Manual*, I saw no need for loading my pages with matter which was not needful. [That is for others to determine. EDS.] In conclusion, let me again thank you for the commendatory terms in which you have spoken of my book; notwithstanding which it contains a mistake which the eye of my critic has failed to detect. As it is an important one, I shall be glad if you will give it publicity. In describing President Strawberry I have, through an error of my informant, ascribed the merit of raising it to Mr. Bradley of Elton Manor, whereas I have learned since the book was published that it was raised by Mr. Green, a gardener at High Cross, near Ware, and that it was first exhibited at the Royal Botanic Society, Regent's Park, by Mr. Hill, gardener to Robert Hanbury, Esq., of Poles Park, Herts. *Robert Hogg.*

Primula Parryi.—A few months ago I wrote you a few remarks for insertion in the *Gardeners' Chronicle* respecting the Rocky Mountain Primrose, Primula Parryi. In examining the flowers to-day at the York Nurseries, where it is now in full flower, I discovered that my former statement respecting the inflorescence was incorrect. When I wrote in the winter my remarks were entirely from recollection, having seen the plant in flower at York the previous summer. I believe, when speaking of the inflorescence, I said the flowers were produced on a one-sided spike, whereas they form a terminal umbel, much in the same way as in Primula involucrata. The individual flowers are large (about 1 inch in diameter), firm in texture, and very handsome. The plants are much more vigorous and finer this season than they were last. The leaves are entire, strap-shaped, and of a deep glossy green. For the successful culture of this high alpine Primrose, it should be planted in deep, rather stiff loam, with a

slight admixture of peat, taking care to select a shady part of the border or rock garden. It should be liberally supplied with water: I find it does well when planted near the water's edge. *R. P.*

Cypripedium japonicum, &c.—After reading the notes of the New Plant and Bulb Company on Cypripedium japonicum perhaps you will let me say that of our few plants bought from them the two planted in the rock border seem to grow the strongest. The order of flowering here of the hardy Orchises is —Cypripedium pubescens, almost over; C. arietinum, small, but very pretty, fully out; C. japonicum, in large bud; C. spectabile, not yet showing bud. Cypripedium japonicum seems a valuable introduction, as, in addition to the flower, the leaves are curious and quaint. Van Houtte's Azalea mollis is in great beauty on the rockwork; three plants, buff-rose, rose-buff, and orange-buff, each with from twenty to forty large trusses of their great flowers, have a fine effect. Erythronium giganteum in the rockwork has been beautiful; four large flowers on a stem; in colour a very pale primrose, with bright yellow centre. *George F. Wilson, Heatherbank, Weybridge Heath, May 17.*

Strawberry Culture in Pots: Sods *v.* Saucers.—Thanks to Mr. McIndoe (p. 632) for calling the attention of Strawberry forcers to the above subject, and which call, I trust, will be answered satisfactorily to those interested in the culture of this delicious fruit; and no doubt most gardeners (myself included) will give a decided preference to the mode of standing the pots on sods; that is, where it is found practicable to do so, which is not so in every place. For instance, How would sods answer on wooden shelves suspended one above the other from the rafters or otherwise? and what about getting new shelves made when the old ones get worn out, which assuredly they would do in "double quick time" were they to have wet sods upon them for two, three, or more months in the year. I think, too, there will be found some gardeners who, at least, will not condemn the saucers without saying a word in their favour. Saucers have been for many years associated with the experience and practice of Strawberry forcers, and of the latter I think there must be few who cannot say that they found the saucers very useful, and that they have been of great advantage to the fruits when they were swelling off. Moreover, they are very useful when a careless "chap" has charge of the Strawberries, or at least whose duty it is to water them—and how often does this man only surface-water them; but, however, it runs through the pots into the saucers, where it remains until the plants absorb it—say for ten or fifteen minutes. During bright sunny weather like that which we had during the last week there is not much fear of the water remaining long in the saucers, and should the weather be dull the saucers should be emptied once a day, otherwise the fruit is sure to be soft, watery, and insipid—which would be no wonder if left standing in stagnant water day after day. *H. W. Ward, Longford Castle, Salisbury, May 18.*

Birds and Crocuses.—In reading "S. H.'s" description of sparrows destroying Crocuses in page 634, his plan of feeding the birds upon more favourite food so as to divert them from the Crocuses seems very likely to succeed; but when "S. H." asks "Why should sparrows destroy Crocuses in one garden and not in another?" &c., he answers it as occasioned by want of food. I do not think that the real reason of the outrage. I have observed with both birds and animals that, like ourselves, they are apt to be led away by evil example. Some forty years ago I lived at Epperstone, in Notts, where every kind of bird food abounded, but where it was impossible to grow a Primrose or Polyanthus in consequence of the green linnets invariably picking the flowers to pieces before development for the sake of the young seeds. This extended for several miles round the neighbourhood, but when the charmed circle was left not a plant was touched, and throughout Notts and Derbyshire I never could find any depredation committed by these birds. Again, I was, some years after, looking over what ought to have been a kitchen garden in Cheshire, and I found the game destroying everything except Potatos, it being situated in the midst of a large preserve. I suggested a 2 or 3-feet wire netting; and some time after my friend thanked me for the suggestion, and found it perfect, even against pheasants. A neighbour of his situated in exactly the same circumstances was so pleased with the netting that he got some from the same shop, and surrounded his garden in an exactly similar manner. At eventide he sat down at his drawing-room window to see the result, as his friend had often done, with much amusement, to watch the puzzled look of the hares. In the latter instance, however, after being completely posed for some half-hour, a wickedly disposed hare took a running jump over the wire, and all the rest followed, and continued playing at leap-frog till dark. In this case the wire netting seemed to add to the enjoyment of the hares, while years after the first garden remained secure from their attacks, and as far as I know, is still so. In my part of Cheshire I found the Thousand-headed Cabbage never touched by rabbits, where they abounded. A friend was delighted on observing this, and planted them largely near Congleton, 12 miles off, but there the rabbits eat it voraciously. I could give many more such instances. I remember a flower-garden near a large pond, where for years the Crocuses were never touched by the water hens which abounded; but at last some bad bird found them out, and none could after be grown, as they devoured all the corms. *W. D. F.*

Clematis montana for Spring Decoration.—In our report of one of the recent meetings at South Kensington it was mentioned that Mr. Barron had brought up from Chiswick some nicely bloomed small plants of the old Clematis montana, which proved to be extremely useful in this form for the decoration of the greenhouse and conservatory about March and April. The sketch annexed (fig. 139), shows one form in which the plant was grown; two or three branches of young wood were tied up to a short flower-stick, little more than a foot in height, the ends of the branches being allowed to hang rather loosely, and these formed the prettiest little standards imaginable, and, as will be seen from our illustration, were covered with blossoms. Though not large, the pure white flowers, being numerous, were very attractive and ornamental. Another form in which the plants were grown, and one equally well adapted for decorative uses, was that of a small cone or pyramid. In this

Fig. 139.—CLEMATIS MONTANA.

case the young shoots were longer, and they were coiled around a trellis composed of a few slender flower-sticks stuck into the pots, and brought together to a point at the apex, the trellis thus formed being about a couple of feet in height. These being also well bloomed were equally effective. Such plants are easily grown, and in the case alluded to were bloomed in 6-inch pots. What is particularly necessary is to get the young wood well ripened, as it is from this that the flowers are put forth. *T. M.*

Rot in Onions.—Year after year my spring Onions take what is known as the "rot at the roots," and in the hot days of May become in patches quite withered and decayed. The disease seems to be owing to some kind of fungus. Perhaps some of your correspondents could suggest a remedy, unless, indeed, it is incurable, like the Potato disease. Change of ground seems of no use. *J. S., Henwick, Worcester.*

Maize.—If "A. F." (p. 567) alludes to the Maize or Indian Corn now being offered to agriculturists by Mr. William Cobbett, I am in a position to say something with reference to its qualities, as during the past year Mr. William Cobbett was my next-door neighbour. Cobbett's corn was some years since quite a rage, although it soon died out. The elder Cobbett was notoriously opposed to the Potato, and he hoped that his Indian Corn would ultimately supersede the famous esculent; but in this belief he was miserably deceived. The original Cobbett's corn is extinct, whilst the Potato is universally grown. My former neighbour terms his corn an "improved variety;" and if its true character was developed here last season, then it deserves all that is said in its favour. When Mr. Cobbett came to reside in Bedfont some two years since he brought with him a small stock of the seed, but where it had been grown previously I cannot say. This first summer, the garden of the cottage he then occupied sufficed to grow his stock, and this all ripened thoroughly, and when he came to reside close to me the following spring he had a sufficient quantity of seed to plant, not only his own garden of 40 rods of ground, but also about 2 acres in a field not far off—that in the garden being sown in rows where it was to stand, and that grown in the field being first raised in a seed-bed, and afterwards transplanted. This latter course was necessitated because the ground could not be got ready sufficiently early to enable the corn to be sown in drills as usual. That grown in the garden was sown in drills 4 feet apart, the ground having been first ridged and lightly rolled, as is commonly the case with Mangel Wurzel. I did not think that the 4 feet interval was a necessary one, and in good garden soil I believe that equally satisfactory results would be obtained in drills 2 feet apart, still in 4 feet drills it would be possible to grow an intermediate crop of dwarf Beans, Lettuce, or some other vegetable. The time for sowing is about the middle of April, and in drills about the depth usually given to Peas. The corn should be sown thinly, and ultimately thinned out to 6 inches from plant to plant. Just as the corn is coming through it proves exceedingly tempting to the birds, and therefore it should be carefully watched until it is out of danger. I have a vivid recollection of the exertions of Mrs. Cobbett as a "bird-starver," as that lady gave the feathered thieves little chance to despoil her precious crop. As the plants grow they should be deeply stirred about the roots with the hoe, and when from 12 inches to 15 inches in height be well earthed up, to give them all possible support. During the summer the plants will throw up suckers from the base of the stem; these should be cut or pulled away, as they only serve to strain the plant without adding to its productiveness. These few directions constitute most of what it is necessary to know as to garden cultivation. In field culture a greater width between the rows is necessary, as the hoeing and earthing must be performed by horse labour; and where sown in a seed-bed and afterwards transplanted it simply requires to be done with an ordinary dibble in showery weather to make the work successful. I cannot now give the exact time when Mr. Cobbett's corn was ripe, but I think the earliest cobs were ready about the end of August; certainly from sowing to ripening the time occupied was from three to four months. Of course all the cobs do not ripen at once, but that is of no consequence, as the crop can be gone over twice or thrice and the cobs gathered, or, if thought desirable, the whole crop can remain until all is ready to harvest; and there is this merit attached to the Maize, that it is not affected by wet or frost, and may be harvested at any time when the weather is dry, as the leathery sheathing in which the cobs are encased keeps the corn quite dry and clean. Mr. Cobbett strongly impressed upon me the fact that, with a crop of his corn, the grower was quite independent of a wet harvest. The average height of well-grown plants of this variety is 3½ feet, and a good plant will produce from four to six cobs. I think the latter number to be nearest the mark, but all depends on the cultivation. As evidence of the productive character of this corn, I may say that I counted the corns on a large number of fair-sized cobs, and found them to be usually eight rows of thirty each, thus giving a total of 240 to each cob, or from 1000 and upwards from one corn—certainly an enormous produce. Well-ripened clean cobs are of a rich golden bright yellow, and very handsome. I am growing some myself this year, and there is some being grown elsewhere in the village, so that any one curious as to its qualities may see for themselves about the end of August. Mr. Cobbett was very eulogistic as to the extremely delicious nature of the green cobs when properly cooked, and served as a table vegetable, characterising it as a dish for an epicure; but of this I cannot write with authority. Perhaps "A. F." has had some experience of it in this state, and would say whether the green cobs are a delicacy or not. At any rate, Cobbett's corn will afford them in abundance; and if such is the case, surely this corn should be found in every well-appointed garden. As to its value in a ripened state, I presume that would depend materially as to the ease with which it could be discobbed and ground ready for domestic use. Discobbing machines are to be had, and no doubt hand mills for grinding are to be had also; and, granted these things, a real delicacy in the shape of pure corn-flour becomes at once both possible and easy of production. *Alex. Dean, Bedfont, W.*

International Potato Exhibition.—In Mr. Dean's letter, inserted in your issue of last week, reference is made to the additional prizes offered through us by our friends Messrs. Bliss & Sons, of New York, and a desire expressed that the sorts

should be indicated to which their prizes would be awarded. It was the intention of Messrs. Bliss to offer prizes for the best dishes of Alpha, Snowflake, and Eureka, but the previous resolutions of the committee prohibited any prizes being offered for sorts specially named. In order, therefore, to be consistent with this resolution, we authorised the alteration of their offer to its present form, and consequently any really American variety which was not sold in England before the spring of 1874 is now admissible. Competitors cannot do better than adhere to the sorts for which Messrs. Bliss intended their prizes—viz., Alpha, Snowflake, and Eureka. *Hooper & Co.*

Potherbs.—Some thirty years or more ago the gardener at Chiswick House, the then residence of the Duke of Devonshire, was noted for his management of potherbs, and for vapour baths medicated by the use of herbs. The leaves of the various potherbs were picked from the stalks just as we read of the Tea leaves being gathered from the bushes, and when thus collected they were pressed into thin cakes of the shape and size of a flue tile, say 12 × 12 inches by 1½ inch, and dried by fire-heat, and finally packed in paper and stored for use. This was a great improvement upon ancient usage, when the herbs were harvested like corn in small sheaves and hung up in sheds to dry as best they might, and when afterwards they were awkwardly handled the leaves, that form the only useful parts, would drop off and the naked stalks, more or less dusty, would finally be the form that potherbs would take in winter for the supply to the kitchen. The Chinese had taught us how to dry leaves, and we had only to imitate our betters in this respect to have our potherbs preserved in perfection. I was agreeably surprised the other day to see in my own house potherbs in bottles, neatly got up, not a stalk to be seen, but the leaves as neatly dried as any Tea leaves ever were, and that, too, at a very reasonable price, about 7*d*. per half-pint bottle, and these were supplied by the regular traders in preserves (Crosse & Blackwell), thereby saving any trouble to the housekeeper. When I had to keep up a supply of potherbs for the use of a large family, I got the tinman to make me canisters and to get the name of each herb put on in inch letters, and following in the wake of Mr. Lindsay, the gardener at Chiswick House, I had the potherbs carefully picked and dried by fire-heat, but instead of pressing them I packed them into the tin canisters, from which they were supplied as wanted, precisely as tea would have been served out. This was duly recorded in the gardening periodicals of the day, and, therefore, I may claim for Mr. Lindsay and myself the credit of keeping potherbs clean and sweet: at all events we were pioneers in that line. I was one day shown through the propagating department of a London nursery, and the propagator claimed the credit of striking cuttings between two flower-pots, the inner one plugged at the bottom with a lump of clay and kept full of water. He little thought that he was paying his unknown visitor a compliment, for I had had that in print long enough before he had practised it. I have also a recollection of detailing the working of a dry earth closet on the premises of Mr. George Robinson, millwright, Gerard Street, Aberdeen, some twenty years before the thing had been mooted in England. Mr. Robinson used the wood ashes of the waste wood, sawdust, and shavings of the workshop, and as wood ashes of themselves are excellent manure, the system was better worked by him than it could be in ordinary hands. It certainly helps an inventor a good deal when he finds anything fully detailed for him to copy. *Alex. Forsyth.*

Watercress Beds.—Can any of your readers give me any information as to the proper way to make a Watercress bed? I have choice of field between two brooks or some shaded streams. The latter would be least trouble, but are very much shaded by high banks and trees. Would this be against it? What soil is best for the bottom? Does it need manure? How deep should the water be kept? What size beds are best? And how many yards does it take to grow one hundredweight? *Aqua.* [See *Gardeners' Chronicle*, 1866, pp. 193, 416.]

Apiary.

ITALIAN BEES.—Englishmen have a great rage for novelties. This was the case some few years ago in regard to the Italian, Alp, or Ligurian bees, for by all these names they have been recognised, but somehow they have not gained the popularity which their first appearance foretold. Many bee-masters after a brief trial gave up keeping them, and perhaps one cause of this failure was the difficulty in keeping the breed pure, in consequence of the frequent hybrids, and wherever any black drones exist within 1½ or 2 miles they will seldom be preserved very long in a pure state, or as a pure race. Also many apiarians do not believe they are superior in any point to our hardy black bees. It is difficult when any prejudice of this kind exists to convince persons to the contrary. We will try briefly to lay before our readers a little experience, not shared solely by ourselves, but gained by years of study by some of the most practical, as well as scientific, bee-keepers in the North of England.

A friend states as follows:—"I have kept Ligurians now for twelve years. I first saw them at the exhibition working beside a black stock; the latter was much stronger as a colony, but I fancied the Ligurians were far more active. Whilst watching them a shower of rain fell, which had the effect of detaining the black bees prisoners, not so the handsome Alp bee, which worked bravely through the rain. I have since kept them, and am convinced they are much better honey-collectors than our black bees."

Their superiority consists in:—

1st. They are far less sensitive to cold and moisture.

2d. The queens are remarkably prolific. We have known stocks of these bees started as artificial swarms with but few workers, and which in a short time have become powerful and strong colonies.

3d. They swarm earlier and far more frequently. This is a consequence of the prolific queens.

4th. They are excellent honey gatherers. We have gleaned more super honey from the Alp bee than could have been gained by the black breed. In bad seasons they have proved most valuable.

5th. They are more courageous and active in self-defence. We have never known a stock destroyed by robbing, which is commonly witnessed in apiaries of the common bees. They are also more active on the wing. We confess they have one bad quality—they are notorious thieves. Sooner than be deficient of their winter supply of provisions they will attack their neighbours without the least scruple of conscience. My bees have robbed and destroyed stocks half a mile from their own hives. Many of my neighbours have complained bitterly of the strange yellow bees in this case. I had to keep silence about the ownership of the wasp-bees, so-named by the cottagers.

6th. They are handsome bees, and are most worthy of a place in the ornamental garden, where bees are kept only to make the spot more home-like.

The difference in appearance consists in the first rings of the abdomen, except the posterior edge and base of third, being of an orange colour instead of a deep brown. These coloured parts are transparent when closely examined with the sun shining on them. All Alp bees have the same distinctive marks if pure—the two orange-red girths; some are lighter than others; a dark queen will, however, produce just as well as a light one. The drones differ from workers in having the upper half of their abdominal rings black and the lower half an ochry yellow, thus causing the abdomen, when viewed from above, to appear annulated.

We have now briefly brought before our readers a few noteworthy characteristics, wherein the Ligurian differs from our common bees; these views are firmly believed by Langstroth and Quinby, the two foremost apiarians of America. We merely state, in conclusion, if you have a long purse and are wondering how you must spend all your spare cash, invest a little in the "yellow bees;" they will yield you a good return in the shape of innocent pleasure if nothing more. But we advise the farm labourer and working gardener, who in many instances have to smoke their evening pipe surrounded by a little family of nine or ten children with an income of less than £1 per week, to leave the study of the yellow bees to others, and keep only the black stocks, for these will gather honey perhaps equal to the Ligurian, both in quantity and quality; and this is the chief thing to be attended to in bee-keeping. *K.*

Reports of Societies.

Manchester Botanical and Horticultural: *May 14 to 21.*—The annual Grand National Whitsuntide Exhibition of this Society opened in the Botanical Gardens at Old Trafford on the 14th inst., and closed last night, and whatever may have been the result financially, it was—as a display of practical horticulture—perhaps the best of the series which the Society has ever had. The well-known glass pavilion was an exhibition in itself, so thoroughly good were its contents. The stove and greenhouse plants were a grand lot, especially the flowering and fine-foliaged plants contributed by Messrs. E. Cole & Sons, of Withington, and Mr. Cypher, of Cheltenham, and the fine-foliaged plants by Mr. B. S. Williams. Orchids, though not so well represented as last year—the show being quite a fortnight earlier—were still exceedingly fine, while the Ferns, hardy and exotic, call for our special commendation. A specimen of Gleichenia Speluncæ, 6 feet high, and, as near as we could judge, from 7 to 8 feet through, and grandly furnished, was a sight to behold with admiration, so rarely is such a noble specimen seen. T. M. Shuttleworth, Esq., Preston, was the fortunate exhibitor. The much-talked-of "war of the Roses," fought out between the rival champions of Slough and Cheshunt, will long be remembered, to the credit of both exhibitors, so noble were the specimens and so even the contest. New and rare plants came in formidable numbers from Mr. John Wills, Exotic Nursery, Old Brompton, and Mr. Williams, of Holloway; and among other striking features of the exhibition we must not omit to mention a charming group of Clematis from Messrs. G. Jackman & Son.

STOVE AND GREENHOUSE PLANTS.—What may not inappropriately be called the champion class in the exhibition, since £62 in prizes were devoted to it, was the one for twenty plants, ten fine-foliaged, and ten in flower. Messrs. E. Cole & Sons staged a grand collection, and came in a good 1st in front of Mr. J. Cypher and Mr. Herman Samson, of Bowdon, the other competitors. We noticed in the Messrs. Cole's group Eriostemon scaber, from 4 to 5 feet over, a sheet of white blossoms; Azaleas Conqueror, Iveryana, and Duc de Nassau, all of immense size, and well flowered; Erica tricolor Wilsoni, 4 to 5 feet over and full of bloom; Croton pictum, about 5 feet through, finely furnished with superb foliage; Erica Lindleyana, first-rate; Pimelea mirabilis, a large specimen, well flowered; fine Palms and Cycads, and a noble Phormium tenax variegatum. In the group from Mr. James Cypher, which stood 2d, were some capital Azaleas, a specimen of Erica ventricosa coccinea minor, 4 feet over, splendidly bloomed; Bougainvillea glabra, about the same size and equally well flowered; Genetyllis fuchsioides, also good; Tetratheca ericoides hirsuta, 4 to 5 feet in diameter, and grandly flowered—a most meritorious specimen; fine Palms, Tree Ferns, &c. For ten stove and greenhouse plants in flower Messrs. E. Cole & Sons were unapproachable, and the 1st prize of £20 was easily judged to be due to the Withington firm, who staged Azaleas Magnificent, white, and Trotteriana, bright purplish rose, about 6 feet high and from 7 to 8 feet through—veritable mountains of blossoms, and recalling to our mind the palmy days of this flower, when Mr. Turner and Messrs. James Veitch & Sons so stoutly fought for victory in a long series of encounters which culminated in that grand horticultural encounter—the London International of 1866. Besides the Azaleas, which gladdened our eyes, the Withington growers had a very fine example of Erica Princess Royal; Anthurium Scherzerianum, 3 to 4 feet through, well furnished with good spathes; Genetyllis tulipifera, about 5 feet through, and thickly studded with its large richly-coloured, bell-shaped involucres; Erica affinis, very large and good; Boronia pinnata, from 4 to 5 feet over, and thickly flowered; Clerodendron Balfourianum, about the same size, and well-flowered, &c. The best eight specimens contributed by amateurs came from Edward Pilgrim, Esq., Cheltenham, who had good examples of Boronia pinnata, Franciscea calycina major, Clerodendron Balfourianum, Genetyllis tulipifera, Pimelea spectabilis rosea, and Anthurium Scherzerianum, &c. T. M. Shuttleworth, Esq., was 2d. Fine-foliaged plants were well represented by six from Mr. B. S. Williams, which included Croton longifolium, fine in size and beautiful in colour; a fine Latania borbonica, Croton pictum, very large; and Maranta Veitchii, also exceedingly fine; and by fine groups from T. H. Birley, Esq., Pendleton, and T. M. Shuttleworth, Esq. Messrs. E. Cole & Sons had the best Ericas, which were not shown in any numbers, and also the best eight Azaleas—Mr. Turner having the best twenty small plants, nicely flowered. In the nurserymen's class for ten Dracænas the competition was confined to Mr. John Wills and Messrs. Rollisson & Son, the former winning easily with a splendid lot of plants, which included D. Mooreana and D. Shepherdi, 4 feet high, and smaller specimens in proportion of D. Chelsoni, Weismanni, Youngii, Baptisti, regina, &c. Mr. Wills also contributed a remarkably well-grown group of Dracænas, which gained an extra prize.

ORCHIDS.—The Orchids were a fine feature in the show, though, as we before observed, the display was not so good as last year. The whole of the 1st prizes in the amateurs' classes went to O. O. Wrigley, Esq., of Bury, the competition for 2d honours lying between Dr. Ainsworth, of Lower Broughton, Mrs. Leech, of Staleybridge, and Mr. James Broome, of Didsbury; while in the corresponding classes for nurserymen three 1st prizes went to Mr. B. S. Williams, and one to Mr. R. S. Yates, of Sale. The specimens from Mr. Wrigley's famous collection were of the highest order of merit, which makes us the more regret having to complain of the total disregard (on the part of himself or his gardener) of article 2 of the regulations, which stipulates that "every article must be legibly labelled." In Mr. Wrigley's 1st prize collection of sixteen were Cypripedium niveum with twenty flowers and buds; Anguloa Clowesii, a very fine specimen with about thirty flowers; Saccolabium ampullaceum, very fine; Odontoglossum vexillarium, two spikes of five flowers each, very beautiful; an immense pot of Odontoglossum Phalænopsis, consisting of twelve finely-flowered plants, a glaring case of "making up," which the wording of the schedule ought to prevent. Dr. Ainsworth, who was 2d, had Oncidium sphacelatum majus with twenty-one very

fine spikes—a noble plant; Lælia Brysiana, with sixteen flowers, remarkable for the rich colouring of the lip; Dendrobium Wardianum, with about fifteen spikes; Veitch's variety of Vanda suavis, with six splendid spikes; Saccolabium præmorsum, with four spikes; Cattleya Mossiæ superba, with from two to three dozen flowers; Vanda suavis, a plant from 4 to 5 feet high, with four spikes; Dendrobium Bensoniæ, with nine spikes, one of them having nearly thirty flowers; Dendrobium lituiflorum, fifteen spikes, very fine; and Lælia purpurata, a very large plant, with sixteen flowers. Mr. Wrigley's six consisted of Masdevallia Harryana, with fourteen flowers; a nice Phalænopsis amabilis, Aerides roseum, four spikes, very pretty; Angulоa Clowesii, with sixteen flowers; Calanthe veratrifolia, with fifteen spikes, &c. The 2d prize group, from Mrs. Leech, contained a specimen of Cattleya Mendelii, with nine beautiful flowers; Dendrobium Bensoniæ, with six spikes, two of them specially fine; Oncidium sphacelatum, sixteen spikes, a plant about 4 feet through; Phalænopsis Luddemaniana, three spikes; Cattleya Mossiæ, with twelve flowers, &c. Dr. Ainsworth was 3d. In Mr. B. S. Williams' 1st prize collection of sixteen in the nurserymen's classes, we noticed Cattleya Mossiæ, 3 feet through, and well flowered; Odontoglossum luteo-purpureum, with two fine spikes; O. nebulosum, four spikes; Vanda tricolor superba, two spikes; Cattleya Skinneri, four very fine spikes, one having seven flowers, all of splendid colour; Cypripedium barbatum superbum, from 2 to 3 feet through, and well flowered; C. caudatum, with twenty-one very fine flowers; Cattleya intermedia, &c. In Mr. Williams' group of six were Dendrobium thrysiflorum, with fourteen fine spikes; Cypripedium barbatum Warneri, with seventeen flowers; Odontoglossum sceptrum, with two long spikes, &c., while a specimen of Cypripedium villosum, with between twenty-five and thirty flowers, was the best single specimen. Mr. R. S. Yates, of Sale, was 1st for ten, with a nice collection, including Sobralia macrantha superba, Aerides Fieldingii, with three fine spikes; Odontoglossum citrosmum, with one dozen spikes, &c. In this place rather than in the miscellaneous class to which they belonged honourable mention must be made of a collection of about twenty well-flowered plants of Cattleya Mossiæ, from Peter Spence, Esq., of Whalley Range.

The Ferns, taken as a whole, were an exceedingly fine lot, and to T. M. Shuttleworth, Esq., is due the credit of being the most successful exhibitor. In his group of eight stove and greenhouse Ferns which beat a good collection from O. O. Wrigley, Esq., were three Gleichenias which will not readily be forgotten—G. Speluncæ, 6 feet high, and from 7 to 8 feet through, and grandly furnished; G. rupestris, and G. flabellata, but slightly inferior in size, and none in quality. Davallia elegans, 5 feet over, was also a magnificent specimen; Leucostegia immersa, of the same dimensions; and noble specimens of Cyathea princeps, C. Dregii, and C. medullaris, were very conspicuous. In Mr. Wrigley's group there was the largest example of the elegant Davallia Mooreana we have seen. Mr. Shuttleworth also took the 1st prize for six Adiantums, with very good specimens of A. farleyense, A. cuneatum, A. Capillus-Veneris Dawsoni, A. assimile, A. formosum, and A. tenerum. The same gentleman was also 1st for twelve hardy Ferns, with a charming group, which was well seconded by specimens shown by Miss Pearson, of Prestwich. The best group of Filmy Ferns, and the best pair of Tree Ferns, came from Mr. B. S. Williams.

New and rare plants where shown in great numbers, especially by Mr. John Wills, of Sussex Place, Old Brompton, and Mr. B. S. Williams, of Holloway. In the competition with twelve the last named gentleman came in 1st with nice examples of Dracæna Baptisti, Æchmea Mariæ Reginæ, Croton Weismanni, Aralia Veitchii, Anthurium crystallinum, Kentia Moorei, Dracæna Chelsoni, Adiantum gracillimum, Croton majesticum, Dracæna amabilis, Abutilon Sellowianum marmoratum, Dracæna Hendersoni, Calamus viminalis, Azalea Flambeau, and the white show Pelargonium Duchess of Edinburgh. Messrs. Rollisson & Sons came in a close 2d with capital examples of Croton Cooperi, Dieffenbachia brasiliensis, Maranta leopardina, Phyllotænium Lindeni, Dracæna Hendersoni, Abutilon Sellowianum marmoratum, Reedia glaucescens, Anthurium crystallinum, Campsidium filicifolium, Dracæna amabilis, D. Baptisti, Dieffenbachia nobilis. Mr. John Wills was 3d. The group of new and rare plants contributed by the last named exhibitor was a large and most meritorious one—perhaps the finest miscellaneous lot ever seen at Manchester—and was awarded the 1st prize in the miscellaneous class. Mr. Williams was also a large exhibitor in this department. Amongst amateurs the leading exhibitor of new plants was T. M. Shuttleworth, Esq.

The contributions of Roses in pots made by Mr. Turner, Messrs. Paul & Son, and Messrs. H. Lane & Sons were a host in themselves, while in the amateurs' classes the examples shown were of the poorest description. The competition between the two first-named exhibitors in the class for twelve was an immense source of interest, and the judges had a difficult task to say which was the best, and when the award was eventually made in favour of the Slough plants, able critics were not wanting to question the decision. Many were of opinion that they were the best pot Roses ever seen, but we are of those who believe that as regards the foliage and flowers the specimens from the same growers shown at South Kensington last year were not equalled on this occasion, but as regards size the present plants certainly had the advantage, and splendid examples they undoubtedly were. As regards the judges' awards, it may safely be averred that had equal 1st prizes been given general satisfaction would have been felt, for they well deserved it. Mr. Turner had a slight advantage in position, his plants occupying the face of a slope, Messrs. Paul & Son filling a large circular bed on the flat opposite. The varieties staged by Mr. Turner were Edward Morren, Madame Willermoz, Victor Verdier, Paul Verdier, Charles Lawson, Céline Forestier, Paul Perras, La France, Anna Alexieff, Madame de St. Joseph, Beauty of Waltham, and Souvenir d'un Ami. The average measurement of these plants, as regards their diameter, would be from 5 to 6 feet, Paul Perras and Céline Forestier being larger, and all very finely-bloomed and beautifully furnished with foliage. Messrs. Paul & Son's plants were scarcely so large all through, but had splendid foliage, and we think the greatest number of first-class blooms. Their varieties were Juno, Dr. Andry, Princess Mary of Cambridge, Charles Lawson, Madame Victor Verdier, Anna Alexieff, Céline Forestier, Maréchal Vaillant, Souvenir d'un Ami, Horace Vernet, Elie Morel, and Victor Verdier. In the class for forty Roses in pots not more than 9 inches across, Messrs. Paul & Son turned the tables on their rivals, and came in 1st with a remarkably well-flowered group, though Mr. Turner and Messrs. H. Lane & Sons followed them very closely in the order of merit given. The last-named also exhibited a group of about a hundred small plants with very fine blooms, which were much admired.

Amongst subjects which may be grouped under the miscellaneous heading may be mentioned fine pairs of Yucca filamentosa—a popular plant in this neighbourhood—from Mrs. Gray, Withington, and Mr. Broome, Didsbury. Messrs. Rollisson & Sons, Tooting, were 1st for eighty alpine and herbaceous plants, in 8-inch pots, in competition with Messrs. G. & W. Yates, Market Street, Manchester; the combined effect of both groups, with a background of Rhododendrons, being exceedingly good. For six variegated Japanese plants Messrs. J. Standish & Co., of Ascot, were 1st, with large and well-coloured plants of Euonymus radicans aureus variegatus, Thujopsis dolabrata variegata, Acer polymorphum pectinatum rubrum, A. rufinerve, Juniperus japonica alba variegata, and Aucuba japonica marmorata aurea variegata. A pair of standard Bays shown by Messrs. Caldwell & Sons, Knutsford, were very fine, and another good pair was contributed by Messrs. H. Lane & Son. A group of twenty plants of Messrs. G. Jackman & Sons' Clematises, principally unnamed seedlings, were amongst the most admired things in the show, their rich and effective colours being very telling. A smaller group from Messrs. J. Standish & Co. also came in for considerable praise. Rhododendrons were fairly well shown by Mr. Yates, of Sale, and Messrs. J. Standish & Co., whose Star of Ascot is a decided novelty, being white with a well-defined deep claret or almost black blotch: it produces a good truss, and is very distinct. From the Ascot firm also came a choice group of Japanese Acers. A quantity of cut blooms of Maréchal Niel Rose, and show Pansies, came from Mr. Cooling, of Bath; and from Mr. Hooper, of Widcombe Hill, near the same town, came a capital lot of Ranunculuses, Pansies and Tulips. Some very good examples of Strawberry culture in pots were contributed by Mr. Upjohn, gr. to the Earl of Ellesmere, the varieties represented being Vicomtesse Héricart de Thury and President. A nice group of small plants suitable for table work came from Messrs. Dickson & Robinson, Market Place, Manchester. Show and Fancy Pelargoniums were not particularly good as a class, though very creditable specimens were shown by Mr. Charles Rylance of Ormskirk. Tricolor Pelargoniums, some 3 or 4 feet over, came from Mr. J. Grestry, gr. to James Kershaw, Esq., Cheetham Hill; but, though well furnished with good leaves, they were very dull in colour.

In an exhibition which is made up of some seventy-one classes it is impossible for us to notice everything, but we think we have stated sufficient to show that the display was one of no ordinary merit; and we are glad to hear that it has ministered to the enjoyment of some 50,000 visitors. We are not likely to see such another this year; and in conclusion we heartily congratulate Mr. Findlay, the energetic manager, on the great success which has attended his labours, and which we hope may long continue.

Glasgow Botanic Garden: *May 8 and 9*.—The Kibble Conservatory, so useful for many purposes as an exhibition-room, where the public can promenade with some degree of comfort, was on this occasion set apart for a floral display, and there can be no doubt that it is in every way adapted for showing plants to advantage, from the elegance and lightness of its construction and from the ample space at disposal, but it has this drawback, that there is such an extent of superficial feet of glass for the rays of the sun to play upon, that at times it becomes inconveniently hot. Some capital plants were exhibited, and there was also considerable variety. We do not remember to have seen so good a general lot of plants from so few exhibitors. The exhibitions, in truth, are falling into few hands, and but for the nurserymen there would be a sparse display. The quality, however, of such contributions as come from A. B. Stewart, Esq., of Rawcliffe Lodge, Langside; J. Findlay, Esq., Maryfield; J. C. Wakefield, Esq., and a few others, are highly meritorious. By far the best lot of plants in their various groups on this occasion came from Mr. Stewart, whose ornamental-leaved plants were superb—better exhibited than we have hitherto seen them, and reflecting the highest credit on Mr. Todd, the gardener. The singular serrated linear-leaved Dasylirion glaucum, the Phœnicophoriums and Pandanus Veitchii, were pictures, and so was every plant in the group. In Palms the same exhibitor had a magnificent Cocos Weddeliana, one of the foremost of pinnated-leaved Palms, so elegant in its outline, and the pinnæ beautifully cut; as well as many others. In Ferns, his Gleichenia flabellata and Mendelii were highly cultivated plants, and well merited first honours. The flowering plants were also fine, particularly the Clerodendron Balfourianum, with its white calyces and crimson corollas, and the Eriostemon, with its multitudinous flowers, as well as the Flamingo plant, which is a first favourite at all shows. The plants shown for Mr. W. Ball's Cup were well contested, but it would have taken much to have beaten Cyathea Burkei, the handsomest weeping fronded Fern in cultivation, and the pearly white Odontoglossum Roezlii, one of the newest and best of Orchids. Mr. Findlay, who ran Mr. Stewart very closely, had also a fine group—the Dæmonorops periacanthus being in splendid condition, and, indeed, one of the finest specimens in the country. His Azaleas, too, especially Iveryana and Rosy Circle, were much the best exhibited, being one sheet of mauve and white blossoms, and well staged by Mr. Beveridge. Mr. Wakefield had flowering plants, the best of which was Azalea Roi Leopold. The indigenous Ferns were in good groups.

The nurserymen were in strong muster, and their productions as a whole were exceedingly creditable. By far the largest lot came from Messrs. J. and R. Thyne, who decorated the centre-piece with capital groups of Palms, Tree Ferns, Rhododendrons, and suchlike plants. The effect was striking, although the plants were too thinly scattered over the surface. The same exhibitors had a splendid lot of twelve new plants for Mr. Bull's Cup; the Dracæna Fraseri, Phyllanthus nivosus, several Crotons of the first water, and Encephalartos villosus standing out prominently among their neighbours. The same exhibitors were also successful in taking first place for the collection of miscellaneous plants suitable for hall, window, or table decoration. In this group were Palms, Dracænas, and a miscellaneous assortment of nondescript plants, bordered with Hydrangeas, Fuchsias, Spiræas, Ferns, &c. Mr. James Anderson, of Meadowbank Nurseries, Uddingston, had a fine miscellaneous assortment, prominent among which was one of the best examples of Erica Devoniana (a yard across) that has ever been exhibited, and which was bristling with scarlet-tubed, white-tipped flowers; then several finely-flowered Everlastings, and some very superior Amaryllis, among which was a fine crimson of great substance and perfect form, named Andromache; La Belle Blanchefleur, the best white in cultivation; and several seedlings of the first quality. These again were interspersed with Cycads, Palms, Pandanads, Maidenhair Ferns, Azaleas, and Flamingo plants in small and in larger sizes, and fringed with Azaleas and Ferns and other miscellaneous plants, making a most effective group. Mr. Peter Mackenzie took the leading position for forced hardy plants with a fine lot of Roses and other plants suitable for city sales. This exhibitor had a very good miscellaneous group, among which were some fine Todeas, both superba and intermedia, some of the latter very distinct. Messrs. Smith & Simons had also a very good lot, the New Zealand Flax (Phormium tenax variegata), and others too numerous to mention being among them. Mr. Wm. Paterson had a very fine group, suitable for general purposes, filling a considerable space with his exhibits. Among detached groups we must single out the Orchids from Mr. Todd as worthy of special notice, the Moth Orchid and the pendulous tooth-tongued Orchid being among the most effective. The Flamingo plant from Dr. Paterson, Bridge of Allan,

which received a medal for highly meritorious culture, was the best variety we have seen exhibited in Scotland. The Bertolonias (under bell-glasses), from M. Louis Van Houtte, of Ghent, Belgium, were marvellously pretty things in their markings, being reticulated with roseate crimson and spotted with crimson. They were considerably marred in appearance by long transit, but there were was sufficient of them to show that they were gems. The whole affair was under the able superintendence of Mr. Bullen, the curator of the Botanic Garden, who had an onerous task imposed upon him. (*From a Correspondent.*)

Obituary.

THE sudden death of M. THURET, of Antibes, of which we have received intimation, will be received with profound regret by botanists and horticulturists. M. Thuret was a botanist of the first rank in his own department, and was the discoverer of points in the reproduction of seaweeds which will suffice to give him a most honourable place in the history of science so long as science is cultivated. In addition, M. Thuret was an enthusiastic gardener—the Wilson Saunders of France. In no other establishment have we seen so magnificent and extensive a collection of plants in the open air. The illustrations which we have been privileged to give from time to time will exemplify our statement. We learn that M. Thuret's death was wholly unexpected. Universal sympathy will be felt for his faithful friend and coadjutor, M. Bornet.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, MAY 19, 1875.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 Years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Week.	Temperature of the Air. Departure of Mean from Average of 60 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
	In.	In.	°	°	°	°	°	°			In.
May 13	30.11	+0.37	74.4	50.8	23.6	61.5	+ 9.7	53.7	74	WSW; WNW	0.00
14	30.07	+0.33	76.4	54.2	22.2	63.2	+11.2	54.0	72	N.E.; S.W.	0.00
15	29.98	+0.24	81.8	54.6	27.2	67.1	+14.7	52.5	60	WSW; W.	0.00
16	30.08	+0.34	72.0	50.0	22.0	58.9	+ 6.1	47.4	66	N.; WNW	0.00
17	29.83	+0.10	67.6	43.2	24.4	54.5	+ 1.3	44.1	68	E.; E.S.E.; E.N.E.	0.00
18	29.41	−0.33	66.6	48.0	18.6	55.0	+ 1.5	49.1	81	WNW; WSW	0.00
19	29.48	−0.25	59.8	44.8	15.0	48.6	− 5.0	45.7	90	WSW; S.W.	0.14
Mean	29.85	+0.12	71.2	49.4	21.8	58.4	+ 5.6	49.4	73	WSW	sum 0.14

May 13.—Fine and warm throughout, though dull and gloomy at times.
— 14.—A very fine warm cloudless day.
— 15.—A very fine day. Hot.
— 16.—A fine cloudless day.
— 17.—A fine warm day. Lightning seen at night.
— 18.—Fine and bright in morning. Overcast, dull, and slight rain fell in afternoon. Fine night.
— 19.—A fine morning. Overcast, dull; hail and rain fell, accompanied by a thunderstorm, in afternoon. A fine night.

—— In the vicinity of the metropolis the reading of the barometer at the level of the sea increased from 29.83 inches at the beginning of the week to 30.45 inches by the morning of the 11th, then decreased to 30.14 inches by the afternoon of the 15th, and again increased to 30.25 inches by the end of the week. The mean daily readings were all above their averages. The mean reading for the week was 30.23 inches, being 0.34 inch above that of the preceding week.

The highest temperatures of the air at 4 feet above the ground varied from 64¾° on the 9th to 81¾° on the 15th, the mean weekly value being 72¼°. The lowest temperatures of the air ranged between 45° on the 11th and 54½° on the 15th, the mean for the week being 50°. The mean daily range of temperature in the week was 22½°, varying from 14⅞° on the 9th to 27¼° on the 15th. The mean daily temperatures of the air were as follows:—9th, 55°.3; 10th, 55°.7; 11th, 55°.3; 12th, 59°.4; 13th, 61°.5; 14th, 63°.2; 15th, 67°.1; and the departures in excess of their respective averages:—3°.8, 4°.2, 3°.7, 7°.7, 9°.7, 11°.2, and 14°.7. The mean temperature for the week was 59°.6, being 7°.9 in excess of the average, as deduced from observations extending over a period of sixty years. The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in the rays of the sun, were 127¾° and 130¾° respectively on the 12th and 15th, but on the 17th the highest reading was 120°. The lowest readings of a thermometer on grass, with its bulb fully exposed to the sky, were 35¼° and 36½° on the 11th and 12th, but on the 15th it did not fall below 45°. The mean for the seven low readings was 40¼°.

The direction of the wind was W.S.W., and its strength gentle.

The weather during the whole of the week was very fine and warm, especially on Saturday, the 15th. The amount of cloud was generally small.

Rain fell on one day; the amount collected was 0.01 inch.

In England, the extreme high temperatures ranged between 82° at Blackheath and Sunderland, the general average all over the country being 77½°. The extreme low night temperatures varied from 47° at Liverpool and Bradford nearly, the general average being 42¾°. The mean of the extreme ranges of temperature in the week was 34¾°, the greatest range being 41° at Sunderland, and the least 26½° at Bradford. The mean high temperatures observed by day varied between 72¼° at Blackheath and 62° at Liverpool, with an average value of 68¼°. The mean low temperatures observed by night ranged from 50¾° at Bradford to 44¼° at Truro, with an average value of 47½°. The mean daily range of temperature in the week was 20¾°, the greatest daily range being at Leicester, 24¾°, and the least at Liverpool, 12¼°. The mean temperature of the air for the week was 56¼°, being 10¾° above the value of the corresponding value in 1874; the highest in the week occurred at Blackheath, 59½°, and the lowest at Eccles, 53¼°. Rain fell on one day in the week generally over the country; the amounts varied from six-tenths of an inch at Bristol, to one-hundredth of an inch at Blackheath, Leicester, and Truro; the general average fall over the country was one-tenth of an inch.

The weather during the week was very fine and warm, light clouds were prevalent.

In Scotland the highest temperatures ranged from 73¾° at Aberdeen to 61° at Greenock, the lowest temperatures varied between 46¾° at Leith and 42½° at Aberdeen, their respective averages being 66¾° and 45°. The mean range of temperature in the week was 21¾°. The mean temperature of the air for the week was 54¾°, being 10¾° above the value of the corresponding week in 1874, the highest was at Dundee and Aberdeen, both 56½°, and the lowest at Glasgow, 53¼°. Rain was measured at Greenock to the amount of 1 inch and seven-tenths, but at Leith only four-hundredths of an inch was recorded; the average fall over the country was five-tenths of an inch.

At Dublin the highest temperature was 78°, the lowest 35¼°, the mean 56¾°, and the fall of rain 0.11 inch.

JAMES GLAISHER.

Variorum.

THE PRESERVATION OF FLOWERS.—A vessel with a movable cover is provided, and having removed the cover from it, a piece of metallic gauze of moderate fineness is fixed over it, and the cover replaced. A quantity of sand is then taken sufficient to fill the vessel, and passed through a sieve into an iron pot, where it is heated, with the addition of a small quantity of stearine, carefully stirred, so as to thoroughly mix the ingredients. The quantity of stearine to be added is at the rate of half a pound to 100 lb. of sand. Care must be taken not to add too much, as it would sink to the bottom and injure the flowers. The vessel with its cover on, and the gauze beneath it, is then turned upside down, and the bottom being removed, the flowers to be operated upon are carefully placed on the gauze and the sand gently poured in, so as to cover the flowers entirely, the leaves being thus prevented from touching each other. The vessel is then put in a hot place—such for instance, as the top of a baker's oven, where it is left for forty-eight hours. The flowers thus become dried, and they retain their natural colours. The vessel still remaining bottom upwards, the lid is taken off, and the sand runs away through the gauze, leaving the flowers uninjured. *Pharmaceutical Journal.*

WHEN TO CUT FIR TIMBER.—It is stated by some that Scots Fir, Larch, and Spruce can be most profitably cut at from twenty to thirty years of age, when growing in a locality where they can be disposed of for mining purposes; but I have not found this to be the case in my experience in the management of plantations within 15 miles of large coal mines. In such a locality, when the price of prop-wood is high, it will almost invariably be found that proportionally high prices will be obtained for larger timber; while, if the plantations be far from a market, or a railway station, or seaport, the crop at that age would not be worth the planting, cutting, and removing, and would therefore be a dead loss to the grower of from twenty to thirty years' rent of the land. Further, it would not pay to cut down trees of the above description for fencing and estate purposes, because these can easily be supplied from the thinnings of well managed plantations. As a rule, timber trees should be allowed to grow to large dimensions before being cut; but the situation in which they grow often necessitates a different course. For instance, in glens and mountainous districts, and in places inaccessible to horses, the most profitable management would be to cut them down before they arrive at a size too large to be removed in entire lengths by manual labour. At that early stage Fir trees would be valuable for prop-wood, fencing, and other estate purposes; Ash for handle-wood, and Birch or Alder for charcoal or bobbin-wood, &c.; whereas, if allowed to grow to a large size, they would have to be cross-cut in lengths to admit of their removal by men, and this would, in the first place, make the timber useless for many purposes for which it might otherwise have been valuable; and secondly, the expense of removal by manual labour might equal, or even exceed, the value of the timber itself. When Scots Fir, Larch, or Spruce have been planted as nurses for hard-wooded trees, they should be thinned out as soon as they begin to encroach on the trees intended for the main crop, as this is necessary for the welfare of the plantation, irrespective of the value of the thinnings. But when such trees are planted as the future crop, on suitable ground, it will almost always be found most profitable to allow them to attain timber size. The Larch, being of fast growth, and useful for various purposes at an early age, can be cut down profitably much sooner than the Scots Fir. *Mr. Bayne, in "Transactions of Scottish Arboricultural Society."*

The Villa Garden.

ROSES.—The "Queen of Flowers," as it is not inappropriately termed, now requires a little attention from the Villa gardener; the weather being dry, and the winds withering in their influence, the plants should have a little extra care, for are we not rapidly reaching onward to that time when flowers will be looked for? Buds are already swelling, and generally there is a good promise of a glorious bloom. Our own Roses, growing in a good holding, though not a clayey loam, look well, they are either half-standards on the Briar stock, or dwarfs on the seedling Briar. While not desiring to express any preference for this stock over that of the Manetti, nor making use of the last, we are yet bound to say that our dwarfs are making splendid growth; the buds are large, as if they enfolded the germs of flowers of precious substance and beauty; and scarcely a sucker comes up from the Briar stock to cause us trouble.

We have slightly loosened the soil on the surface without going deep enough to disturb any of the roots; and as the weather was dry we gave the roots a good soaking with rain-water, and then added a mulching of moist rotten farmyard manure. Then follows a round of attentions, which, however apparently slight in themselves, yet exercise an important influence on the production of good flowers. Not the least urgent among these is the search after the Rose-grub. He must be hunted and destroyed, or the incipient Roses will suffer. He is a pest to the Rose-cultivator, and he hides himself within a curled leaf or two of the growing shoots, "from which," says Mr. Reynolds Hole, "he would presently attack the Rose, as a burglar conceals himself in the shrubbery before he breaks into the drawing-room." He seems to work most mischief in dry weather, when the drought may affect the vigorous development of a plant. He likes to settle himself on starved Roses, and when he occupies debilitated plants a sort of paralysis ensues. We carefully unrol the leaves, search him out, make an end of him, and, assisted by the spray from a Rose watering-pot, cleanse the leaves amid which he had ensconced himself.

The chances of producing fine Roses should not be perilled by allowing the plants to carry too much wood. The advice is both good and pertinent which recommends that the bushes of dwarf Roses and the heads of standard Roses should be so kept thinned out as that a wholesome circulation of air may take place. If some exhibition Roses are wanted in a few weeks' time, thin out the flowering shoots to two or three on a branch; when Rose trees are over-cropped small thin flowers will be certain to result. It will be also necessary to take away all the buds but the central one to each shoot. This is one of the essential requirements of exhibiting; it seems cruel work, but he that would have fine flowers must practise self-denial, and to some extent close his heart to the dictates of mercy.

PRIMULA CORTUSOIDES AMŒNA.—For some weeks past this grand hardy Primrose has been very effective in pots in the conservatory, and it is now very showy in the open mixed border, where it has stood all the winter with just the protection of a small heap of

coal-ashes thrown over it. The plants grown in pots were in the 32 and 24 size, and the crowns, selecting some strong ones, were potted up in the autumn in a rich soil, using plenty of leaf-mould, fibry loam, some sand and moisture. This is better than potting in the spring, as we find by experience that the roots lay hold of the soil during the winter and get established, and when growth sets in it is made strong and vigorous. The pots were housed in the conservatory during winter, which, however, did not prevent them from being frozen hard occasionally. They were kept in the house till the strong shoots began to appear above-ground, then they were removed to the open air, and the pots plunged up to their rims in coal-ashes. The plants were freely watered as required, and when the buds began to show colour the pots were removed to the conservatory, and during hot weather liberally supplied with manure-water; the flowers were superbly coloured, and as decorative agents unsurpassed. It is a plant to be enthusiastic about, for it is the most brilliant, as it is also the freest and enduring of all the hardy Primroses. It is murdering this showy plant to keep it in a warm house during the time it is making its growth, getting it drawn up and half-starved, in which condition its flowers are necessarily very poor. In a warm house with a dry atmosphere the foliage gets affected with red-spider, which seems to be fond of attacking it; but when the growth is vigorous this pest seldom puts in an appearance, or, if it does, is comparatively innocuous in a moist atmosphere. This is so essentially a plant for Villa gardeners that these cultural notes must not be deemed intrusive. Then its varieties—lilacina, grandiflora, and alba—all quite distinct, and very charming because so distinct, are now getting somewhat plentiful, and should be grown. They require similar treatment, and it is so sure a plant that it can hardly fail. Our plants, having done flowering, are now plunged again in the ashbed, there to ripen their seeds, and there is much hope of the shyest seeder, amœna, ripening some pods this season. We attribute this to a great extent to the generous course of treatment afforded it.

How shall we describe this plant as it now appears in the open ground in our cool, forecourt garden? Of the passers-by many are attracted by its brilliancy of colour, and wonder what it can be. When told that it is a hardy Primrose they become sceptical, and pass on their way with an injured air. Growing in good soil, and having a free drainage, it is brilliantly coloured in the open air; with the shade cast over them they have a blood-crimson hue. Scarcely less attractive is the variegated-leaved double crimson Daisy growing near it; a large tuft, in a moist cool spot, is now in splendid condition, the variegation beautifully displayed, the flowers large and superbly coloured. It also illustrates the great advantage of being generously treated.

PRIMULA JAPONICA.—This fine Primrose, at first lauded to the skies as something almost unparalleled in beauty, and then denounced as an impostor, if not so good as it was pronounced to be, is certainly not so bad. Like P. cortusoides amœna, it must be generously grown, whether in pots or in the open air. It is a fine plant for Villa Gardens, only let it be treated as its excellence deserves. Grow it generously and feed it well, therein lies the secret of success; the leaves will be robust and of great size, the flower-stems stout, and bearing even the traditional three or four whorls of blossoms at one time.

Garden Operations.

(FOR THE ENSUING FORTNIGHT.)

PLANT HOUSES.

PLANT STOVE.—*Celosia pyramidalis* is a most useful autumn flowering plant, either for use as a conservatory subject or for cutting. Few things will keep fresh so long when cut as these. *Celosias*, lasting as they do up to the end of the year, are almost indispensable where there is a large demand for flowers. To have them in succession it is necessary to sow at different times; by early sowing it can be had during the summer, but it is for the autumn and winter that I should more particularly direct attention to its growth. Seed put in now, and again in the course of a month, will come in at a time when flowers are not plentiful; it should be sown in a gentle heat, and does not need keeping so warm as an ordinary Cockscomb, although in its early stages it is benefited by moderate heat. When the plants are up and large enough to handle, pot them off singly in loam, well enriched, and keep rather close until they get strong, after which they require little above an ordinary greenhouse temperature. Keep them near the glass so as to induce short growths, and syringe in the afternoons to keep down spider. *Ixoras* will now be fast throwing up their flowers; any that will be required for placing in the conservatory about the middle of next month should now be prepared for the cooler treatment they will there be subject to by having all the light possible, with a moderate amount of air, and by not being kept too hot, especially during the night. *I. coccinea* and *I. aurantiaca* are the best to use for this purpose, and if properly prepared and placed whilst in the conservatory away from draughts, they will stand for some weeks. *Allamandas* can be used in the same way, but when these are intended for removal to the conservatory they need not be kept so warm in the early stages of their growth as Ixoras require to be. *Stephanotis* is also well adapted for this purpose when not started too early in the spring, and brought on slowly its flowers will last much longer in a cool house than if kept in heat. *Bougainvillea glabra*, similarly treated, will stand in flower in a cool house for two months—its blossoms in such a situation being much more highly coloured than when in strong heat. This plant when required for conservatory use should be moved from the stove before the first flowers have attained their full size and have expanded, as they are liable to drop off prematurely. *Tuberous-rooted Begonias* that have been started in heat should be treated so as to prepare them for cooler quarters. They are the most useful grown in small pots, 6 or 7 inches in diameter, being large enough for standing on front shelves and similar places, where they are the most suitable. For large stoves some of the *Musas* are very effective; although these large free-growing plants are seen to the best advantage when planted out, yet they may be grown in large pots or tubs so as to make them most telling objects. The flowers of *M. coccinea* are very distinct from the generality of the other occupants of the stove, whilst the noble foliage of such varieties as *M. Cunninghamii* and *M. Ensete* contrast well with things of smaller growth. They grow freely in turfy loam, with enough sand to keep the whole in a healthy open condition—the large quantities of water required by these plants when in full growth making this provision imperative. *Tabernæmontanas* will now be making free growth. These fine plants are not so much grown as at one time, no doubt on account of the disposition they have to drop their buds when kept too hot. They may with advantage be grown in houses where there is not sufficient heat kept up for some things. They are impatient of being too wet at the roots, and never require water in such quantities as some stove plants of stronger growth. The easily-grown *Vinca alba*, *oculata*, and *rosea*, although almost continuous flowerers through the summer season, are the most useful in the autumn. To have them in nice condition, then, the shoots, instead of being allowed to flower now, should be stopped, which will cause several to break in place of one.

Ferns.—Many of the plants will now be making active growth, to assist which an application of manure-water once a week will be of great service. When Ferns are freely supplied with this they will do for years in much smaller pots than are often used. Such species as *Dicksonia antarctica* and *Cyathea dealbata* throw up their fronds a number at a time, and when they have completed their growth are for a time at comparative rest. When plants of these and similar species are moved during the summer season to decorate houses where the temperature is cooler and atmosphere drier than the fernery, advantage should be taken to move them when this first growth is complete, for although many Ferns that get the character of requiring heat will grow during the summer in a greenhouse temperature, yet if moved from a moist close atmosphere when the fronds are in an immature state they never attain their full size. *Adiantum cuneatum*, *A. pubescens*, *Pteris serrulata*, and *Lomaria gibba* should be grown in quantity for conservatory, table and room decoration: these if prepared in numbers, by potting on such as come from spores self-sown in the fernery, are most useful. As soon as the seedlings are large enough to handle place them in thumb-pots, and let them have a place near the light, where they will make stout growth; by attending to this two or three times during the year there will always be a stock of small plants ready for shifting on into 48's—which is the most useful size to have them in for use. *T. Baines.*

FRUIT HOUSES.

VINES.—A continuance of bright sunshine during the past fortnight has wrought wonders in the condition of Vines in all stages. Very little fire-heat will now be necessary if the houses are closed early. With sun-heat and plenty of atmospheric moisture the thermometer may run up to 90°—100°, and will do more in one day to advance the crop than a week's firing in dull weather. Of course these remarks apply only to Vines in full growth, as those that are ripe, or nearly so, will be better if kept cooler. Give air very early in the morning, or the moment the sun shines on the glass, as the sun coming in contact with the condensed moisture formed on the foliage during the night previously causes scorching, unless air has been previously given. Late Vines will now be about coming into flower, and to insure a good set of such sorts as Royal Vineyard, Muscats, and Lady Downe's Seedling, maintain a minimum temperature of 70°, and shake the rods several times daily, which will distribute the pollen and thereby assist fertilisation. Whilst in blossom, pinching or stopping of lateral growths should be discontinued, but as soon as the fruit is set pinch out the points as previously directed, as it is ruinous to allow the laterals to extend and afterwards be compelled to remove them by the barrow-load. Keep houses of ripe fruit cool and airy, and have regard to the preservation of the foliage by never allowing the atmosphere to become arid or parching. A little moisture at this season will not injure the Grapes. Red-spider having made its appearance in our earliest house, I had the foliage carefully sponged with clear water, and thereby a cure effected; and to all thus pestered I would say, go and do likewise—for whatever may be said against the tediousness of this operation, it certainly is the only thorough remedy. Vines struck from eyes in February and March, and grown on in pots or turves, may now be planted out; after which give a soaking with water at a temperature of 100°, and mulch the border with a couple of inches of soil to keep in the heat produced by the warm water. Keep up a humid atmosphere, and shade during bright sunshine till the Vines are established. With proper management a good crop of fruit may be had next season. *W. Wildsmith.*

FIGS.—The ripening fruit on the early forced trees must now have plenty of air and sunshine to improve their flavour. The fruit of early forced Figs are comparatively insipid if not ripened under the most favourable circumstances as regards a free circulation of dry air and warmth. On purpose to effect this, if the nights are cold, the temperature must be kept from 65° to 70°, and in the day from 80° to 90° by sun-heat. When the ripe fruit is all gathered from the pot plants another mulching of well rotted manure may be added to that formerly put on the surface of the pots, and this will encourage root action and help the trees to perfect their second crop. The syringing daily must be again attended to, as red-spider may have gained a footing on the foliage during the dry period of the ripening of the first crop. The young Fig trees struck from cuttings will soon want their second shifting into the fruiting pots. These pots need not be of an inconvenient size, for I find if they are about 12 inches in diameter at the top that size is sufficient to grow and fruit Figs well in. They must be well drained, and the soil used that formerly recommended for the first shifting from the cutting pots. Still attend to the stopping, thinning, and regulating the shoots of the trees where they are permanently planted out, and ply the syringe daily till the fruit begins to ripen. If the borders can be mulched with some well decomposed manure during the summer heats, it will encourage a more vigorous growth of the surface-roots. *William Tillery.*

MELONS.—Continue to growing crops the directions given in both the last and previous Calendars. Plants ripening their fruit, however, as the first batch will shortly be, need a change of treatment. So far as my experience goes, there is only one *modus operandi* to be adopted to secure a highly finished fruit. By the term "highly finished" I mean a richly-flavoured fruit, and which is, or should be, the great aim of all Melon growers. A Melon devoid of this latter quality is a Melon in name only, and can afford no credit to the grower or pleasure to the consumer. The best means of securing this desideratum is simply this—that directly the fruits begin to change colour or to manifest the least signs of ripening, observe a dry condition of both the roots and atmosphere, and in the case of very early or very late crops increase the temperature by 3° or 4° if possible; the foliage must at the same time be fairly thinned out to admit the sun, the great flavour-producing agent. The weather has been for the last ten days all that can be desired for Melons. Keep a vigilant watch for "cracked fruits," which are, for the most part, produced by a superabundance of moisture, together with a sudden rise in the temperature. Directly any are perceived, therefore, be sparing in the supply of water, and insert a pinch of freshly-slaked lime into the affected parts; at the same time dust a modicum of flowers of sulphur amongst the foliage, and on the walls and pipes, as an antidote to red-spider. Beware of canker at the collar, too, as well as in the old growths, the cure for which is also freshly-slaked lime pressed well in between the thumb and finger. Be careful to observe a dry condition of both the roots and atmosphere in pits and frames, wherein the fruits are setting. After the fruits have attained the size of a bantam's egg, let them be raised on pieces of tile, after previously giving the roots a good earthing-up, and afterwards keep the growths well thinned out. *T. Simpson, Chelmsford.*

CUCUMBERS.—There is little or nothing fresh to be added under this heading just now; the great and principal work is, as has been previously pointed out, to secure a clean growth at whatever pains or labour. See that the busy bedding-out season does not interfere with this. The weather for the last fortnight has been such as to warrant the disuse of fires both day

and night—two or three nights excepted, when the external thermometer fell to 42° and 44° respectively. With a change in the weather to-day, however (May 17), we shall still continue a little fire-heat by night, to prevent too great a disparity between the day and night temperatures, which is productive of a plentiful crop of yellow and stunted fruits. Still keep plenty of moisture in houses all day long, and be careful not to allow the plants to flag much. At the same time shade only as much as will prevent flagging for a couple or three hours at mid-day. Sow for succession, and continue to utilise pits and frames as fast as they become cleared. A little bottom-heat is still recommended. *T. Simpson, Chelmsford.*

Answers to Correspondents.

COLTSFOOT: *A Constant Reader.* Persistent hoeing and forking is the only thing we can recommend you to adopt.

GOOSEBERRY TREES ATTACKED BY ÆCIDIUM: *A. M. R.* The leaves and fruit of your Gooseberry trees are attacked by Æcidium Grossulariæ, a parasitic fungus. It seldom occurs in such quantities as to be of any importance. No remedy is known for these vegetable pests. *M. J. B.*

INSECTS: *J. P. MacM.* Malthinus biguttatus of Linnæus is in the catalogues both of Stephens and Curtis. It is distinct from M. biguttulus. *I. O. W.—Constant Reader.* Your Apple trees are attacked by the young larvæ of some kind of moth. We know no other or better remedy than hand picking, except fumigating, if the trees are sufficiently small. *I. O. W.—J. C. R.* The beetles which attack your Vine leaves are the common weevil, Otiorhynchus sulcatus. Hunt for them with a light after dark, having laid white cloths or newspapers on the ground beneath the trees. The insects are alarmed at the light, and fall down and are easily killed. *I. O. W.—G. M. A.* Your Beech leaves are infested by an aphis (A. Fagi). Both syringing violently and burning weeds to windward of the trees for several days may be partially effectual. *I. O. W.*

MIMULUS: *E. G. Henderson & Son.* Very large, very beautifully marked, and very varied in the style of colouring.

NAMES OF PLANTS: *Clover. a*, Sophora tetraptera (Leguminosæ); *b*, Abies canadensis (Coniferæ); *c*, Juniperus, sp. indeterminable without fruit (Coniferæ); *d*, Benthamia fragifera (Cornaceæ). — *John Fryer.* Staphylea pinnata (the Bladder-nut). — *C. W. D.* Scleranthus annuus and Alyssum calycinum.—*F.* Valeriana dioica; the larger flowers are male, the smaller female, the plant being dioecious.—*P. W. J.* Carex glauca.—*Mrs. Rowland.* Valerianella olitoria.—*W. M., Broomford Manor.* 1, Listera nidus-avis; 2, L. ovata.—*J. F.* A Gaultheria, but which we cannot say without a better specimen.—*F.* Prunus Padus (the Bird Cherry).

PARSLEY: *James Carter & Co.* Your Fern-leaved Parsley is very finely cut and beautifully crested, and will be an excellent variety for garnishing purposes.

PEACH TREES: *Young Gardener.* Blister, caused possibly by a chill which has crippled the young leaves. The wire trellis, if at all away from the wall, would increase the evil. Observe if it still goes on now the weather is warmer.

PEAR LEAVES BLISTERED.—*W. D.* Your Pear leaves are blistered by a very minute Acarus, which is extremely difficult to detect except when the pustules are first formed.—*A. B.* The same remark applies to your specimens. The affection appears to be very common this year. The fruit as well as the leaves is sometimes attacked. *M. J. B.*

PINES: *G. R. F.* Cut them over, and give them a fresh start; that is the plan generally followed now in such cases as yours, and with very good results.

PRIMROSES: *F. J. H.* The flowers were too far gone, but the white seems a desirable form, and that with a leafy calyx is interesting.

WARTS ON VINE LEAVES: *A. B.* It is difficult for us to say what is the exact cause in your case, but we should think that cold chills had more to do with it than heat. The leaves do not appear to be badly covered, so that you have not much to fear as regards injury.

ERRATUM: In our report of the Scientific Committee of the 12th inst. occurs an error which should be corrected. The general opinion of the Committee was, not that close soldering of the cases containing seeds for transmission to India was bad. On the contrary, it was stated, as we are informed by a member of the Committee, that the whole of the large export trade in seeds to India is carried on with soldered tin cases.

COMMUNICATIONS RECEIVED:—Zit.—W. C.—L. H. V.—Dolseran Hall, Dolgelly.—L. H. G.—Galloway.—C. V. M.—J. M.—T. S.—W. S.—J. S.—C. S. Read.—G. T. M.—H. H. C.—N. K.—Amateur.—J. R.—A Northern Subscriber.—R. F.—R. G.—P. G.—T. F.

Markets.

COVENT GARDEN, May 20.

A moderate amount of business current this week; supplies rather beyond the demand. Hothouse fruit now comprise Pines, Grapes, Strawberries, Peaches, Nectarines, and Figs. There have been a few English Peas in the market, but there is no promise of any quantity yet. Late Apples are scarcely saleable now unless very good. *Thos. Taylor, Wholesale Apple Market.*

—— Among the choicest descriptions of fruit we may quote:—Melons, 10s. to 15s. each; Cherries, 6s. per box; Strawberries, 5s. to 10s. per lb.; Peaches, 10s. to 20s. per doz.; Nectarines, do.; Figs, 10s. to 15s. per doz.; Grapes—black, 5s., 8s., and 10s. per lb.; white, 10s. to 12s. per lb.; Pines, 6s. to 8s. per lb. A few Apricots are also making an appearance.

FRUIT.

	s. d. s. d.		s. d. s. d.
Apples, per ½-sieve	3 0– 4 0	Oranges, p. 100	.. 8 0–12 0
Apricots, per box	.. 4 0– 7 0	— Malta, per doz.	.. 2 0– 3 0
Cherries, per box	.. 3 0– 5 0	Peaches, per doz.	..15 0–24 0
Figs, per doz.	.. 6 0–12 0	Pine-apples, p. lb.	.. 6 0–12 0
Grapes, English, lb.	4 0–10 0	Pomeloes, each	.. 0 6– 1 0
— foreign, do.	.. 1 6– 4 0	Shaddocks, each	.. 2 0– 3 0
Lemons, per 100	.. 8 0–12 0	Strawberries, per oz.	1 0– 2 0
Nuts, Cob, p. lb.	.. 2 0– ..0	Walnuts, p. bush.	..16 0– ..

VEGETABLES.

	s. d. s. d.		s. d. s. d.
Artichokes, Fr., doz.	4 0– ..	Leeks, per bunch	.. 0 2– 0 4
Asparagus, English, per bundle	.. 5 0– 6 0	Lettuces, per doz.	.. 1 6– ..
— French, p. bund.	4 0–15 0	Mint, per bundle	.. 0 4– ..
Beans, French, p. 100	2 6– ..	Mushrooms, per pott.	1 0– 2 0
— broad, p. ½-sieve	10 0– ..	Onions, young, bun.	0 4– 0 6
Beet, per doz.	.. 1 0– 2 0	Parsley, per bunch	.. 0 9– 1 0
Cabbages, per doz.	.. 1 0– 2 0	Parsnips, p. doz.	.. 0 9– 1 0
Carrots, p. bundle	.. 0 6– 0 9	Peas, per quart	.. 2 6– ..
— French, do.	.. 1 0– ..	Radishes, per bunch.	0 2– 0 4
Cauliflowers, per doz.	2 0– 6 0	Seakale, per bundle	1 0– 1 6
Celery, per bundle	.. 1 6– 2 0	Shallots, per lb.	.. 0 3– ..
Cucumbers, each	.. 1 0– 2 6	Salsify, per bundle	.. 1 6– ..
Endive, per doz.	.. 1 0– 2 0	Sprue, French, bund.	1 6– ..
Herbs, per bunch	.. 0 2– 0 4	Tomatos, per doz.	.. 4 0– ..
Horse Radish, p. bun.	3 0– 5 0	Turnips, per bundle.	0 6– ..
		— French, p. bund.	2 0– ..

Potatos, old:—Regents (early), 80s. to 120s.; best, 160s.; Flukes, 120s. to 130s.; and Victorias, 160s. per ton. New: Lisbons, 16s. to 18s. per cwt.

CUT FLOWERS.

	s. d. s. d.		s. d. s. d.
Azaleas, p. 12 sprays	0 6– 1 6	Narcissus, do., dble., per doz.	.. 0 6– 1 6
Carnations, 12 blooms	1 6– 3 0	Nemophila, 12 bun.	1 6– 3 0
Cineraria, p. bunch	.. 0 9– 1 6	Pelargoniums, 12 spr.	0 9– 1 0
Deutzia, per bunch	.. 0 4– 1 0	— *Zonal*, do.	.. 0 4– 1 0
Eschscholtzia, 12 bun.	0 6– 0 9	Pæonies, 12 bun.	.. 6 0–18 0
Eucharis, per doz.	.. 6 0–12 0	Primula, dbl., p. bun.	0 9– 1 6
French Lilac, p. bun.	3 6– 5 0	Ranunculus, p. bun.	0 4– 1 0
Heliotropes, 12 spr.	0 6– 1 0	Roses, indoor, p. doz.	2 0– 6 0
Lily-of-the-Valley, 12 sprays	.. 0 6– 2 6	— French, do.	.. 1 0– 2 6
Mignonette, 12 bun.	4 0– 6 0	Spiræa, 12 sprays	.. 2 0– 4 0
Mycsotis, per bunch	0 4– 0 9	Stephanotis, 12 sprays	2 0– 6 0
Narcissus, Pheasant's-eye, per doz.	.. 0 2– 0 6	Stocks, 12 bun.	.. 6 0–12 0
		Tulips, per bunch	.. 0 4– 1 0

PLANTS IN POTS.

	s. d. s. d.		s. d. s. d.
Azaleas, per dozen	..24 0–60 0	Hydrangeas, per doz.	12 0–24 0
Begonias, do.	.. 6 0–12 0	Lily of the Valley, 12 sprays, about	.. 1 0– 3 0
Bouvardias, do.	.. 9 0–18 0	Mignonette, do.	.. 6 0– 9 0
Calceolarias, do.	.. 9 0–18 0	Myrtles .. do.	3 0– 9 0
Cineraria, do.	.. 6 0–15 0	Pelargoniums, dble., per doz.	.. 6 0–12 0
Cyperus, do.	.. 6 0–12 0	— Scarlet, do.	.. 6 0– 9 0
Deutzias, do.	.. 8 0–18 0	Petunia, per doz.	.. 6 0– 9 0
Dracæna terminalis	30 0–60 0	Roses, do.	..12 0–60 0
— viridis, per doz.	12 0–24 0	Solanums, do.	.. 6 0–18 0
Ficus elastica	.. 1 6– 7 6	Spiræa, do.	..12 0–24 0
Fuchsia, per doz.	.. 6 0–18 0	Stock, do.	.. 6 0– 9 0
Gardenias, do.	..24 0–60 0		
Heaths, in var., doz.	12 0–30 0		
Hyacinths, per doz.	6 0–18 0		

SEEDS.

LONDON: *May 20.*—Our seed market is now scantily attended, and there is scarcely any business passing. The sowing demand for Clover seeds is, of course, at an end; and, in the absence of any speculative transactions, are exceedingly limited both in number and extent. There is some inquiry for agricultural Mustard and Rape seed, and values of both descriptions keep very steady; fine samples of either kind do not offer freely. Canary seed, in consequence of its present unparalleled price, moves off very slowly; the extravant rates demanded for it now materially diminish its consumption, and Millet, Hemp and Rape seed, as substitutes, are in increased demand. Linseed shows no change. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C.*

CORN.

At Mark Lane on Wednesday business was quiet; there was a good attendance of millers, most of whom seemed indisposed to operate unless at some reduction from Monday last. The fresh supply of English Wheat was small, and that of foreign was not extensive, but factors were not generally averse to offers of less money. Barley had a drooping tendency, so also had malt, Oats, and Maize, but there was no change in Beans, Peas, or flour. Average prices of corn for week ending May 15:—Wheat, 42s. 2d.; Barley, 37s. 4d.; Oats, 30s. 7d. For the corresponding week last year:—Wheat, 62s. 1d.; Barley, 47s. 5d.; Oats, 29s. 2d.

HAY.

The market at Whitechapel has been quiet and moderately supplied with fodder, the value of which was rather lower, prime Clover making from 100s. to 126s.; inferior ditto, 85s. to 95s.; prime meadow hay, 90s. to 120s.; inferior ditto, 55s. to 75s.; and straw, 35s. to 39s. per load.—Cumberland Market quotations:—Superior meadow bay, 128s. to 134s.; inferior, 100s. to 114s.; superior Clover, 126s. to 134s.; inferior, 105s. to 115s.; and straw, 40s. to 44s. per load.

COALS.

The market on Wednesday was a firm one, and house coals obtained a rise of 1s. per ton.

THE AGRICULTURAL GAZETTE, SATURDAY, MAY 22, Contains—

ORIGINAL ARTICLES on Turnip Fly—Transformation of Cereals—Parasitic Diseases of Stock (Round Worms)—Foot and Mouth Disease—Agricultural Machinery (Illustrated)—Training Servants—Agricultural Dietary—Everlasting Flowers (Illustrated)—Farm Weeds, Coltsfoot (Illustrated)—Patent Law Reform—Tenant's Compensation Bill—Digging—The Derby—The Cricket of the Week—Common Law for Farmers—The Aylesby Herd of Shorthorns—Ayrshire Cattle—The Agricultural Holdings Bill—Mr. John Downing's Shorthorn Heifer, Veronica (with Portrait)—Catch Crops—Dairy Notes—Underley Hall (Illustrated).

HOME AND FOREIGN CORRESPONDENCE on Noteworthy Agriculturists, Mr. Odams—Pasture *v.* Arable—Malt for Cattle Food—Crops between Bury St. Edmunds and Manchester—Oats Turning to Wheat, &c.

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PARTNERSHIP.—Owing to the decease of the Proprietor of an Old Established Nursery Business, the Executors are desirous of meeting with a person possessing moderate capital, who would be disposed to take the whole or a portion of the business.—Address, EXECUTOR, care of Messrs. Protheroe & Morris, 98, Gracechurch Street, E.C.

WANTED, a HEAD GARDENER, married, no family; must thoroughly understand Vineries, Hothouses, Fernery, &c. Small cottage in the Grounds. Good character indispensable. Also a SECOND GARDENER, who must understand Glass and the arrangements of a Conservatory, and make himself generally useful.—Apply, by letter only, to S. J. R., care of Messrs. Howcroft & Watkins, 14, Tavistock Row, Covent Garden, W.C.

WANTED, a GARDENER, to take the Management of a small Garden (Greenhouses and Gardener's Cottage about to be built).—A married man, whose Wife would take household washing, preferred.—Apply, stating wages, to T. H. B., Redcar, Yorkshire.

WANTED, as GARDENER, at Bounds Green, by Wood Green, N., a thoroughly competent Man who understands the Cultivation of Fruit, Flowers, and Vegetables, to take charge of an Amateur's Garden and Greenhouse, and to give Instruction in every branch of Gardening. This is a capital opportunity for one who, being already engaged, may have two or three hours' leisure either early in the morning or at eventide. No one need apply whose character will not bear the strictest investigation.—Apply, stating full particulars and wages required to GARDENER, W. H. Smith & Sons, Wood Green Station, N.

WANTED, a GARDENER (SINGLE-HANDED), who understands the Management of Vines, Kitchen and Flower Gardening, and willing to make himself generally useful.—Mr. SMALLPIECE, Kingfield, Woking.

WANTED, Two UNDER GARDENERS, and also Two GARDEN LABOURERS. Wages 18*s.* to 24*s.*—Mr. CARTER, Nursery, Keighley, Yorkshire.

WANTED, as UNDER GARDENERS, several young Men, for good places.—State wages required, age, and where last employed, to DICKSON, BROWN, AND TAIT, Seed Merchants, Manchester.

WANTED, an active intelligent MAN as NURSERY FOREMAN and GENERAL PROPAGATOR. Character must bear the strictest investigation. State age, experience, where last employed, and wages expected.—PHIPPEN AND ROBINSON, Victoria Nursery, Reading.

WANTED, a FOREMAN and PROPAGATOR, for the Outside Department. Liberal wages will be given to a competent and steady Man.—Address, with references, &c., to E. B. HAYNES, Penge Nursery, S.E.

WANTED, several smart, active, industrious young MEN, accustomed to General Nursery Work. State age, experience, wages expected, and to whom to apply for character, to FRANCIS & ARTHUR DICKSON & SONS, "**Upton**" Nurseries, Chester.

To the Seed Trade.—Head Counterman.

WANTED, an active and intelligent Man as principal SALESMAN in a large Retail Establishment in the North of England; must have good address and appearance, and a thorough knowledge of the Seed and Plant Trade indispensable. Also, an ASSISTANT, well acquainted with the Execution of Vegetable and Flower Seed Orders.—State full particulars, where last employed, age, and salary expected, to D. Y., Mr. Robert Cooper, Seed Merchant, Fleet Street, London, E.C.

WANTED, a YOUTH, who writes a good hand, and has had some experience in the Nursery and Seed Trade, and willing to make himself useful in Nursery Office or Seed Shop.—Apply, stating age, experience, and salary expected, to WILLIAM HENDERSON, 86, Hamilton Street, Birkenhead.

WANTED, for Spring Hill College, a MAN who understands plain Gardening, and the care of Forest Trees. Lodge provided, to be attended to by his Wife.—Apply, by letter, to Dr. SIMON, Spring Hill College, Moseley, Birmingham.

Seed Trade—Traveller and Shopman.

WANTED, an experienced MAN as TRAVELLER, to do a Journey in the summer and to Pack Shop Orders in the winter. Must be of good address, energetic, and well up in the business.—Apply, stating amount of experience and salary required, to L. M., *Gardeners' Chronicle* Office, W.C.

WANT PLACES.

To Gardeners in Want of Situations,

WHOSE CHARACTERS WILL BEAR STRICT INVESTIGATION.

THE PINE-APPLE NURSERY COMPANY devote special attention to this important matter—proper Men to suitable Situations. For a GARDENER, or for a SITUATION, please send full particulars to Mr. JOHN BESTER, the Pine-Apple Nursery Company, Maida Vale, London, W.

Gardeners and Under Gardeners.

WM. CUTBUSH AND SON beg to state that they have at all times on their Books MEN of VARIOUS QUALIFICATIONS, whose characters will bear the strictest inquiry. Any Gentleman making application would save time by clearly stating the duties to be undertaken, wages offered, &c., so that suitable Men may be selected.—Highgate Nurseries, London, N.

B. S. WILLIAMS, having at the present time several very excellent GARDENERS upon his Register, is desirous of placing them in Situations where great experience and trust are required. B. S. W. would at the same time beg to intimate that when a Gardener is applied for that the filling of the situation should be left with him, as that would prevent unnecessary correspondence and delay.—Victoria and Paradise Nurseries, Upper Holloway, London, N.

Head Gardeners.

JOHN LAING can at present recommend with every confidence several energetic and practical Men, of tested ability and first-rate character. Ladies and Gentlemen in WANT of GARDENERS and BAILIFFS, or GARDENERS for First-rate Establishments or Single-hand situations, can be suited, and have full particulars by applying at Stanstead Park and Rutland Park Nurseries, Forest Hill, London, S.E.

GARDENER (HEAD).—Messrs. WM. CUTBUSH & SON have in their Nurseries a thoroughly practical Head Gardener, whom they can confidently recommend to any Nobleman or Gentleman requiring a steady persevering Man.—Highgate Nurseries, London, N.

GARDENER (HEAD).—J. W. LAURENCE, Gardener to the late Right Rev. Bishop Sumner, Farnham Castle, is at liberty to engage with any Nobleman or Gentleman requiring the services of an experienced Man.—Prospect Cottage, Upper Hale, Farnham, Surrey.

GARDENER (HEAD), to any Lady or Gentleman requiring the services of a good practical Man.—Age 38, married, no incumbrance; understands the general requirements of a good Establishment; can undertake the Management of Grass Land, Stock (as Cows, &c.), if required. Good references.—X. Y. Z., Northgate Nursery, Chichester.

GARDENER (HEAD), to any Lady, Nobleman, or Gentleman requiring the services of a thoroughly practical Gardener.—Age 31, married; understands the profession in all its branches, having had sixteen years' experience both in England and Ireland.—HORTUS, 92, Denmark Road, Hammersmith, W.

GARDENER (HEAD).—Age 39, married; JAMES MCCRACKEN, Head Gardener for the last four and a half years to the Bradford Corporation at Lister Park, is in want of a situation where the services of a first-class practical Man are required. Is thoroughly up in the Laying-out and Planting of Grounds, and is an excellent Florist and Fruit Grower. The highest testimonials as to character and ability from the Mayor and Town Council of the Borough of Bradford.—6, Buxton Street, Victor Road, Manningham, Bradford.

GARDENER (HEAD).—Age 40, single; understands the Management of Fruit and Flower Gardens. Good character.—A. F., 61, Durham Road, Seven Sisters Road, Holloway, London, N.

GARDENER (HEAD), where assistance is given.—Age 30, single; thoroughly understands the profession in all its branches. Four years' good character from present employer, where staying till suited.—C. D., Mrs. Brown, The Hollies, Eltham, Kent.

GARDENER (HEAD), or MANAGER of small Estate.—Age 33, married, no family; understands Repairs and Sanitary Matters. Eleven years in present place. Wife (age 38) could take a first-class Housemaid's situation, having filled the present one twenty-one years.—A. B., Messrs. Saltmarsh & Son, Nurserymen, Chelmsford.

GARDENER (HEAD, WORKING), where three or more are kept.—Age 35, married, no family; experienced in all branches of the profession. Seven years' good character.—M. S., 126, Grove Lane, Camberwell, Surrey, S.

GARDENER (HEAD WORKING).—Age 31, married, one child; well experienced in the cultivation of Vines, Peaches, Cucumbers, Melons, Stove and Greenhouse Plants, Flower and Kitchen Gardening, &c. The highest recommendations as to character and ability from present employer.—B. R., Messrs. Cripps & Son, Tunbridge Wells Nurseries, Kent.

GARDENER (HEAD, WORKING), age 38, married.—WILLIAM HENDERSON, for the last four and a half years Gardener to R. R. Robinson, Esq., Henley Park, Henley-on-Thames, is at liberty to treat with any Lady, Nobleman, or Gentleman requiring the services of a thorough practical Man, who well understands the Early and Late Forcing of all kinds of Fruits, Flowers, and Vegetables, and the Management of Fruit, Flower, and Kitchen Gardens. Wife, having no family, is qualified to take Charge of Gentleman's Residence during the employer's absence. Characters will bear investigating.

GARDENER, or STEWARD and GARDENER (married, one child, Protestant).—Advertiser requires a situation in Ireland; he thoroughly understands the profession in all its branches. Has held first-class situations in Ireland, as his certificates will show. Is a sober, hard-working, and trustworthy Man.—HORTUS, 147, Great Brunswick Street, Dublin.

GARDENER (UNDER), in a large Garden, or FOREMAN in a small one.—A GARDENER can recommend a sober, honest, industrious young Man (age 22) as above.—D. B., Dolley's Hill, Kilburn, N.W.

GARDENER (UNDER), in a good Establishment.—Age 20; has a knowledge of Vines, Plants, Cucumbers, Melons, &c. Five years' character. Good references.—F., Post Office, Brixton, Plympton, Devon.

GARDENER (UNDER), or IMPROVER, in the Houses.—Age 19. Five years and nine months' good character from present situation.—A. D., Mr. Chandler, Dood's Road, Reigate, Surrey.

GARDENER (UNDER), as IMPROVER.—Age 20.—M. CHARLTON, Havelock Street, Barnsley.

Landscape Gardening.

SUPERINTENDENT.—Age 47, married, no family; thoroughly practical in all branches of Gardening, the Building and Heating of Hothouses, Laying-out New Grounds, Planting, Draining, &c.; also Ferneries and Rockwork in the best of style.—G. GOOD, Mr. Buttersfield, Little Heath, Potter's Bar, N.

To Nurserymen and Landscape Gardeners.

FOREMAN.—Can Prepare Plans, and Lay-out from same.—H., Pine-apple Nursery, Maida Vale, W.

FOREMAN, in a good Establishment.—Experienced in all kinds of Forcing and Plant Growing. First-class references.—A. B., Mrs. Edmonds, 26, Land Street, Croydon, Surre y.

PROPAGATOR and FOREMAN in a good Establishment.—Age 22. Four very good references as to character and abilities.—A. S., Mr. Stacey, 5, Whitehall Street, Tottenham, N.

To Nurserymen and Florists.

ORDER CLERK or GENERAL NURSERY ASSISTANT, with SALESMAN.—Age 25. In a London Nursery preferred. Good character, with other references.—ALPHA, 1, Masbro' Road North, Hammersmith, W.

To the Wholesale Seed Trade.

TRAVELLER, CORRESPONDENT, &c.—J. S. HAUXWELL is open to an engagement as above.—44, Devonshire Road, Holloway, N.

TRAVELLER, SALESMAN, or CORRESPONDENT.—The Advertiser has a thorough knowledge of every department of the Nursery and Seed Trade, having had many years' experience.—G. P. R., Post Office, St. James' Road, Croydon.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C. Printed by WILLIAM RICHARDS, at the Office of Messrs. BRADBURY, AGNEW, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the County of Middlesex, and Published by the said WILLIAM RICHARDS, at the Office, 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, May 22, 1875.
Agent for Manchester—JOHN HAYWOOD. Agents for Scotland—Messrs. J. MENZIES & Co., Edinburgh and Glasgow.

THE

GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

No. 74.—Vol. III. { New Series. } SATURDAY, MAY 29, 1875. { Registered at the General Post Office as a Newspaper. } Price 5d. Post Free, 5½d.

CONTENTS.

SALES BY AUCTION.

Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, May 31, at half-past 12 o'Clock precisely, an Importation from Burmah of a large quantity of the handsome DENDROBIUM THYRSIFLORUM, also DENDROBIUMS FALCONERI and WARDIANUM, various Dendrobiums supposed to be new, VANDA CŒRULESCENS, &c. At the same time will be Sold a number of fine established plants of PHALÆNOPSIS SCHILLERIANA and P. AMABILIS, a quantity of ODONTOGLOSSUM ALEXANDRÆ, and various choice ORCHIDS.

On view the morning of Sale, and Catalogues had.

Established Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, May 31, at half-past 12 o'Clock precisely, a small COLLECTION of ESTABLISHED ORCHIDS, including a few plants of the beautiful new Masdevallia maenura, Anguloa Turneri, Oncidium cheirophorodes, O. sarcodes, Odontoglossum Roezlii, Cattleya Dowiana, and various others.

On view the morning of Sale, and Catalogues had.

Important Sale of Phalænopsis.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, May 31, at half-past 12 o'Clock precisely, a large Importation, from Manilla, of fine plants in splendid condition of PHALÆNOPSIS SCHILLERIANA, many of them with leaves upwards of a foot long; and an Importation from the Tambelan Islands of the beautiful PHALÆNOPSIS GRANDIFLORA AUREA, also an Importation of many hundreds of CYPRIPEDIUM NIVEUM.

On view the morning of Sale, and Catalogues had.

Established Orchids.

MR. J. C. STEVENS will include in his SALE at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, June 3, a small COLLECTION of ESTABLISHED ORCHIDS, by order of Messrs. Rollison & Son, of Tooting.

On view the morning of Sale, and Catalogues had.

Imported Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, June 3, at half-past 12 o'Clock precisely, an Importation of FIRST-CLASS ORCHIDS from India, in the finest condition, comprising Vanda cœrulea, Dendrobium Devonianum, D. Farmeri, D. densiflorum, D. chrysotis, D. Falconeri, and D. Wardianum and others; also Pleione maculata and Wallichii, in fine masses; Cypripedium hirsutissimum; Saccolabium guttatum, and Cymbidium eburneum or Mastersii, and some choice Established Orchids.

On view the morning of Sale, and Catalogues had.

Edmonton, N.

To NURSERYMEN, MARKET GARDENERS, BUILDERS, and OTHERS.

MESSRS. PROTHEROE AND MORRIS will include in their next PERIODICAL SALE of PROPERTIES, to be held at the Auction Mart, Tokenhouse Yard, City, on MONDAY, May 31, at 12 for 1 o'Clock, about FOUR ACRES of highly productive LAND, situate in the Hyde Road, Edmonton, five minutes' walk from the station, and immediately available for Building purposes; or a portion could be advantageously utilised for Nursery and Market Garden purposes.

Cards to view may be obtained of Messrs. PROTHEROE MORRIS, 98, Gracechurch Street, City, E.C.

Willesden.—Clearance Sale of Choice Stove, GREENHOUSE, and BEDDING PLANTS.

MESSRS. PROTHEROE AND MORRIS are instructed by the Owner to SELL by AUCTION, without reserve, on the Premises, Haslesden House, within five minutes' walk of Willesden Junction, Middlesex, on WEDNESDAY, June 9, at 12 for 1 o'Clock precisely, the whole of the well-grown STOVE and GREENHOUSE PLANTS, comprising many fine specimens; also about 12,000 BEDDING PLANTS, consisting principally of Wintered Geraniums, including 1000 Mrs. Pollock; also a large number of other leading kinds, Lobelias, &c.

May be viewed the day prior to the Sale. Catalogues had on the Premises, and of the Auctioneers and Estate Agents, 98, Gracechurch Street, City, E.C., and Leytonstone, E.

Worcestershire, in the far-famed Vale of Evesham. PRELIMINARY ADVERTISEMENT.

MESSRS. CHESSHIRE AND GIBSON have received instructions to SELL by AUCTION, in JULY NEXT, in consequence of the death of the Proprietor, unless in the meantime an acceptable offer be made by Private Contract, a very excellent FREEHOLD ESTATE of 240 Acres, known as "Seaford Grange," situated at Peopleton, within 1½ mile of the Pershore Station on the Great Western Railway.

A considerable portion of the above has been laid out as Fruit Gardens, the Trees being of the choicest kinds, now in their prime, the produce finding a ready sale at Liverpool, Manchester and Birmingham, where a very lucrative business was carried on by the late Proprietor.

In addition to a complete set of FARM BUILDINGS, with COTTAGES, there is a very comfortable and desirable RESIDENCE, replete with every convenience, and the portion of the Estate not laid out as Fruit Gardens is occupied as a FARM, and comprises Arable and Pasture of excellent quality.

A Balance-Sheet, showing the profits for the last five years, has been prepared, and may be obtained of the undermentioned Referees.

Further particulars and plans will be issued in due course, in the meantime further information may be obtained of H. G. GOLDINGHAM, Solicitor, or A. BUCK, Estate Agent, both of Worcester; or to the Auctioneers, Messrs. CHESSHIRE AND GIBSON, 93, New Street, Birmingham.

The Plumstead Park Estate, Plumstead, Kent.

About 16 acres of FREEHOLD BUILDING LAND, to be sold at the upset price of £1800 for the whole Estate, or in six lots at the respective upset prices of £380, £180, £280, £180, £180, and £800. The Land is of a very undulating and park-like character, and presents several splendid sites adapted for the erection of Public Schools, Hospitals, and other Institutions.

MESSRS. RICE BROTHERS are instructed to SELL by AUCTION, at the Mart, on FRIDAY, June 18, at 3 o'Clock precisely, in one lot, at the price of £1800, or if not sold in one lot then in six lots at the above upset prices, the very valuable FREEHOLD BUILDING ESTATE, comprising about 16 acres, delightfully situate upon a commanding eminence, and embracing most extensive views over the Thames and surrounding country, and within easy access of London, being only half a mile from the Plumstead Station on the North Kent Line.

Particulars, with plans, may be had at the principal taverns in the neighbourhood; of WILLIAM HORSLEY, Esq., Solicitor, 2, Gresham Buildings, Basinghall Street, City, E.C.; at the Mart; and of the Auctioneers, 2, Adelaide Place, London Bridge, City, E.C.

Victoria Estate, Kansas, U.S.—To Farmers and OTHERS.

FINE STOCK FARMS of 640 Acres and upwards, to be SOLD, Freehold, from 12s. to 50s. per acre. Grass in its natural condition unsurpassed for feeding Sheep and Cattle. For PAMPHLET containing full particulars respecting this Property, apply to

ROBERT W. EDIS, Esq., F.S.A., 14, Fitzroy Square, London, W., Architect to the Estate.

To Gardeners and Florists.

TO BE SOLD, the LEASE and GOODWILL of the BEULAH CRESCENT NURSERY, New Thornton Heath, situated in the centre of a crescent near the Crystal Palace, surrounded with Villas, containing 1 acre of ground, with about 4000 feet of Glass thereon.

For further particulars apply on the Premises.

Freehold—28 Miles S.W.

TO BE SOLD, a beautiful ESTATE of 240 acres, with elegant Swiss Villa, and capital Stabling, Gravelly Soil, fine views, and extensive frontages, free from tithe and land-tax. Two thirds on mortgage. The Furniture may be taken at a valuation.

A Plot of about 50 acres, planted with fine Evergreens, Fruit, and other trees, would be Sold separately; also a Plot of 25 acres. Apply to

W. TARRY, Bailiff, "Golden Farmer," Bagshot, Surrey.

To Florists.—Walthamstow.

TO BE LET on LEASE, in Summit Road, Walthamstow, a small compact NURSERY GROUND, with COTTAGE and Three Large GREENHOUSES, one of which is 80 feet in length by 14 feet in width, and is heated by hot water. Possession can be had in about a month. For particulars, apply to

Mr. HOUGHTON, 15A, Saint Helens Place, London, E.C.

To Nurserymen and Others.

TO BE LET, with immediate possession, the GUILFORD NURSERY, Whitfield, near Dover, comprising. Residence, Stable, and Outbuilding, with 7 acres of first-class Land. Rent £60. The Vinery, Greenhouse, Stove and Fern Pits, together with some Nursery Stock, to be taken by valuation or arrangement. Apply to

Messrs. WORSFOLD AND HAYWARD, Auctioneers, New Bridge, Dover.

BATH and WEST of ENGLAND SOCIETY (Established 1777) and SOUTHERN COUNTIES ASSOCIATION.

Patron—H.R.H. the PRINCE OF WALES, K.G.
President—RICHARD BENYON, Esq., M.P.

GREAT EXHIBITION of LIVE STOCK, POULTRY, MACHINERY, IMPLEMENTS, WORKS of ART, and HORTICULTURAL SPECIMENS at CROYDON, on MAY 31 and JUNE 1, 2, 3, and 4.

JOSIAH GOODWIN, Sec.
4, Terrace Walk, Bath.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION, for the relief of decayed Farmers, their Widows and Orphans.

Patron—HER MAJESTY THE QUEEN.
President—HIS GRACE THE DUKE OF RICHMOND.

Allowances to Pensioners.

Married	£40 per annum.
Male	£26 ,,
Widow and unmarried Orphan Daughters	£20 ,,

Every information to be had of the Secretary, by whom Subscriptions and Donations will be thankfully received.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.—THE FIFTEENTH ANNIVERSARY FESTIVAL, in aid of the Funds of the Institution, will take place at Willis's Rooms on SATURDAY, June 5, at 6 o'Clock.

H.R.H. The PRINCE OF WALES, K.G., in the Chair.

Dinner tickets, 21s., application for which should be made to the Secretary not later than May 22.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.—The ANNUAL GENERAL MEETING will be held at Willis's Rooms, St. James's, on WEDNESDAY, June 16, at 11 o'Clock precisely, and the ELECTION of PENSIONERS will take place on the same day, at half-past 11 o'Clock.

All Subscriptions shall be deemed payable on January 1 in each year; and no Contributor shall vote in respect of an Annual Subscription while the same is in arrear.

Offices of the Institution—
26, Charles Street, St. James's, London, S.W.

GREAT BIRD SHOW.—GRAND YORKSHIRE GALA, York, JUNE 16, 17, and 18. Entries close June 5. Schedules on application to New Street, York. Mr. WILSON, Secretary.

THE LEE and BLACKHEATH HORTICULTURAL SOCIETY will hold its ANNUAL EXHIBITION, in the Grounds of John Penn, Esq., The Cedars, Lee, on JUNE 17 and 18. Special Prizes, open to all England;—48 Cut Roses, distinct, £3, £2, £1; 8 Stove or Greenhouse Plants, in flower, £4, £2 10s., £1 10s. Schedules and forms of entry may be had on application to 5, Boones Road, Lee, Kent. Mr. C. HELMER, Sec.

ALEXANDRA PALACE.—The GREAT ROSE SHOW will take place on THURSDAY and FRIDAY, June 24 and 25. Last day of Entry, Thursday, June 17.

NOTE.—Rule No. 7 of Schedule will be altered, making the time for Specimens to be ready 10 o'Clock instead of 9 o'Clock.

SCHEDULES of PRIZES, &c., may be had on application to A. MCKENZIE, Alexandra Palace, Muswell Hill, N.

SPALDING HORTICULTURAL, &c., SHOW will take place on THURSDAY and FRIDAY, July 1 and 2, and not June 30, as originally advertised. Schedules of Prizes on application to

GEO. F. BARRELL, Hon. Sec.

MAIDSTONE ROSE SHOW, JUNE 30. Prizes open to all England for forty-eight single blooms—1st, Cup value Five Guineas, with £6 in money added; 2d, £4; 3d, £2. For Schedules apply to

Mr. HUBERT BARSTED, Maidstone.

SHOW of HORTICULTURAL BUILDINGS, GARDEN FURNITURE, IMPLEMENTS, APPLIANCES, &c., at the MIDLAND COUNTIES GRAND HORTICULTURAL EXHIBITION, to be held at the Lower Grounds, Birmingham, JULY 1, 2, 3, and 5. Intending Exhibitors should apply at once for a Schedule of Prizes, &c., to

Mr. H. G. QUILTER, Lower Grounds, Aston Park, Birmingham.

WEST KENT HORTICULTURAL SOCIETY.

President—The Right Hon. the EARL SYDNEY, G.C.B., &c.

The ANNUAL EXHIBITION of this Society will be held on SATURDAY, July 3 next, in Camden Park, Chislehurst. The Schedule includes Prizes in considerable value and number, open to all England, for Plants, Cut Flowers, Fruit, &c., and also for Dinner-table Decorations.

ENTRIES CLOSE, JUNE 19.

Applications for information, and for copies of the Schedule, to be addressed to the Hon. Sec., H. NEVILL, Esq., Chislehurst, Kent.

GRANTHAM and SOUTH LINCOLNSHIRE HORTICULTURAL SOCIETY.

President—Right Hon. EARL BROWNLOW, Lord-Lieutenant of the County.

The NEXT EXHIBITION will be held on JULY 6 and 7, instead of JULY 7 and 8, as previously advertised.

Schedules of Prizes (£220—Two Silver Cups) may be had of Mr. LYNE, Bookseller, Grantham.

RICHMOND HORTICULTURAL SOCIETY, embracing Richmond, Twickenham, Isleworth, Mortlake, East Sheen, Kew, Petersham, and Ham. Under the Royal and Distinguished Patronage of H.R.H. the Duchess of Cambridge, H.R.H. the Princess Mary of Cambridge, Duchess of Teck, H.R.H. the Duc d'Aumale, &c.

President—H.S.H. the DUKE OF TECK, F.C.B., President of the Royal Botanic Society.

The FIRST ANNUAL EXHIBITION of PLANTS, FLOWERS, FRUIT, and VEGETABLES, will take place on THURSDAY, July 8, and will be held in the Old Deer Park, Richmond (entrance from Richmond Green). Special Prize, offered by Messrs. James Carter & Co., The Queen's Seedsmen, High Holborn, London, W.C.—a SILVER CUP, value Five Guineas, for the best Collection of Vegetables (inforced), to comprise eighteen dishes and not less than twelve distinct kinds.

Schedules of Prizes, with the Rules, Regulations, and other particulars, may be obtained of the Honorary Secretary.

Subscriptions and Donations will be received by the London and Provincial Banks (Richmond and Twickenham); by Mr. BENNING, Collector, 7, Eton Street, Richmond; or by ALBERT CHANCELLOR, F.R.H.S., Honorary Secretary, 1, King Street, Richmond, Surrey.

May, 1875.

NOTTINGHAM and MIDLAND COUNTIES GRAND ROSE SHOW and HORTICULTURAL EXHIBITION (open to all England) will be held at the ARBORETUM, NOTTINGHAM, on THURSDAY, FRIDAY, and SATURDAY, July 8, 9, and 10. The Mayor of Nottingham President; the Town Clerk Honorary Secretary. Prize List amounting to £750. Prizes for Roses upwards of £240. Space will be allotted for the exhibition of Horticultural Implements and Garden Furniture. Certificates of Merit awarded. Schedules are now ready, and may, with particulars, be obtained on application to

ALFRED KIRK, Municipal Offices, Nottingham.

The Autumn Show of 1875.

THE STAMFORD HORTICULTURAL SOCIETY'S GREAT SHOW of PLANTS, FLOWERS, FRUITS and VEGETABLES, will be held on SEPTEMBER 15 and 16 NEXT, in Burghley Park, in connection with the Northamptonshire Agricultural Society's Exhibition. £300 in Prizes, 12 Silver Cups, £20, £5, £5, and £5 First Prizes for Stove and Greenhouse Plants and Ferns; £10 and £5 First Prizes for Desserts of Fruit; £10, £5, and £2 First Prizes for Collections of Potatos, and 300 other Prizes in proportion, including £100 for Cut Flowers. No entry fees. Schedules may be had on application to

HENRY JOHNSON, } Hon. Secs.
Stamford. THOS. LAXTON, }

PELARGONIUMS—Queen Victoria, Captain Raikes, Marie Lemoine, best three Pelargoniums ever offered to the Public; one plant of each, free by post, 5s. 6d. FUCHSIA PROCUMBENS, 1s. 6d. each. Herbaceous PHLOXES, best varieties, 1874, 6s. per dozen. Double PYRETHRUMS, flowering plants, 6s. per dozen, 40s. per 100. GERANIUM, Happy Thoughts, 6s. per dozen. PANSY, Blue King, best blue bedder, 3s. per dozen, 20s. per 100. Trade price on application.

FREDERICK PERKINS, Nurseryman, Regent Street, Leamington.

ROYAL BOTANIC SOCIETY
OF LONDON.

FIRST SUMMER EXHIBITION, MAY 26, 1875.

MEDIUM GOLD MEDAL.

Messrs. Thomas Jackson & Sons, Nurserymen, Kingston-on-Thames, for 12 Stove and Greenhouse Plants.
Mr. J. Ward, Gr. to F. G. Wilkins, Esq., Leyton, for 10 Stove and Greenhouse.

GOLD MEDAL.

Mr. B. S. Williams, Victoria and Paradise Nurseries, Upper Holloway, for 12 Stove and Greenhouse Plants.
Messrs. Paul & Son, Nurserymen, Cheshunt, for 9 Roses in pots.
Mr. J. Ward, for 9 Pelargoniums.
Mr. W. Chapman, Gr. to J. Spode, Esq., Hawksyard Park, Rugeley, for 10 Stove and Greenhouse Plants.

LARGE SILVER-GILT MEDAL.

Mr. J. Ward, for 6 Stove and Greenhouse Plants.
Mr. J. Ward, for 6 Exotic Orchids.
Mr. E. Morse, Original Nurseries, Epsom, for 12 Stove and Greenhouse Plants.
Mr. B. S. Williams, for 6 Exotic Orchids.
Mr. Charles Turner, Royal Nurseries, Slough, for 9 Roses in pots.
Mr. A. Ratty, Gr. to R. Thornton, Esq., The Hoo, Sydenham Hill, for 6 Greenhouse Azaleas.
Messrs. Ivery & Son, Dorking Nursery, Dorking, for 6 Greenhouse Azaleas.
Messrs. Ivery & Son, for 12 Greenhouse Azaleas.

SMALL SILVER-GILT MEDAL.

Mr. J. Child, for 6 Greenhouse Azaleas.
Messrs. Dobson & Sons, Woodlands Nursery, Isleworth, for 9 Pelargoniums.
Mr. Robert Parker, Exotic Nursery, Tooting, for 12 Hardy Herbaceous Plants.

LARGE SILVER MEDAL.

Mr. B. S. Williams, for 6 Stove and Greenhouse Plants.
Messrs. Paul & Son, for 6 Roses in Pots.
Mr. Charles Turner, for 20 Roses in Pots.
Mr. E. Morse, for 12 Heaths.
Mr. E. Morse, for 6 Heaths.
Mr. G. Wheeler, for 6 Heaths.
Mr. J. Weir, gr. to Mrs. Hodgson, The Elms, Hampstead, for 6 Pelargoniums.
Mr G. Wheeler, for 6 Hardy Herbaceous Plants.
Mr. Robert Ritchie, Gr. to R. H. Prance, Esq., Frognal, Hampstead, for 6 Exotic Ferns.
Mr. B. S. Williams, for 6 Exotic Ferns.
Mr. W. Chapman, for 6 fine Foliage Plants.
Mr. J. James, for 12 Calceolarias.
Mr. G. Wheeler, for group of Fine-foliage and Flowering Plants

SILVER MEDAL.

Mr. G. Wheeler, for 6 Stove and Greenhouse Plants.
Mr. E. Morse, for 6 Stove and Greenhouse Plants.
Mr. G. Wheeler, for 6 Exotic Orchids.
Mr. E. Morse, for 6 Exotic Orchids.
Mr. G. Wheeler, for 6 Greenhouse Azaleas.
Messrs. H. Lane & Son, Great Berkhampstead, for 6 Greenhouse Azaleas.
Messrs. H. Lane & Son, for 12 Greenhouse Azaleas.
Mr. G. Wheeler, for 6 Greenhouse Azaleas.
Mr. Carr, for 6 Exotic Ferns.
Mr. Carr, for 6 Fine-foliage Plants.
Messrs. Dobson & Son, for 12 Calceolarias.
Messrs. Ivery & Son, for Collection of Ferns.

SMALL SILVER MEDAL.

Mr. J. James, for Collection of Calceolarias.

LARGE BRONZE MEDAL.

Mr. Ratty, for 6 Greenhouse Azaleas.
Mr. G. Wheeler, for 6 Exotic Ferns.
Mr. W. Coppin, for 12 Calceolarias.
Messrs. H. Lane & Son, for Collection of Azaleas.
Messrs. Paul & Son, for Collection of Roses.

BOTANICAL CERTIFICATE of MERIT.

Mr. J. Croucher, Gr. to J. Peacock, Esq., Sudbury House, Hammersmith, for Agave Bessereriana major.
Mr. J. Croucher, for Agave Veitchii.
Mr. J. Croucher, for Agave Beaucarnia.
Mr. J. Croucher, for Agave marmorata.
Mr. J. Croucher, for Agave Pilgrimii.
Mr. J. Croucher, for Agave polyacanthus.
Mr. J. Croucher, for Agave pubescens.
Mr. J. Croucher, for Fourcroya variegata.
Mr. J. Croucher, for Dasylirion longifolium glaucum.
Messrs. T. Jackson & Sons, Kingston-on-Thames, for Athyrium Filix-femina Jacksoni, Garden variety.
Messrs. T. Jackson & Sons, for Phegopteris Dianæ St. Helena.
Messrs. James Veitch & Sons, Kings Road, Chelsea, for Vanda Parishii.
Messrs. James Veitch & Sons, for Cattleya tricolor.
Messrs. James Veitch & Sons, for Cypripedium selligerum.
Messrs. James Veitch & Sons, for Nepenthes albo-marginata.
Messrs. James Veitch & Sons, for Abutilon Darwinii.
Messrs. James Veitch & Sons, for Agave Salmiana foliis aureis variegatis.
Messrs. James Veitch & Sons, for Adiantum Hendersoni.
Messrs. James Veitch & Sons, for Platycerium alcicorne Wallichii.
Messrs. James Veitch & Sons, for Odontoglossum vexillarium album.
Mr. B. S. Williams, for Acalypha marginata.
Mr. B. S. Williams, for Agave marmorata.
Mr. B. S. Williams, for Alsophila Williamsii.
Mr. B. S. Williams, for Geonoma gracilis.
Mr. B. S. Williams, for Platycerium Wallichii.
Mr. B. S. Williams, for Dictyogramma japonica variegata.
Mr. B. S. Williams, for Polystichum lepidocaulon.
Mr. E. G. Henderson, for Sonerila Hendersoni.
Mr. E. G. Henderson, for Dracæna Princess Teck.
Mr. E. G. Henderson, for Sonerila Hendersoni marmorata.
Messrs. Hugh Low & Co., Clapton, for Dendrobium Wardianum var.
Mr. W. Bull, King's Road, Chelsea, for Blandfordia princeps.
Mr. W. Bull, for Athyrium Filix-femina apicale.
Mr. W. Bull, for Osmunda obtusifolia.
Mr. W. Bull, for Sadleria cyathoides.
Mr. W. Bull, for Cibotium glaucum.
Mr. W. Bull, for Nephrodium truncatum.

FLORICULTURAL CERTIFICATES OF MERIT.

Messrs. Jackman & Son, Woking, for Clematis alba magna.
Messrs. Jackman & Son, for Clematis Mrs. Hope.
Messrs. Jackman & Son, for Clematis J. P. Gassiott.
C. B. Forster, Esq., Clewer Manor, near Windsor, for Pelargonium Sappho.
C. B. Forster, Esq., for Pelargonium Flirt.
C. B. Forster, Esq., for Pelargonium Magician.
C. B. Forster, Esq., for Pelargonium Eclipse.
C. B. Forster, Esq., for Pelargonium Revenge.
C. B. Forster, Esq., for Pelargonium Edith.
Mr. Charles Turner, Royal Nurseries, Slough, for Fancy Pelargonium Mrs. Porter.
Mr. Charles Turner, for Fancy Pelargonium Countess of Dudley.
Mr. Charles Turner, for Forcing Pink Derby Day
Mr. W. Bull, Chelsea, Pelargonium Beauty of Oxton—awarded for Decoration.

SATURDAY, MAY 29, 1875.

ROYAL OAK DAY.

BY this name the 29th of May is still known in many parts of the country; though almost everywhere the event which it commemorates has fallen into oblivion in the popular mind. There is nothing like some readily obtainable and easily recognisable symbol for making an event remembered; and, if the emblem be a floral one, it seems to be particularly fortunate. Where is the Irishman, for instance, whose eye will not kindle at the sight or sound of the Shamrock, albeit the well-known story of its use by St. Patrick does not appear in any of the lives of the saint, and rests entirely upon tradition. Most countries, indeed, have their floral badge, or one in some way associated with a particular plant and tree; and for ourselves, besides the Roses, which gave the name to one of our most serious and disastrous civil wars, and which are especially emblematic of England, we have had the Broom plant (Planta genista) furnishing a name for one of our lines of kings; while on this day the Oak boughs commemorate the preservation of another monarch, and the restoration, in his person, of another of the dynasties which have ruled our country.

It seems to be generally supposed that the Oak is worn on May 29 to commemorate the concealment of Charles II. in the branches of that tree upon the date in question. But a little reflection will show that by this date the leaves of the Oak would scarcely be sufficiently fully expanded to furnish a shelter; and it is clear from history that the hiding of the king in the branches must have taken place at the beginning of September. The battle of Worcester, which was so disastrous to the Royalist cause, was fought on the 3d of that month; and it was on the following day that the Boscobel tree earned the title of "the Royal Oak," and the services of "trusty Dick Penderell" were brought into requisition. The following year, however, Charles entered London upon the 29th of May, which was also his birthday, and the Oak was then conspicuously displayed in the streets by his sympathisers; it thus served the double purpose of commemorating his birthday and his restoration.

In some parts of England the custom of wearing Oak branches or twigs on May 29 is still very general, as in Derbyshire and Cheshire, where the carters and their horses display them prominently in their hats and harness. The large soft Oak-galls, or "Oak-apples," which are often conspicuous at this season, are sometimes gilded and worn on this day. In London the custom was, even in recent times, pretty general among the lower classes, but it is now dying out. Gilded "Oak-apples" and twigs are nevertheless still exposed in Covent Garden Market about this time. The "Chelsea pensioners" used to be conspicuous in old days for their display of "Royal Oak," and the statue of Charles II. which stands in the grounds of Chelsea College was decorated with Oak-boughs until very recently on May 29, and, perhaps, is so still. The statue of Charles I. at Charing Cross was similarly adorned until a comparatively recent date; and at one time the tomb of Richard Penderell ("Trusty Dick," by whose means the king was preserved), in St. Giles' churchyard, was strewed with Oak branches on the same anniversary.

In Northampton Restoration Day was a day of special observance. Miss Baker says:—"On this day it was formerly the custom for all the principal families in the town of Northampton to place a large branch over the door of their houses, or in their balconies, in remembrance of the restoration of Charles II. The Oak boughs are gradually disappearing; but the corporate body still goes in procession to All Saints' Church, accompanied by the boys and girls of the different charity schools, each of them having a sprig of Oak, with a gilt Oak-apple placed in the front of their dress; and should the season be unpropitious, and Oak-apples be scarce, small gilded Potatos are substituted. The commemoration of this day has been probably more generally and loyally observed in this town than in any other place, from a feeling of gratitude to that monarch who munificently contributed 1000 tons of timber out of Whittlewood Forest, and remitted the duty of chimney-money in Northampton for seven years, towards the rebuilding of the town after the destructive fire in 1675. The statue of the king, which is placed in the centre of the balustrade on the portico of All Saints' Church, is always enveloped in Oak boughs on this day. Some of the villagers in the country notice the day by decorating their houses with branches of Oak, or by children carrying them about in their hands."

Brand tells us that about Newcastle the boys who wore Oak leaves in their hands used to taunt those who were not so adorned, by the rhyme—

"Royal Oak,
The Whigs to provoke;"

and that some in opposition wore the leaves of the Plane tree, and retorted—

"Plane tree leaves,
The Church folk are thieves."

In Hertfordshire, according to Mr. Timbs, the 29th of May was called "Shig-shag day," the origin of which name is not obvious. It was not, however, always safe to manifest Stuartian sympathies in this manner, as Brand says that two soldiers were whipped almost to death and turned out of the service for wearing boughs in their hats on May 29, 1716.

As to the Royal Oak itself at Boscobel, that has long ceased to exist, having fallen a victim to that passion for relics which is so characteristic of the popular mind. Fragments were removed by visitors, and the tree, although at length enclosed by a brick wall, did not receive this protection in time to save its life. A young tree from the same Oak, however, still occupies its place. Charles himself visited the Oak during the latter part of his reign, and took from it some acorns, which he planted in St. James' and Hyde Parks, and used to water with his own hands. One of these still remained as lately as 1859. It will be remembered that the special service commemorating the Restoration was removed from the Book of Common Prayer in 1858. *B. M.*

New Garden Plants.

DENDROBIUM CRASSINODE BARBERIANUM, *n. var.*

The Dendrobium crassinode of Mr. Low's last grand sale appears to be a highly improved variety of the original species, whose typical specimens are in my hands, provided the new plants are all like what I have just obtained, as I hope they may be, to the benefit of the possessors. The flowers are much larger, and of firmer substance. The colours are much warmer. The violet-purplish spots at the ends of both sepals and petals are so much larger and deeper, that the first impression of the flower is totally novel, though one cannot fail to think immediately of D. Wardianum. The whole of the anterior part of the lip is tinted with the same beautiful violet-purplish, which is a great success; and the hairs of the lip are larger and stronger. Can there have been some cross between D. crassinode and Wardianum? The affinity of those Dendrobes, with the same colours in different development, and such different stems, is exceedingly tiresome for a monographer, though they

would not much trouble one of those ruthless book-compilers, who describe their ten species in one day, quite penetrated with their infallibility, and never return to their steps, ever wandering from one family to another. After all, if the plant is difficult to the botanist, it is most attractive to the loving amateur. It has just flowered with Mr. John T. Barber, Spondon, Derby, the very successful possessor of a splendid collection of Orchids, who observed that it was very sweet-scented. I have to thank Mr. Low for the flower. Let us not forget that the flower travelled as a bud: what then will be the flowers of a full-grown, well-managed plant? *H. G. Rchb. f.*

DENDROBIUM RHODOPTERYGIUM, *n. sp.**

A Moulmeinese novelty, much in the way of the now well-known D. Parishii. The pseudobulbs are much longer, and erect. There is also something that reminds one of bulbs of D. Bensonæ, Mr. S. Low writes. As to the flowers, they have much more the colours of those of D. macrophyllum, Lindl. (not A. Rich.); they want totally those two dark blotches on the lip, but have half a dozen purplish streaks both sides of the base. The disk of the lip is only covered with very short little warts in lieu of the velvet hairs so conspicuous in D. Parishii. I have to thank for it Mr. Stuart Low. *H. G. Rchb. f.*

ONCIDIUM DACTYLOPTERUM.†

A small Oncid with pyriform bulbs, linear-lanceolate leaves, and a small panicle of yellow-brown flowers, also with such abortive ones as are met with in the "Heterantha." The chief merit of the small plant consists in its having nice bipartite wings to the column, the partitions with small lobes. It comes from Ocaña, and is no doubt one of Mr. Bruchmüller's discoveries. I have to thank Mr. Bull for it. *H. G. Rchb. f.*

MESSRS. JACKMAN'S CLEMATISES.

MESSRS. JACKMAN & SON'S popular exhibition at Regent's Park has now been brought to a close, and we may fittingly call attention at its termination to some of the charming novelties which it has been the means of introducing to our notice. Amongst the later novelties of the patens group were Miss Crawshay, a handsome and distinct variety, with large pink flowers passing off to pale flesh colour, and contrasted with pale brown anthers. Baroness Burdett Coutts, also a pink, but paler than Miss Crawshay, and with a tendency to develope a second row of sepals. Prince Alfred of Edinburgh, a very attractive variety, selected by the Duchess of Edinburgh; it had delicate mauve flowers, with a paler bar becoming white, and was very free-blooming and showy. Mrs. George Jackman, a large, broad-sepaled white, of great beauty and excellence. Early Purple, a plum colour changing to purple, the sepals flushed with the two colours, after the style of Sir Garnet Wolseley; it is likely to be extremely useful as an early-blooming, dark-coloured variety of this section. Lord Derby, which was in flower at the opening, lasted almost throughout the whole period, and proved one of the most free-blooming and attractive sorts of this section.

Several fine novelties of the lanuginosa set were added during the later days of the show, and among them the following:—Princess of Wales, with very broad sepals, which are slightly recurved, giving the flower a distinct outline. In this and several other varieties of the same cross the sepals are so broad that the four inner ones meet, so as to produce of themselves a close flower. The colour in this case is a deep, smooth-looking satiny mauve, and the whole character of the plant is regal. Mrs. Hope is another eight-sepaled satiny mauve, but paler in colour than the foregoing. Blue Gem is a third, with the same general character and refined appearance, the colour being a distinct but delicate shade of mauve. William Kennett, a variety of the same section, is very showy, and similar to the foregoing in colour, but by comparison is coarse and rough. Robert Hanbury, on the other hand, is a fine full and rather concave flower, but of a smooth texture, and a bluish shade of mauve. J. P. Gassiott is of a pale shade of mauve, with rich purple bar, sepals 6—8 in number, and very broad. One of the finest of the novelties, however, was alba magna, of which we give a woodcut representation (fig. 140). This has the leaves either simple and cordate or ternate with ovate leaflets, and woolly; and six to eight-sepaled flowers, the sepals being exceptionally broad, fully 3 inches across, roundish ovate in outline, apiculate, necessarily very much overlapped; the flowers are quite 8 inches across, and of a pure white, without a dash of the purple tint which so often soils the purity of these white flowers; the anthers are purplish brown, and the buds woolly and erect. It appears to us to be the finest of all the whites yet raised, and the most perfect flower, as regards shape, which has yet been obtained.

The Scotch varieties, Lawsoniana and Symeana, were blooming, but we were greatly disappointed in the latter, the flowers, though large, being composed of elongate elliptic sepals, which very slightly overlap and do not therefore form a well-filled flower. As now shown, Duke of Richmond appeared to be of the same type; indeed, being rather paled by the forcing process, its flowers were exceedingly near to it both in shape and colour. Doubtless they would all come better under more natural conditions of growth. The Duchess of Teck, which belongs to this same group of lanuginosa, is a remarkably fine white, with very broad overlapping sepals, and must share with alba magna the precedence amongst the whites of this group; it is very fine in colour, with a fine satiny surface, and of superb form.

In regard to form two comparatively small flowered sorts of the lanuginosa group, named after two Japanese visitors to England, Morikati Oké and Samuel Moulson, are the most perfect we have met with—indeed they are in this respect models; their flowers are about 4½ inches across, and they have eight somewhat concave sepals, and these fit together so closely and perfectly as to leave nothing to be desired in this respect. They are of different shades of lilac, and are very free-flowering.

One thing has been clearly shown by this exhibition, and that is, that the late summer blooming sorts of the Jackmanni and Viticella sections, are spoiled by such an amount of forcing as is required to induce them to bloom in May. Hence the plants of the varieties of these groups were not exhibited in their true character, and without this caution as to the cause they might lose favour in the public estimation. They are not, however, surpassed as outdoor plants, in their proper season, and at that time the varieties which have afforded this novel display will be out of flower and resting for another spring. Hence, as the colours of the early varieties runs rather upon mauves and lilacs and whites, all charming but delicate tints, the value of such dark plum-coloured early-flowering sorts as Sir Garnet Wolseley, Early Purple, W. E. Essington, and one or two others to grow in contrast with the paler coloured sorts.

We may dismiss Mr. Jackman's Clematis exhibition with the assurance that it has been not only a novel sight, captivating to the eyes of the thousands who have witnessed it, but that it has also been of so high an order of cultural merit that one might justly sing peans in its praise. *T. M.*

THE ROYAL HORTICULTURAL SOCIETY.

I SHALL be much obliged if you will allow me to state, with reference to the remarks which fell from Mr. Kellock at the meeting of the Royal Horticultural Society (to the effect that it was bad taste on my part to attack the Council), that my resignation avowedly proceeds from a difference of opinion as to the proper manner of directing the Society's affairs. I am, therefore, bound to express that difference of opinion. I particularly requested the Council to place my resignation on the agenda for Tuesday's meeting, but they declined to do so, and I was much surprised at the announcement of it by the President—an announcement wholly irregular, as it was not on business for which the meeting was summoned. It was made probably for some reason not stated. I have avoided bringing personal matters before the Fellows, but I think it right to say, in answer to Mr. Kellock, that I conceive want of good taste to lie elsewhere than in me, and if any Fellow care to examine so worthless a question, I shall be happy to show him the correspondence. With regard to my reference to a provincial show, and the flat contradiction with which Mr. Kellock met me, I beg to say that before leaving office I had put matters in train for a show this year in the Winter Garden at Southport. A meeting of directors had been summoned to consider it, and a very strong feeling existed in favour of the show. The place is admirable, the gardens fashionable, and the finest aquarium in England would have been added to the attractions. But after my resignation the Council postponed the whole plan, on the ground of "want of time," which in my opinion meant "want of energy." In conclusion, I have to say that I am so far wrong with regard to the debt that one item has been compounded for a less sum than was due, but, inasmuch as for the last two years the expenditure has been greater than the receipts, it is impossible by any twisting of figures to prove any reduction of debt during that period. *W. A. Lindsay*, 17, *Cromwell Road, South Kensington, May* 26.

—— The Parthian arrow discharged by the President of the Royal Horticultural Society at the meeting on Tuesday, took the Fellows by surprise. They could not very well realise the idea that they had put in the hands of the Council the power to terminate their existence at their absolute will, or that the Council could so abuse the power entrusted to them as, without authority or consultation with the Society, to snuff it out by a fiat of bankruptcy. They could not make out what it meant. Was it an act of spite? Were they saying—

> "Why should we not, had we the heart to do it,
> Like to the Egyptian thief at point of death,
> Kill what we love—a savage jealousy
> That sometimes savours nobly"?

Or was it a piece of deep diplomacy, a sort of *brutum fulmen* to frighten the Commissioners, like the boy in *Punch* who exclaims, "Now then, granny, I've eaten the plums, and if you don't give me sixpence I'll swallow the stones"?

It is clear that if the explanation given by the President be the sole and the true one, it is a melancholy confession of incompetence on the part of the Council. Their estimates for the year are only three months old; none of the serious expenses of the year have been incurred—no disappointment in their anticipated receipts has been experienced—and already they are beaten to a standstill. No new light has come upon them. If a storm be coming on, they knew it as well twelve months ago as now, and, knowing it, should have made preparations to meet it. In such a plight a man in ordinary business would have seen his creditors, ascertained who would not wait and who would agree to be postponed—would have applied to his friends and relations for help, and would not have thrown up the sponge until he had done his best and failed. Our Council have taken no such pains. They do not seem to care whether we live or die. They seem quite prepared to put the world aside, and talk of going through the Insolvent Court with as much indifference as if it were a Saturday's promenade. It is, indeed, only what might be expected from a new Council that has no heart in the interests of the Society, and no feeling for its aims or traditions. What a contrast with the old Councils! On such an emergency then every member that could afford it put his hand in his pocket and lent material help. If I recollect rightly, when I joined I found that four members had so contributed a loan of £300 each. They had their hearts in the prosperity of the Society, and were not afraid of a little responsibility. But our present Council have no such feelings. How should they? They have not had time to acquire them. They are, however, distinguished by a plentiful lack of courage. They would not try a provincial show because they had no guarantee. The Council they displaced did not shrink from that responsibility when they started these shows. They ran the risk personally for the first year, and then found no difficulty in getting guarantees. Our new men start at shadows, and on the first scratch fancy they are stabbed to the heart, and order the undertaker. But oh! if they were determined to die, could they not have died decently—could they not have covered the face of this grand old Society with their mantle? Was there no place to die upon but the dirty floor of a County Court? Why did they not defend us from so great a shame?

The apologies for the infliction of this ignominy are most flimsy, and transparently unsound. The treasurer tells us that he would rather cut off his right hand than sign a cheque for the debts sued for, as that would be giving a preference. Passing the fact that giving a preference only means incurring the risk of having to repay the preferred payment out of his own pocket—passing that, I should like to know, if paying these debts be creating a preference, what he has been doing but creating preferences ever since he entered on the office of treasurer? His colleagues maintained to us on Tuesday, and he did not correct or dispute the statement, that the Society was in no worse financial position now than when the present Council took office. If so, why is it creating a preference to pay prize money in 1875, when it was not so in 1873 or 1874. The truth is that the statement made was erroneous. It is only in a Pickwickian sense that the financial position is unchanged, and the only apology for suspending payment, in order to avoid giving preferences, is the fact that the

* *D. rhodopteryginm*, n. sp.—Omnino affine D. Parishii. Pseudobulbis erectis elongatis gracilioribus; sepalis ligulato-triangulis, tepalis cuneato-oblongis acutis; labello oblongo antice retusiusculo lato; limbo antico velutino; disco non puberulo, sed minutissime asperulo; callo baseos bisulcato: mento obtusangulo.—Moulmein, Boxall, Colonel Low.

† *Oncidium dactylopterum*, H. G. Rchb. f. — Pseudobulbis pyriformibus bene attenuatis rugosis, monophyllis seu diphyllis; foliis lineari-lanceis acuminatis bene coriaceis; panicula pauciflora, heterantha; sepalis tepalisque paulo latioribus oblongo-lanceis acutis; labello basi utrinque minute obtusangulo, auriculis baseos obtusangulis dilatatis, isthmo angusto, lacinia antica reniformi paulo angustiori, carinis quaterniis in basi; papulis geminis antepositis; columnæ alis bifidis, lacinia utraque bis seu tricrenata, tabulæ infrastigmaticæ alis papyraceis; rostello rostrato.—Flores flavi brunneo guttulati.—Militat inter Basilata Heteroptera. Ab omnibus alis columnæ fissis recedit. Ocaña.

Fig. 140.—Clematis alba magna, nat. size, colour pure white (see p. 684).

financial position is much worse. But then it is no worse now than it was at the beginning of this year, and surely some payments have been made since then — nay, we learn from the Council's report that an old debt of twenty years' existence had been compromised, and £600 paid out of last year's receipts, thus giving it a preference over the poor exhibitors who had helped to raise the means by which this payment was made; and the Council actually plumed themselves on having settled this debt, and cast an implied reflection on the old Councils for having ignored it (as they had good reason to do, at least until every one else was paid); and now they are of such *strictissimi juris* that the treasurer flourishes about cutting off his right hand rather than sign a cheque giving payment to the exhibitors, who have been prevented receiving their prize money by his application (or, as they will call it, his misapplication) of the funds, which by rights should have gone to pay them. Be these thy men of business, O Kensington!

I say nothing on the negotiations with the Commissioners, in deference to their delicate position and to the request of the President; I say nothing as to the means of extrication from our present position, which our Council alone fails to see or refuses to adopt; but I cannot keep silence on the unwarrantable attempt to hurry the Society to an act of *felo de se*, and the ignominious manner in which the act is attempted to be carried out. *Andrew Murray.*

PHALÆNOPSIS VARIATIONS.

It is somewhat remarkable that for many years our importations of Orchids were confined to certain type forms, which reappeared with very trifling variations, but that latterly the plants sent home by collectors have become considerably "mixed," and the variations are frequent and striking. Some two or three months since we saw at least half-a-dozen distinct forms, none of them referrible to any named kind, blooming, as part of one importation made by Mr. Bull, and of these the following are notes made at the time. As it is not desirable to apply even garden names to them, we notice them under numbers.

1. This has terete roots, and short oblong leaves, flushed with wine-red, most distinct on the younger leaves. The scape is spotted, reddish. Flowers medium-sized, white, compact in form; lip, with the stalk-like base, cross-barred with purple, the broad white incurved side lobes with two or three bold bars of red-purple extending for half an inch from behind the yellowish crest, which is marked with tawny red spots; the two contiguous edges of the front and side lobes slightly tingedwith yellow, the front lobe itself terminating in long curled cirri.

2. The roots compressed, but scarcely flattened, the leaves elongate oblong, purplish beneath when young. The scape purplish, spotted. Flowers large, the sepals and petals white, the lateral ones tinged with yellow; lip long stalked, mottled, with reddish purple behind the crests, the marking extending up the posterior side of the lateral lobes in streaks breaking up into spots, which are conspicuous; crest yellow, with tawny red spots; base of front lobe and anterior side of lateral lobes deeply flushed with yellow, the margins purplish in the sinus; front lobe cirrose.

3. The roots terete, the leaves oblong, green. The scape greenish, slightly mottled with red. Flowers large, pure white; lip long stalked, the crest yellow, dotted with red; the base transversely blotched with red-purple, running out behind the crest into one bar, and numerous dots of red-purple, the spotting of the crest continued in a short line down the base of the middle lobe, the two contiguous edges flushed with yellow, that of the front lobe with a red line at the edge; front lobe cirrose.

4. The roots terete, the leaves oblong, green, the young ones flushed with red. Flowers medium-sized, the base of the lateral sepals spotted, lip transversely blotched at the base, the marking extending laterally up the side lobes, a bold bifurcate band in front, and spotting behind of rich wine-purple; crest white, spotted with red; edges of lobes very slightly tinted with yellow, that of the front lobe red-edged; centre of the front lobe with an oblong patch of spots half an inch long, the point cirrose.

5. The roots compressed; the leaves large, oblong, green. Flowers large, the sepals and petals white, the lateral sepals slightly spotted on the anterior edge; lip cross-barred at the base, with one bold line, and behind this several boldish dots up the side lobes, the front edge and base of the middle lobe strongly tinted with yellow, the centre of the base of the latter slightly flushed with purple, the crest white spotted with red, the point of front lobe cirrose.

6. The roots flat, compressed; the leaves short, oblong, stained behind, even in age, with purple. Flowers small, the lateral sepals flushed with yellow, and spotted with wine-purple on the anterior side; lip cross-barred at the base, with four to five distinct lines running up the lateral lobes, and without dots, the front side yellow; front lobe yellow at base, with a flush of purple dots in centre and cirrose; crests taller, white with yellow tops spotted with red.

These all belong to the leucorrhoda type. The flowers of P. leucorrhoda itself, as compared with the foregoing, are smaller; while the markings on the lateral lobes are red, forming short lines. The crest is very yellow, and there is much yellow at the base of the front lobe, and on the contiguous edges of that and the lateral lobes. The lateral sepals are spotted, and the cirri shorter. The leaves are marked with transverse bands, and the roots are flat. The flowers of P. leucorrhoda grandiflora are more open and more distinctly marked at the base of the front lobe, where there are red dots; the lateral markings are lines of short bars, and the cirrhi are longer and finer at the points. *M.*

THE TULIP.

WE gather the following interesting details relating to the history of the Tulip from a biographical sketch of Ogier-Ghislain de Busbecq, published by M. Ed. Morren in the last number of *La Belgique Horticole*:—

After having stopped at Adrianople for a day we went on towards Constantinople, which was our destination. It was near these places that we saw great quantities of flowers—Narcissi, Hyacinths, and those which the Turks call Tulipan. It was with great pleasure that we saw these flowers in the middle of the season so injurious to them. Greece abounds in Narcissi and Hyacinths, which have an agreeable odour, but, when a great many flowers are together, this is apt to give one a headache. Tulipans have very little scent, if any, but these plants have instead great variety and diversity of colour. The Turks cultivate them largely, and, although not very lavish, they sometimes go to great expense to get beautiful ones.* De l'Ecluse and de Busbecq met at Vienna, where they stopped together. The identity of nation and of tastes brought the two men together, and the friendship soon ripened into intimacy. Many points of resemblance may be discovered between them. Charles de l'Ecluse treats of the Tulip in the 8th chapter of the second volume of his *Rariorum Plantarum Historia*. At the end of this chapter he explains himself thus:—"Before ending this chapter, I think I ought to add what I have myself observed of the Tulips grown from seeds sent from Constantinople. Augier de Busbecque had received some with certain other bulbous plants the same year that I came to Vienna (1573), and having to go to France the following year he left them with me. These seeds were old and withered, and little thinking they would grow, I planted them in 1575 and 1576. A great number came up, and had in the following years flowers remarkable for their diversity of colour. I was thus able to obtain yellow, red, white, and purple Tulips, or sometimes these colours were combined; that is to say, variegated with yellow, red, white, or purple. The greater part were of the species called præcox (T. præcox), but on examining them more closely I found some that may be referred to the late-flowering species (T. serotina)."†

The preceding documents do not positively ascribe the discovery of the Tulip and its introduction into European gardens to Busbecq. We might suppose that this culture dates from the beginning of the sixteenth century, but, however, this is not so. It was while Busbecq was collecting plants at Constantinople, and sending them to his friends in the west that Tulips made their appearance in European gardens and in botanical works. Thus no mention is made of them in any book before 1561; for example, in the first works of Dodoens, or in *l'Histoire des Plantes*, translated by Charles de l'Ecluse, in 1557, even though Lilies, Hyacinths, Narcissi, and other bulbous plants are there spoken of.

The first description of the Tulip is given by Conrad Gesner, in a memoir published in 1561.† Gesner had seen it in bloom in April, 1559, at Augsburg, in the garden belonging to Jean-Henri Herwart, who told him he had received the seeds from Byzantium. Gesner says no more, but when we remember that Busbecq was then in Constantinople, that he had been struck with the beauty of the Tulips, and that he had sent some plants and seeds to Austria, it may reasonably be supposed that the Tulips which bloomed in the garden of the citizen of Augsburg in 1559 were of Busbecq's discovery. But the discovery of this flower was like that of America: the name of Americus Vespucius was given to the new world just as Linnæus has given the name of Gesner's Tulip (Tulipa Gesneriana) to Busbecq's flower. Gesner introduced it to science; he praised the beauty of the flower, and gave an engraved representation of the plant; but we see in reading the description and looking at the engraving that the Tulip was scarcely known then. The engraving is coarse and faulty, the description is full of uncertainties and inaccuracies; he had not seen the root, and was not quite certain whether it was bulbous or not.

The Tulip spread rapidly, and was soon figured in all the botanical books which, by the way, at that time appeared in great numbers. We see it, for example, in the *Florum et Coronarium Historia de Dodonæus* (Anvers, 1568), p. 197, and is generally mentioned in all the works of the second half of the sixteenth century. Clusius brought out in 1576, while living in Vienna, his *History of Spanish Plants—Rariorum aliquot stirpium per Hispanias observatorum Historia*—printed at Antwerp by Christopher Plantin. In an appendix printed at the end of this celebrated work he treats of some strange and elegant plants which come from the east, especially from Roumelia, and which are chiefly bulbous plants, Anemones and Ranunculus; at the head of them is found the Tulip, well-figured and exactly described for the first time. Clusius there (p. 514) relates a pleasing anecdote, which shows how the Tulip was introduced into the Netherlands. "It is doubtful," he says, "whether we know the name by which it was known to the ancients. However, some *savants* think that it is better to refer it to the Satyrion of Dioscorides, which is designated also under the name Trifilon, and it is certain that the description agrees upon certain points. As to knowing if it is gifted with the same properties as Satyrion, I do not know if any one has proved it by experience. Some years ago a merchant of Antwerp was able to pronounce an opinion upon the cause. He had received from one of his friends in Constantinople some bales of cotton amongst which was a great number of Tulip bulbs, and thinking they were Onions he had some cooked for supper in the ordinary way with oil and vinegar. He had the rest planted in the garden amongst Cabbages and other vegetables, where if neglected they would soon all have perished if a Malines merchant, Van Rye, a lover of botany, had not saved a certain number; by his care and knowledge he soon obtained admirable flowers of the most beautiful variety."

Clusius reproduced the same account in his *Histoire Générale des Plantes de* 1601 (p. 150), but fixed better the date of the introduction of Tulips into the Netherlands, which took place in 1571, and gave a detailed account of this species and of its varieties.

The comparison of the succeeding editions of the *Commentaries* of Matthioli is instructive on account of the history of the Tulip. We will look at the 155th chapter of the 4th book, which treats of Narcissi. Now, in the edition of 1554, mention is only made in that chapter of Narcissi and Snowdrops; in the edition of 1565 (p. 1244) we see under the name of Narcissus v. a coarse figure of the Tulip, incorrect as to foliage, and we find nothing in the text about the subject of the picture. It is evident that but little was known of the Tulip at this time. In the large edition of 1598, published by C. Gesner, with the complete works of Matthioli, we find at last a good figure of the Tulip with the fruit and seed, and in the text (p. 859) the particulars concerning this Narcissus v.

The Narcissus v. of Matthiole and of the florist of Lyons is the Tulip, of which there are several sorts known by the colour of the flower, but which can be divided into three principal groups, one for the spring-flowering species, the other for the late-flowering species, and the third for those doubtful ones which flourish in the interval; forty-seven species are thus classed by de l'Ecluse. The most common are yellow, white, or purple. We still to this day receive them from Constantinople—the spring-flowering ones under the name of Café lalé, and the late-flowering ones under that of Cavala lalé, from the localities from whence they were first introduced into Constantinople. Thus lalé signifies flower; Caffa is a town on the Taurida peninsula, between the sea of Marmora and the Black Sea; Cavalla is a maritime town of Macedonia. As to the name of Tulip, it is taken from the resemblance of the flowers to the Dalmatian bonnets or turbans which these people are in the habit of wearing on their heads. Some give it to the Anemone Limonia of Theophrastus, others to the Crinorrhoden of Pliny, and some to the Satyrium erythracium; it seems, however, to be like the *σατύριον* of Theophrastus. It is called Tulipa Turcarum by C. Gesner (*de Hortis*, 1561), and Tulipa by Clusius, Lonicer (1569), Durand (1585), &c.

The Tulip was introduced into England in 1577 by James Garnet, and into France by Peiresc, who cultivated it in 1610 at Aix, having received it from Tournay.

The taste for Tulips has increased, and their bulbs have become an article of commerce: it was carried to a ridiculous extent when the Tulip was the object of a celebrated memoir, and the Tulip mania reached its apogee in Holland from 1634 to 1637. Tulip cultivation in Haarlem does not date further back than this.

TRANSFORMATION OF CEREALS.

"AN enemy hath done this," was the ready reply of the master in the striking parable of the Tares and the Wheat. Good Wheat had been sown, and lo!—Tares had sprung up! It is in no irreverent spirit that we apply the above to a controversy at present waged over an alleged transmutation of Oats into Wheat. Singularly enough the Tare element is not entirely wanting, for "South Norfolk" informs us [*Agricultural Gazette*, p. 622] that it was in a field of Tares that he grew Rye produced from Barley. Had some of our leading agriculturists been practising their art in the locality where, and at the time when, the discovery was made that Wheat had "turned to Tares," they would doubtless with commendable consistency have refused to believe in the work of the "enemy," and would have procured and continued to grow their "Wheat-Tares" or "Tare-Wheat" just as they now grow their "Oat-Wheat." Surely credulity has no bounds, or here it would find them. The law of reproduction is that "like begets like," a law long since laid down in the statement that the earth brought forth grass, herb, and beast, each "after its kind." Men who turn with horror from the thought that man himself may by process of long cycles have been evolved out of a lower form of being—out of some lower animal form—are content to believe that Nature should be no more true to herself than at once to change Oats into Wheat. But why into Wheat? Why not into something betwixt and between? Is it Nursery, Talavera, Chiddim, Rough Chaff, or what sort of Wheat? Is it a new variety, and if so, a fixed one?—or is it a reproduction of some extinct simple form, which might possibly be viewed as a primordial type, from which both Wheat and Oats came? Surely it is too absurd to believe that Nature in a sportive mood would give us a Wheat quite like other Wheats,

* *A. G. Busbequii omnia quæ extant*, 1633, p. 47: translation by Ch. Morren in *Hist. des Tulipes*, &c., 1842, p. 9. The translation by De Foy, Paris, 1748, t. i., p. 73, is faulty and fanciful.

† *C. Clusii Rar. Pl. Hist.* 1601, pp. 142-143.

† *Valerii Cordi Simesusii, Annotationes, &c.* C. Gesner collecta, 1561, p. 213.

rather than a compromise between Oats, Wheat, and Barley, all perhaps supported on a Bean stalk. This we could understand. We have at this moment a field of Tares, in which Oats were sown, as is customary, and we can vouch for the fact that the Vetches have grown up mixed with Wheat. The explanation is not difficult, and is not worth making.

Those agriculturists who believe that Oats will turn into Wheat, should know that they have given their opinion on a subject which would require proof far stronger than they are prepared to give. Have they considered Pasteur's rigidly conducted experiments, after all open to doubt, as to the possibility of spontaneous generation even in the case of the lowest forms of life? They proclaim an absurdity which they have taken no pains to prove; for what proofs of such a momentous fact are the statements of a dozen men "whose words are truth." They were very probably not competent to carry out the requisite isolation of external interruptions, the sifting of the soil, the protection from birds, and likewise from the practical joker, who of all birds would most keenly enjoy securing the success of the experiment. Agriculturists appear to be particularly liable to such hallucinations. It is not long since one sent us a box of "lop" (Bromus mollis) with a letter gravely assuring us that the best seed Oats had been sown, and that the mysterious plant, the name and nature of which were evidently unknown to the sender, had come up instead.

At the present moment there is a field, within 2 miles of us, bearing a full crop of this same "lop," while probably the farmer who occupies it is confident that he sowed the very best Italian Rye-grass. In the North of England we have heard farmers contend that Rye-grass and bent "turned to couch," and it is a matter of belief with many most intelligent farmers that weeds grow out of the soil without the intervention of seeds. We have ourselves seen large fishes the size of ordinary perch in newly-formed ponds into which they had never been introduced by man, and yet it never struck us that they had developed spontaneously. The fact of their presence simply proved that they had been brought, but whether by waterspout, reptiles, or birds was a matter of secondary importance. So if Wheat appears either after Oats or before them, it is a proof positive that a Wheat seed had been deposited there. If we come to any other conclusion we had better resign ourselves to magic, spiritualism, and table-turning; but while we maintain our respect and belief for science, we must refuse credence to such improbable absurdities as the transformation of Oats into Wheat. *Agricultural Gazette.*

THE GENUS CEANOTHUS.

[We subjoin a complete synopsis of all the species of Ceanothus, many of which are cultivated in British gardens. The synopsis was drawn up by Mr. Sereno Watson, and published in the *Proceedings* of the American Academy of Arts and Sciences.]

§ 1. EUCEANOTHUS.—Leaves all alternate, 3-nerved or pinnately veined, glandular-toothed or entire; fruit not crested.

* *Leaves 3-nerved from the base.*

+ Erect shrubs, the branches not rigidly divaricate nor spiny; inflorescence thyrsoid; leaves usually large, serrate except in (5).

a. Low (1—3 feet high); flowers white, or sometimes light blue in (5).

1. C. americanus, Linn. More or less villous-pubescent; leaves thin, ovate or oblong-ovate, $1\frac{1}{2}$—$2\frac{1}{2}$ inches long, on short petioles 2—6 lines long; peduncles elongated. From the Atlantic to Winnipeg Valley, Iowa and Texas.

2. C. ovatus, Bigel. Nearly glabrous or pubescent; leaves narrowly oval or elliptic-lanceolate, 1—2 inches long; peduncles usually short; otherwise like the last, into which it seems to pass. Range the same.

3. C. sanguineus, Pursh. (C. Oreganus, Nutt.) Becoming glabrous or nearly so; leaves thin, ovate, 1—4 inches long, on slender petioles 6—15 lines long; peduncles very short; older branches reddish. From North-western Montana to Washington Territory.

4. C. velutinus, Dougl. Stout, usually glabrous; leaves coriaceous, broadly ovate or elliptical, $1\frac{1}{2}$—3 inches long, resinous and shining above, sometimes velvety beneath, glandular serrulate; petioles stout, 6 lines long; peduncles usually short. Abundant in the mountains from Colorado to the Columbia and Northern California.

5. C. integerrimus, Hook. and Arn. Glabrous or soon becoming so, rarely pubescent; branches terete, usually warty; leaves thin, bright green, ovate to ovate-oblong, 1—3 inches long, entire or very rarely slightly glandular-serrulate, on slender petioles 2—6 lines long; thyrse often large and open, terminating the slender branches, or axillary and rather shortly peduncled, mostly white-flowered. Frequent in the mountains from Central California to the Columbia River. This will include C. californicus and nevadensis of Kellogg.

Var. ? parviflorus. Of very slender habit, wholly glabrous; leaves much smaller, about $\frac{1}{2}$ inch long, short-petioled; flowers light blue, in rather short simple racemes. In the Sierra Nevada from the Yosemite Valley northward.

b. Tall shrubs or small trees, 6—15 feet high; flowers bright blue; leaves oblong to oblong-ovate, rather thick.

6. C. thyrsiflorus, Esch. Subglabrous; branches strongly angled; leaves usually smooth and shining above, canescent beneath, glandular-serrulate, 1—$1\frac{1}{2}$ inch long; flowers in dense subcompound racemes, terminating the usually elongated and somewhat leafy peduncles. In the Coast Range, California, from Monterey to Humboldt County, and popularly known as the California Lilac.

Var. ? macrothyrsus, Torrey in *Bot. Wilkes' Explor. Exped.* 263. This is described as having terete branches; leaves 1—$2\frac{1}{2}$ inches long, greyish tomentose underneath and somewhat silky-villous on the prominent veins, entire, on petioles 3—5 lines long; flowers in elongated, interrupted somewhat leafy panicles. It was found on the banks of the Umpqua, Oregon, and is probably distinct.

7. C. azureus, Desf. Pubescent; leaves densely rusty-tomentose beneath, smoothish above, 1—$2\frac{1}{2}$ inches long; thyrse more open. Mountains of Mexico from Tepic to Guatemala.

+ + Low, the branches not rigidly divaricate nor spiny; flowers in short simple racemes or pedunculate clusters; leaves small.

a. Eastern species; flowers white.

8. C. microphyllus, Michx. Erect, nearly glabrous; branches numerous, slender, leafy, yellowish; leaves thick, very small, 1—2 lines long, fascicled, oblong-elliptic to obovate, entire or sparingly toothed, on very short petioles; flowers in small terminal clusters. Pine forests of Georgia and Florida.

9. C. serpyllifolius, Nutt. Decumbent, glabrate; branches slender, brownish; leaves less rigid and not fascicled, 3—6 lines long, oblong, serrulate, somewhat hairy beneath; flowers in small clusters on slender axillary peduncles. Southern Georgia.

b. Western species; flowers blue.

10. C. dentatus, Nutt. Erect, hirsutely pubescent, rarely nearly glabrous; leaves $\frac{3}{4}$—1 inch long, usually small and fascicled, obovate to oblong-elliptic or lanceolate, acute at both ends or obtuse at the apex, glandular-serrate, the margin becoming strongly undulate or revolute; flowers in small roundish clusters, on naked terminal peduncles about an inch long; fruit resinously coated and somewhat triangular, the valves being obscurely costate. On dry hills in the Coast Range.

11. C. decumbens. Slender, trailing, hirsutely pubescent with spreading hairs; leaves rather thin, flat, $\frac{1}{2}$—$1\frac{1}{2}$ inch long, elliptic-oblong, somewhat cuneate at base, obtuse or acutish, glandular-serrate, the greenish glands usually stipitate; flowers in short dense shortly pedunculate racemes, about $\frac{1}{2}$ inch long or less. Frequent in the mountains of Central California, from the Mariposa Grove northward.

+ + + Erect shrubs, the branches usually rigid, divaricate, or spinose; flowers in simple racemes or clusters; leaves rather small.

a. Rarely or never spinose; leaves glandularly serrulate; flowers mostly blue, racemose.

12. C. hirsutus, Nutt. (C. oliganthus, Nutt.) Silky-pubescent with soft subappressed or spreading hairs, or sometimes hirsute, the branches rather rigid and said to be sometimes spinose; leaves ovate to oblong-ovate, usually subcordate or rounded at base and acute at apex, $\frac{1}{4}$—$1\frac{1}{2}$ inch long, not smooth above; flowers blue, in simple axillary and terminal racemes 1—3 inches long, or rarely thyrsoid; fruit unknown. Dry hills about Santa Barbara and in the Santa Susanna mountains.

Var. ? glaber. (C. sorediatus, var. glaber, Watson in King's *Rep.* 5, 51). Glabrous throughout or nearly so; leaves sometimes entire; flowers white. East Humboldt Mountains, Nevada.

13. C. sorediatus, Hook. Nearly glabrous, the inflorescence pubescent; leaves smooth above, more or less tomentose beneath or rarely nearly glabrous, silky on the veins, oblong-ovate, $\frac{1}{2}$—$1\frac{1}{2}$ inch long, subcordate or rounded or often acutish at base, acute or obtuse at the apex; flowers blue, in shortly peduncled simple racemes, $\frac{1}{2}$—2 inches long; fruit unknown. From San Diego to the Sacramento.

b. Branches mostly spinose, greyish; leaves subcoriaceous, usually entire; flowers mostly white, racemose.

14. C. divaricatus, Nutt. Nearly glabrous; leaves oblong-ovate to ovate, $\frac{1}{2}$—$1\frac{1}{2}$ inch long, rounded at base, acute or obtuse above, not tomentose beneath; flowers light blue or white, in subsimple often elongated racemes 1—4 inches long. California, from San Diego northward.

15. C. incanus, Hook. Leaves hoary beneath, with a very minute tomentum, broadly ovate to elliptic, $\frac{3}{4}$—2 inches long, cuneate to cordate at base, acutish or obtuse at apex; flowers in short racemes; fruit over 2 lines in diameter, resinously warty. Santa Cruz to Lake County, California; "a large straggling shrub on the banks of creeks."

16. C. cordulatus, Kellogg, *Proc. Calif. Acad.* ii. 124, f. 39. Hirsutely pubescent, with short erect or spreading hairs; leaves oval-elliptic, $\frac{1}{2}$—$1\frac{1}{2}$ inch long, cuneate to subcordate at base, usually rounded and sometimes serrate at the apex, the serratures scarcely glandular; flowers in short simple racemes, an inch long or less; fruit smaller, not resinously dotted. In the Sierra Nevada, from the Yosemite Valley northward.

17. C. Fendleri, Gray. Silky pubescent; leaves narrowly oblong to elliptic, 4—12 lines long, usually small, somewhat narrowed and cuneate at base, obtuse or acute above; flowers in short terminal racemes. In the Rocky Mountains from Colorado to New Mexico.

c. Spinose; leaves serrate; flowers in small sessile clusters. Mexican.

18. C. buxifolius, Willd. Nearly glabrous, branches slender; leaves rather thin, elliptic, $\frac{1}{2}$ inch long or less, hairy on the veins beneath, sharply serrate; flowers in axillary clusters, the colour uncertain. Mountains of Central and North-western Mexico.

19. C. depressus, Benth. Stout and very rigid, tomentose; leaves thick, densely tomentose beneath, elliptical, $\frac{1}{4}$—$\frac{3}{4}$ inch long, mostly rounded at each end, glandular-serrulate; flowers in mostly terminal clusters; colour uncertain. Central Mexico.

** *Leaves pinnately veined.* (Forms of C. dentatus might be referred to this group.)

20. C. spinosus, Nutt. Becoming a small tree, 20—30 feet high, branchlets rigid and somewhat spiny, glabrous or nearly so; leaves subcoriaceous, entire, oblong, 9—15 lines long, obtuse or retuse, subcuneate at base, on slender petioles 2—4 lines long; flowers deep blue, in a thyrse or in simple racemes, very fragrant; fruit $2\frac{1}{2}$—3 lines in diameter, resinously coated. From Santa Barbara to Los Angeles.

21. C. papillosus, Torr and Gray. More or less subhispidly villous or tomentose, 4—6 feet high; leaves glandularly serrulate, the upper surface glandular-papillose, narrowly oblong, obtuse at each end, 1—2 inches long, on slender petioles; flowers blue, in close clusters or short racemes terminating slender naked peduncles; fruit $1\frac{1}{2}$ line broad, not resinous. Coast Range, from Monterey to San Francisco.

22. C. floribundus, Hook., *Bot. Mag.*, t. 4806. Pilose scabrous; leaves small, 3—4 lines long, oblong, acute, glandularly denticulate and undulate, shortly petioled; flowers blue, in dense globose clusters sessile at the ends of the short branchlets. Known only from the figure and description in the *Botanical Magazine;* raised from Californian seeds, and closely related to C. dentatus.

23. C. Veitchianus, Hook., *Bot. Mag.*, t. 5127. Glabrous nearly throughout; leaves thick, obovate-cuneate, rounded at the apex; glandular-serrate, smooth and shining above, minutely tomentose beneath between the veinlets, 6—9 lines long, on short stout petioles; flowers bright blue, in dense crowded clusters at the ends of the leafy branches. Likewise known only from figures and descriptions of specimens cultivated in gardens.

§ 2. CERASTES.—Leaves mostly opposite, 1-ribbed, with numerous straight parallel veins, very thick and coriaceous, spinosely toothed or entire; flowers in sessile or shortly pedunculate axillary clusters; fruit larger, with three horn-like or warty prominences below the summit. Rigidly branched or rarely spiny with small leaves; stipules mostly swollen and warty.

24. C. crassifolius, Torr. Erect, 4—12 feet high, the young branchlets white, with a villous tomentum; leaves ovate-oblong, $\frac{1}{2}$—1 inch long, obtuse or retuse, more or less tomentose beneath, rarely entire and revolutely margined, the petioles very thick; flowers light blue or white, in dense very shortly peduncled clusters. In the Coast Range from Mendocino County to San Diego.

25. C. cuneatus, Nutt. Erect, 3—12 feet high, less tomentose or nearly smooth; leaves cuneate-obovate or oblong, rounded or retuse above, on rather slender petioles, entire or very rarely few-toothed; flowers white or occasionally light blue, in rather loose clusters. From the Columbia River to Santa Barbara.

26. C. Greggii, Gray. Closely resembling the last, but more tomentose, and the leaves not cuneate at base; 5 feet high. From Northern Arizona to New Mexico and Northern Mexico.

27. C. rigidus, Nutt. Erect, 5 feet high, the branchlets tomentose; leaves 2—5 lines long, cuneate-oblong or usually very broadly obovate, often emarginate, few-toothed above, very shortly petioled; flowers bright blue, in sessile clusters. About Monterey and Oakland (?).

28. C. prostratus, Benth. Prostrate, nearly glabrous; leaves 3—12 lines long, obovate or usually oblong-cuneate, spinose usually only at the apex, on

short slender petioles; flowers bright blue, the clusters on stout peduncles. Frequent in the mountains from Humboldt County and the Upper Sacramento to Mariposa County.

THE HAWTHORN.

Mr. Selby in his *History of British Forest Trees* has apologised for the introduction of the Hawthorn or Whitethorn (Cratægus Oxyacantha) among them, on the ground of its being "so long accustomed to rank as a mere hedge plant;" and people in general no doubt associate the Hawthorn chiefly in its humble though useful capacity of forming quickset hedges. Yet, as Selby further remarks, in natural or wild situations he has known it to have "attained a timber like size;" and this must be the experience of all those who have wandered about waste woodland tracts or neglected declivities of hills, such as the sides or "bottoms" of the broken-backed Cotteswolds in Gloucestershire, the Monmouthshire hills, or in sequestered parks where the axe is seldom allowed to intrude, and where the Hawthorn, left to grow unmolested, entwines it thorny branches in an impervious labyrinth 40 to 50 feet high, and with a bole that is either of considerable size in itself or made up of a number of conjoined ones that separate in old age, and give the tree the aspect of a little grove.

An association of Hawthorn bushes, as generally called, on a hill-side just beyond the limits of cultivation, as may be seen in many parts of the midland counties, is an exhilarating sight in the month of June, and proclaims that our fickle summer has fairly set in, and haymaking is drawing nigh. "The milk-white Thorn that scents the evening gale," as Burns has depicted it, is then as beautiful a sight as the country can produce, and may well call up poetical ideas and remembrances of the search for the flowering Hawthorn on May Day, its flowering at that time giving it the name of the month in which it first appears. An old Thorn is by no means an unsightly object in a park, its dense bushy umbrage contrasting with other trees of greater height; but its natural position is on hilly declivities, where it spreads a dense array of thorny branches in accordant companionship with the prickly golden Gorse, equally fond of the sides of hills. When allowed to grow in a congenial soil and favourable position, the Hawthorn will as a tree attain a considerable height, and I have depicted one at Lenchford, near Shrawley, Worcestershire, not far from the river Severn, which had been favoured with a protective mound around its base, and whose topmost branches reached 60 feet from the ground. It measured 9 feet in girth, and, like many other old Thorns, had many tufts of Mistleto nestled among its boughs (see fig. 141).

Gilpin in his *Forest Scenery* speaks unfavourably of the Hawthorn as having "little claim to picturesque beauty," and even thinks its bloom, which is so attractive, "spread over it in too much profusion." But Sir T. Dick Lauder in commenting on Gilpin's remarks, objects to his ideas, and having, as he says, seen many fine Hawthorns, he designates it as a "beautiful tree." It progresses into the far North with undiminished charms; for Mr. Selby says:—"In this northern district it is one of the greatest accessories to the beauty and scenery of our denes and deep ravines, and few that are at all wooded but owe a great portion of their interest to the presence of this tree." It must be acknowledged that a young Hawthorn is too slim in figure and scant of foliage to be an object of beauty except in its flowering state, and it is only when it survives to old age that it attains a remarkable and even imposing aspect, more especially when its bole divides, as age comes on, into separate columns, as represented in the sketch of an aged Hawthorn in the grounds at Garnstone, Herefordshire (see fig. 142), which measures 11 feet round the separated stems. Mr. Jesse has remarked this of the old Thorns in Bushey Park, and says of them:—"As they increase in age they have the property of separating themselves into different stems, some having four or five, or even six, which as they separate become regularly barked round, forming to appearance so many distinct trees close planted together." This I have frequently remarked in old Hawthorns, and I have noted an instance in Bushley Park, Worcestershire, in which the original bole had split up into eleven divergent stems. This aspect denotes great age, and Mr. Jesse considers the Bushey Park Thorns to have been in existence more than two centuries ago. This division, however, does not always occur, as in some cases the bole, though divided into sections, still keeps conjoined, as in an old memorial Hawthorn standing at Upper Wyck, near Worcester, and which I have been told is mentioned as an old boundary Thorn in writings appertaining to the estate on which it grows more than two centuries ago. It is 10 feet in girth round the conjoined boles, and is still a vigorous tree (see fig. 143).

Fig. 141.—Very tall hawthorn, with mistleto, Lenchford, Worcestershire (9 ft. girth: about 60 ft. high).

But if an old Hawthorn becomes hollow in its decrepitude, it does not divide into subsidiary boles, but declines towards the ground from the weight of its numerous entangled branches, and then presents a picturesque aspect, as in an old Thorn that I have noticed growing on Apley Terrace, a romantic height on the side of the Severn above Bridgnorth, Shropshire. This hollow Thorn is 8 feet in girth at a yard from the ground, and its branches spread 30 feet from the base of the tree (see fig. 145). When drawn up and growing too lofty and thin the Hawthorn, if unable to support itself against equinoctial gales, is upset, as in an individual now lying prostrate, yet alive, being not quite uprooted, in Downton Park, Herefordshire, evidently of considerable antiquity, as shown by its decayed bole. As laid down it proves to have been over 50 feet in height (see fig. 146). Even thus overthrown it maintains a precarious existence, though its foliage is but scanty, and recalls to mind—

"Yon reverend Hawthorns harden'd to the rod
Of winter storms,"

alluded to by Wordsworth.

Occasionally old Thorns are to be met with that have become so hoary, distorted, and thorny, their branches stunted from an unfavourable position in the shade, that though alive, the functions of vitality are almost in abeyance, and only a scanty foliage is produced, without either flowers or fruit. Such a scathed hoary veteran I have observed in Richmond Park, the very semblance of blasted desolation. How old such a tree may be it is difficult to say (see fig. 144). Wordsworth has well described such an old decrepid Thorn located on the mountains of Cumberland:—

"There is a Thorn—it looks so old,
In truth you'd find it hard to say
How it could ever have been young,
It looks so old and gray.
* * * * *
It stands erect this aged Thorn,
No leaves it has but prickly points,
It is a mass of knotted joints,
A wretched thing forlorn:
It stands erect, and like a stone
With lichens it is overgrown."

The Hawthorn varies much in its growth and increase of size, according to situation and the soil in which it grows. Mr. Selby mentions a Hawthorn planted in 1708, and now therefore 166 years old, that a few years since measured round its trunk 8 feet, and the diameter of the circle overspread by the branches was nearly 50 feet. But, on the other hand, Hawthorns growing on the side of the Malvern Hills, some of which were cut down, and which I examined

Fig. 142.—Old many-boled hawthorn, Garnstone, Herefordshire; 11 ft. in girth. (Engraved on hawthorn wood.)

Fig. 143.—Old hawthorn, Wyck, near Worcester (10 ft. girth).

at the time, showed more than 300 rings of annual growth, though their holes scarcely exceeded a foot in diameter. However quick it may grow at first, there can be no doubt that the Hawthorn increases very slowly in age, and being thus a long-enduring tree may exist many centuries, though certain proof as to an old Hawthorn being extant at some particular time in past years, and then remarked as standing, and noted, seems to be wanting. Evelyn has regretted that reliable notices of trees in particular places were not made in olden times, "that the ages to come may have both the satisfaction and encouragement by more accurate and certain calculations." This is now better attended to.

The largest and oldest Hawthorn in England of which there is any record appears to be the Hethel Thorn in Norfolk, which stands in a field adjoining Hethel Church, the property of Hudson Gurney, Esq., and of which Mr. Grigor, in his *Eastern Arboretum*, says:—"In looking upon it one would suppose it had been here for thousands of years; and, indeed, if the common tradition of the place is to be relied upon, it must be acknowledged to be in a high degree patriarchal." He gives its dimensions at 1 foot from the base of the trunk as 12 feet 1 inch in circumference, and (as it swells out) at 5 feet high it is 14 feet 3 inches, and the space over which the branches spread is 31 yards. "Its trunk is reduced to a mere shell, and, though somewhat divided, it has none of that shattered appearance which we sometimes observe in the Oak. The branches at the top form a thick grotesque mass, most curiously interwoven. It is covered all over with lichens, and crowned with Mistleto, adding still more to the effect which age confers upon such objects." Mr. Grigor was told by the owner of the land on which the Hethel Thorn is located, that the late Sir Thomas Beevar asserted that he was in possession of a deed bearing date early in the thirteenth century, in which this old Thorn is referred to as a boundary tree. Though the deed itself may not be now accessible, yet from the endurance and vitality of old Hawthorns it may well be believed that trees of this character and aspect, and known as old Thorns to those who have lived in the vicinity from infancy, have existed, at a fair calculation, from 700 to 800 years.

It may be noteworthy, to use the phraseology of the day, that the Hawthorn more than any other British tree has been represented by poets as the trysting place of lovers. Herrick calls upon his Corinna to come to a bower "made up of Whitethorn neatly interwoven." Goldsmith, too, in the adjuncts of his *Deserted Village*, tells of—

"The Hawthorn bush, with seats beneath the shade,
For talking age and whispering lovers made."

Burns, also, in his fervid words describes the bliss of a youthful, loving, happy pair, who—

"In other's arms breathe out the tender tale,
Beneath the milk-white Thorn that scents the ev'ning gale!"

Pollok, in his *Course of Time*, takes occasion to depict—

"A hermit Thorn, that on the rising hill
Had seen a hundred flowery ages pass.
This ancient Thorn had been the meeting-place
Of love."

Here a lover, on his return from abroad after long absence, "with glory crowned," finds his affianced beauty kneeling at "the sacred Thorn to memory dear," where he had parted from her. Both in the "good old times," as well as in modern days, the Whitethorn has always been associated with the month of May, and it thus became connected with May games; and to go "a-maying," to gather the flowering Hawthorn on May-day, was formerly an institution devoted to mirthful pleasantry and rural dancing round the May-pole. This, like many other ancient observances, has fallen into disuse, and, indeed, the alteration of the style in the middle of the last century, by taking eleven days from the Calendar, was unfavourable for the appearance of the Hawthorn flowers on the new May-day, so that it is not often now that "May" can be gathered on the May-day of the amended calendar.

I may here mention a rustic superstition in connection with this tree, which bears the name of "the Speechless Hawthorn." The observance consists in a damsel gathering a flowering branch on some evening, and taking it to bed with her without speaking a word to any one, which would break the spell. The branch being thus taken to bed "speechless," the girl who has thus so managed is certain to see her future husband presented to her view in a dream; so I have been told by the initiated. Except as places for rustic resort and gathering May at the vernal time, old Thorns are not objects of much consideration in England; but Mr. Johns informed the author of *Forest Trees in Britain*, published by the Society for Promoting Christian Knowledge, that "old Thorns are numerous in Ireland, and are greatly venerated. They are sometimes found in fields in crop, but in ploughing care is taken not to approach the roots lest injury should be done. I have seen old Thorns near wells almost covered with garments, particularly in the South of Ireland." In ancient times Evelyn says that the Hawthorn "was accounted among the fortunate trees," but gives the curious reason that the Romans who forcibly carried off the Sabine women bore branches of Hawthorn in their hands. In memory of this it is said that the altar of Hymen was lighted with torches made of the wood of this tree, which also formed the flambeaux that lit up the nuptial chamber.

Fig. 144.—Old Stunted, Hoary, Scraggy Thorn, Richmond Park.

In connection with the Hawthorn the peculiarity attached to the Glastonbury, or "Holy Thorn," as commonly denominated, requires to be mentioned. It only differs from the ordinary form in producing a second crop of flowers, either about Christmas or early in the new year. The old legend was that Joseph of Arimathea, on his arrival in Britain to preach Christianity, on ascending Weary-all Hill, near Glastonbury, stuck his staff in the ground, which happened to be a Hawthorn stick, and it vegetated forthwith, thenceforth producing flowers on Christmas eve—the time at which it was planted. Abandoning the legend, the fact remains that on the said Weary-all Hill the monks of Glastonbury Abbey had a Hawthorn in their keeping which produced a second crop of flowers about Christmas-tide, and was declared to unfold them precisely at 12 o'clock on Christmas eve. The tree remained at the spot after the dissolution of monasteries, and, still flowering at Christmas, as before, branches of it were gathered at that time, and sent to various places for sale to the curious. But in the troubles of Charles I.'s time the original Glastonbury tree was cut down as superstitious. Various "Holy Thorns," however, yet exist in different parts of England, and it is said that all these are the result of grafts from the original Glastonbury Thorn, but this seems rather dubious. Two Hawthorns, however, do still exist at Glastonbury, and these may be the progeny of the original tree. But the "Holy Thorn," not sympathising with the alteration of the calendar, now produces flowers about the middle of January, or, as it is still affirmed, at old Christmas. I know of two of these "Holy Thorns," both in gardens, one at Snokley, in Worcestershire, and another in Bromyard Down, Herefordshire. From these I have received half-expanded flowers in January several times, but the flowers soon wither, and no fruit is produced from them. The trees flower again at the usual time.

With regard to the alleged fact of a Hawthorn staff or stick really growing when thrust into the soil, though we may disbelieve in Joseph of Arimathea, yet it is not improbable that this may have formerly happened accidentally, and then by a pious fraud of the monks made miraculous, and ascribed to a Scripture celebrity, to whom their Church was dedicated. Sir T. Dick Lauder, in his edition of Gilpin's *Forest Scenery*, states that a forester of veracity assured him that he had once driven a stake from a dead (?) Hawthorn hedge into the ground, "which, to his astonishment, rooted spontaneously, budded, and put forth branches," becoming a thriving tree, as shown to the baronet himself at Fountain Hall, Haddingtonshire, North Britain.

A similar instance to this occurred in my own garden, where a few years since Mrs. Lees inserted a Whitethorn stick as a support to a tall liliaceous plant, and this stick rooted, budded, produced leaves the year after it was stuck in the soil, and is now a tall tree that produced this year a most abundant crop of flowers, succeeded by ripe haws. It has not, however, as yet shown symptoms of progressing to Glastonbury fame in having Christmas flowers. Apple and Pear trees occasionally produce autumnal flowers, and I have seen the same on the Elder and Dogwood, though not advancing into the dead of winter. *Edwin Lees, F.L.S., Greenhill Summit, Worcester.*

Postscript.—The Garnstone Hawthorn (fig. 142), and the Wyck Hawthorn (fig. 143), are engraved on Hawthorn wood. For the purposes of engraving

Fig. 145.—Old Hawthorn, Apley Terrace, Salop.

Fig. 146.—Old Prostrate Hawthorn, Downton Park, Herefordshire.

Hawthorn is the best of all the woods we have experimented upon; it is quite as good as ordinary Box, and possesses a far better colour. The best Box cuts a little smoother, and it consequently has a somewhat closer grain. *W. G. S.*

Home Correspondence.

Sachs' Text-Book of Botany.—In your review of the English edition of Sachs' *Text-Book of Botany* your criticism is principally directed to two points, on which I trust you will allow me to make a few observations, as each raises a question of some theoretical interest. Your reviewer remarks that "we have in these pages the old terms cohesion and adhesion applied as is customary where there is neither the one nor the other." Now the term used by Professor Sachs, "verwachsung," is probably not so much open to criticism on the ground taken by your reviewer as that which we have adopted as being the one current amongst English botanists. For the use of cohesion the translators and not Professor Sachs are responsible. And for my own part I am prepared to defend it. It is quite true that if it leads a student to suppose that in a gamopetalous flower a number of distinct petals are produced and are then glued together into a single piece, such a misconception is to be regretted. But it is one which a little practical investigation would speedily correct, and it would be soon understood that the term "cohesion" is to be employed in a technical and conventional sense. I am aware that the term "inseparate" has been proposed as a substitute for "coherent." It appears to me that it is open to precisely the same kind of objection, and as it is extremely undesirable to alter accepted terminology without some clear gain I prefer to stick to cohesion; for surely, if to speak of flowers with coherent petals implies that they were first free and then united, inseparate implies that they were first united, and that Nature's scissors were arrested in their snipping. Your reviewer appears to hint that the use of the term cohesion is incompatible with Darwinian principles. I cannot of course imagine that he has not observed the prominence which all through his text-book Professor Sachs gives to the "doctrine of descent." But apart from this I maintain that the fact is quite the other way. On Darwinian principles I apprehend that flowers with coherent whorls are derived from ancestral types, in which the parts were not coherent but distinct. In such consolidations I only see examples of which the instances are innumerable, of the "integration," which is an essential feature of all organic evolution. If we compare a myriapod with a crab there is in the cephalo-thorax of the latter the same confluence or cohesion of separate segments that there is in the corolla of a Bell-flower. It is no reasonable objection that the tube of the corolla of a Bell-flower never does consist of separate parts at any period of its development; for, integration once effected, we know from numerous other instances that it reaches back to the earliest stages of development. With regard to the absorption of water, whether in the liquid or gaseous state, by leaves, there is not, I think, much more to be done. It is tolerably clear that the business of leaves in this matter is to give off water, not to take it in. That they may do the former to an injurious extent if the air be too dry is a thing of every-day experience, and I presume the main reason of syringing, watering over head, and the like, is to take advantage of the foliage of plants as evaporating surfaces, and in this way rapidly moisten the air. If a gardener waters in his accustomed way because he believes plants take in water by their leaf surfaces, I can only say that he does the right thing for the wrong reason. I may add, that, if I recollect rightly, Bonnet's experiments demonstrated the different function of the upper and lower surfaces of leaves, but I conceive they did not demonstrate their capacity for absorbing water. Lanessan's mode of procedure must have been open to a serious source of error from the water which would mechanically adhere to the outside surfaces of the fragments of plants which he immersed. *W. T. Thiselton Dyer.* [We seem to be agreed as to the meaning to be put on the terms "cohesion" and "inseparation," the illustration of which latter by our correspondent is, we think, happy, if by "united" he means not yet "integrated." As to the compatibility of the term "cohesion" with Darwinian principles, our correspondent has misapprehended our meaning. We were not concerned with the question whether that particular term or any other was compatible with Darwinian views or not. We simply meant that for the full appreciation of those views or of any other professing to give a rational account of the building up of structures, a terminology in accordance with the present state of our knowledge is essential. For catalogue-making the acceptance of conventional terms with an arbitrary meaning is necessary on the grounds of expediency, and there would be a preponderance of loss over gain in making a change—at least at present. It is far different when questions of lineage, degree of kinship, or even of physiological office are concerned. Whether the ancestral types of our present "coherent whorled" flowers had "separate" parts or not, is a question we believe to be quite insoluble at present. The last question, as to whether leaves have, under certain circumstances, the power of absorbing water or watery vapour, is one on which we join issue with our correspondent. We think there is still a great deal to be done before the matter can be considered settled, and as it is of the highest consequence to gardeners, we trust that much more will be done in order to arrive at some definite rules of practice, and some intelligible reason why. Eds.]

The Past Winter.—Having seen the interesting notes on this subject in your paper, I now enclose the results in this district—Merionethshire, North Wales. According to annual custom I paid a visit to Aberia, the beautiful residence of Lewis Davis, Esq., near Port Madoc, which has long been celebrated for its fine collection of trees and shrubs. I found the place had undergone great alterations and improvements, under the hands of Mr. Shortt, the landscape gardener, one of the best hands we have among rocks and mountain scenery. He has introduced a great number of new and rare plants, many of them in quantity; so that in a few years this will be one of the best places in Wales for seeing rare hardy plants in perfection. The following have stood without protection, some of them of large size:—

Laurus Camphora	Eurya latifolia variegata
„ regalis	Ligustrum lucidum variegatum
Castanea chrysophylla	Cupressus macrocarpa variegata
Benthamia fragifera (now coming into flower)	Catalpa syringæfolia aurea
Magnolia Campbelli	Eucalyptus robusta
Acer palmatum rubrum	Edwardsia grandiflora
„ dissectum roseo-marginatum	„ microphylla
Diospyros Kaki	Holboellia latifolia
Grevillea juniperoides	Embothrium coccineum
Pinus australis	Clianthus puniceus
Pittosporum Tobira	Charlwoodia stricta
Desfontainea spinosa	Aralia Sieboldii

C. J. W. Williams, Penrhyndendreath.

—— The following plants have withstood the effects of the last winter at Tyn-y-coed, the residence of David Davis, Esq., 7 miles from Dolgelley, North Wales:—Ceanothus roseus spectabilis, Magnolia Campbelli, Olea europæa, Quercus glabra, Pinus australis, Eucalyptus robusta, Viburnum Sieboldii, Dicksonia antarctica, Aralia Sieboldii, Eriobotrya japonica, Eugenia Ugni, Raphiolepis ovata, Acer palmatum atropurpureum, Catalpa syringæfolia aurea, Primula luteola, Goodyera pubescens, Gunnera scabra, Gunnera manicata. *Thomas Shortt.*

Sheffield and Horticulture.—In a leader in the *Gardeners' Chronicle* of last week the following passage occurs: "At Sheffield last year, at a flower show in the Botanic Garden, there were taken in one day in sixpences more than seven hundred pounds." You must have been wrongly informed, for although there is a society in Sheffield which is termed the Botanical and Horticultural Society, it never holds an exhibition for the promotion of the object for which it was established, and it is a lamentable fact that in order to draw a company in the beautiful gardens at Sheffield all sorts of low and degrading means have to be resorted to. You have unconsciously paid Sheffield a tribute which is not its due. The Royal Horticultural Society would be doing good service if they would hold their next provincial meeting in a locality which is sadly in need of some refining influence, for in these days of exhibitions it is a remarkable fact that, in a large district like Sheffield, not a single horticultural exhibition is held from one year's end to another. *A. B.*

Roses at the Manchester Show.—I see, from your report of the Manchester Show, that in the competition between Messrs. Turner and Paul for the premiership to the Queen of Flowers, "the judges had a difficult task to say which was the best, and when the award was eventually made able critics were not wanting to question the decision." And also, "It may safely be averred that, had equal 1st prizes been given, general satisfaction would have been felt, for they well deserved it." Allow me to remark that, in adjudicating between the merits of two collections, which seem at first sight, or upon a general survey, to be equal, it is the duty of a censor to scrutinise every plant circumspectly, that is, all round; that no critic who had not examined the specimens from within as well as from without was qualified to question the award; and that if equal 1st prizes had been awarded an injustice would have been done, unless I have grown Roses (in pots and out) for thirty years in vain. *S. Reynolds Hole, Caunton Manor, May 26.* [Our reporter and the "able critics" he alludes to had the same means and opportunities of scrutinising all the plants circumspectly, that is, all round, as our correspondent, who surely does not claim to be the only man capable of judging a Rose. Eds.]

Pearson's Golden Queen Vine.—When I first saw this fruiting at Chilwell in a pot, I felt sure it would turn out a really valuable Grape, for any Grape that will do well in a pot may be depended upon for doing better planted in a good border; and I believe, after a good deal of experience, that no better test can be applied to a new Grape than to ask to have it fruited and brought before the Fruit Committee in a pot—say a 12-inch one. At the time I saw it, I told Mr. Pearson I hoped it would repay him for the large expenditure of time and money he had incurred in raising seedling Grape Vines. Having seen it in fruit each year since that time, my opinion has been confirmed more and more; indeed I have thought more highly of it each time I have seen it in fruit, and am more than ever convinced it is a real gardener's Grape. The strong, healthy foliage; the hard, wiry wood—which, even in quite a young state assumes a red tint and a ripened appearance, and when ripe is of the colour of cinnamon—the abundant show of blossom, many times more than is required for a crop—all attest its fine constitution and vigorous habit, whilst none can set better or produce more even-sized berries. Considering its fine golden colour and rich flavour, and good habit of growth, there is no doubt it will give general satisfaction; and having stood godfather to it by giving it a name, I am glad to find it has proved as good as I expected. Mr. Pearson told me several years since that if he found it had any faults he would destroy it, but none of the numerous persons who have seen and tasted it have suggested one, so it is to be sent out this season; and unless I am a very bad judge, it will give general satisfaction. *T. Speed, F.R.H.S., The Gardens, Chatsworth.*

Gloriosa superba.—This beautiful old plant, generally considered a stove plant, is perfectly hardy, and where well grown a great acquisition to the open border. It succeeds best in a deep rich peat; the Rhododendron bed is a good situation, as it there finds support from the shrubs, and shows its flowers to great advantage. In cold and damp situations the foot of a north wall is advisable, all that is requisite being a dry bottom in winter, and sufficient depth to be secure from frost. *Thomas Shortt.*

Roses.—I have this year grown in a cool conservatory, from two Rose trees about four years' old, the one a Maréchal Niel, the other a Cloth of Gold, upwards of 100 Roses, which have been generally pronounced a wonderful show. On measuring one, a Cloth of Gold, which I cut the other day, I found it to measure 6½ inches in diameter. I have never in my experience seen so large a Rose from so young a tree grown indoors. *J. J., The Grange, Ellesmere, Salop.*

The Welbeck Seedling Nectarine.—As the raiser of this variety perhaps I may be permitted to explain briefly its history. It was a seedling raised between the Balgowan and the Elruge, being the only one I selected out of a batch of seedling fruiting Nectarine trees in pots. I have since it has been planted out in a Peach-house fruited it now for three years, and last year, the fruit being particularly high and of fine colour, the Editor of the *Florist and Pomologist* was kind enough to figure it. Last year I should have sent a dish of it for the Fruit Committee of the Royal Horticultural Society to report on, but I was so much annoyed in 1873 by the way in which a dish of fine Barrington Peaches was passed over by the chairman of the day, who explained that although Barrington Peaches grew very large, they were of very inferior flavour. I shall be very glad to take Dr. Hogg's opinion of my seedling Nectarine's merits this year by sending a few fruits of it for his inspection in September, as it fruits in a late Peach-house. If approved of, it may then worthily appear in the next edition of his excellent *Fruit Manual.* I cannot, however, understand his saying (p. 664) that the Welbeck Seedling Nectarine "may be one of those seminal productions, for aught I know, which so frequently occur, and of which an example was given in the extract taken from my book on the Grosse Mignonne Peach." Now I do not know how new varieties of Nectarines can be raised except by seminal production. *William Tillery.*

Onion Rot. — I have pleasure in informing "F. S.," that this disease is curable. By applying gas-tar, at the rate of 2 gallons to 1 pole, to his land which he intends for next year's sowing, he will have the satisfaction of raising a good sound crop of Onions. This may be done, the ground being vacant, any time between now and January—the above-mentioned quantity applied at twice, the first dressing well forked in, say three or four days after the application; the second slightly pointed over with a fork. Double this quantity is an excellent dressing for Carrot beds. It completely eradicates all insects, and hence the skin of the Carrot is perfectly clean. *J. M., Tusmore, Bicester.*

Tulipa bœtica.—This pretty species is perfectly hardy in England. More than two years ago I received a bulb from my friend Mr. Gambleton, of Belgrove, to whom it had been sent by M. Max Leichtlin, of Baden. I planted it in autumn in the open border, where it flowered well the following

spring. It was attacked with mildew last summer, after it had died down and been taken up, and, I regret to say, perished. This species has also flowered well with Major Trevor Clarke at Welton Place, near Daventry, and I believe he still has it in cultivation. It has much more pointed petals, and is, I think, a prettier species than T. Eichleri, which I was much pleased to see in bloom a fortnight since in Mr. Elwes' most interesting garden at Miserdine House. I was much delighted this spring with Tulipa Boissieri var. pulchella, which I succeeded in blooming for the first time. It is a very small and dwarf species, with narrow leaves and an almost stemless flower, pale pink, the centre white, shaded with purplish-black. The bulbs were sent me by M. Max Leichtlin two or three years ago. *H. Harpur-Crewe, Drayton-Beauchamp Rectory, Tring.*

Some Lancashire Orchids.—Calling at the residence of R. B. Dodgson, Esq., of Blackburn, Lancashire, a few days ago, I was much pleased to find a rather extensive collection of Orchids in a very healthy and satisfactory condition. About twenty specimens were at the exhibition that was being held in the immediate neighbourhood under the auspices of the Blackburn Floral and Horticultural Society, so that we were prepared for the comparatively small number of plants in flower. In the East India house one of the first to claim attention was a fine plant of Vanda Lowii, nearly 5 feet high, with leaves down to the pot, and three breaks just starting from the base of the stem. This plant, rare in itself, is even more rarely seen in the health and vigour of the specimen under notice. Its dark-green leaves without a spot, its stout stem and massive roots and the perfect form of growth the plant has taken, constitute this, as I should say, one of the finest specimens of this Vanda to be met with in cultivation. There may be some taller (Mr. Rucker's old plant is a proof of what it will do), but I question whether there are many plants that are in every respect so faultless as this. A fine plant of V. Cathcartii, 3 feet high, with the spike ends of last year showing in the axils of the leaves, gives good evidence that the strong light these plants receive is certainly favourable to the development and perfection of their flowering capabilities. The white V. Denisoniana was flowering very nicely, as also were fine specimens of Cypripedium lævigatum, which had thrown up a very strong spike with three flowers, and had another spike just starting away. This plant has several leads to it, and being so rare will be very valuable. Cypripedium Dayi, Veitchii, Lowii, &c., were well represented; Cymbidium eburneum in this house was also in fine condition. A grand specimen of Aerides crassifolium, grown in a pan suspended from the roof, was doing remarkably well. This plant has flowered several times under the care of Mr. Whitehead, and it certainly is one of the finest and most desirable of this very attractive genus. In the Cattleya-house we noticed a fine piece of Lælia anceps Dawsoni breaking strongly; the growth of last season was very fine, the plant having matured a bulb 4 inches high, and stout and plump in proportion. Dendrobium crassinode was doing well suspended in a pan, whilst on a block plunged in a pot was a very strong plant of the true Cattleya Schilleriana, its short, stout bulbs, and almost round, chocolate-coloured leaves, giving good proof that it was enjoying the strong light in which it was growing. Here also were a quantity of Cattleya Warnerii, and also C. Mendelii, throwing up a fine lot of spikes of bloom. C. lobata, with five flowers on a spike, was also coming on very nicely. Cattleya gigas and Lælia Jonghii were well represented, both plants breaking very vigorously. In the Odontoglossum-house we noticed a fine plant of O. nævium majus; also a nice plant of Oncidium Phalænopsis, doing freely. Trichopilia fragrans is well represented, one plant we noticed having a quantity of leading growths coming away very strong. A fine collection of stove and greenhouse plants, flowering and foliage, are also grown, many of which were away at the exhibition. I cannot conclude without mentioning the very cordial manner in which we were received by Mr. Dodgson, who, though still very weak from a recent severe illness, kindly went all through the houses with us in the absence of his gardener, Mr. Whitehead, who was at the exhibition, and many times expressed his pleasure at seeing his pets throwing up their flowering spikes. *W. Swan, May 18.*

Strawberry Culture: Sods *v.* Saucers.—At this place we have great accommodation for forcing the Strawberry, having 400 yards of forcing shelves from 1 to 2 feet from the glass, without interfering with other crops, and I may state that our success in fruiting them is according to our accommodation. With proper attention, we much prefer the plain shelves to either sods or saucers. I have not now used sods for many years; where forcing in quantity has to be carried out they are a nuisance, in transferring pots from one temperature to another. Of saucers I still use a few; they save a little watering, but if not attended to when the fruit is finishing off the flavour of the Strawberry is spoiled from over-watering. The sorts which we force are my selected Keens' Seedling for our first batch (although this season I have had Queens nearly as soon), Sir C. Napier, and La Constante. I use a 6 and 7 inch pot, where we can pull and come again. Thinning the blossoms is about as tedious a job with us as thinning Grapes; and out of three dozen set blooms it is difficult to calculate correctly what number of fruit each plant will bring to a respectable size for the dessert-table; for exhibition purposes (of fifties) less fruit must be left. *J. Miller, Chumber.*

—— I send you a fair sample of Strawberries of the variety called Black Bess, which has been grown on the bare shelf, which I think will demonstrate the fact that both sod and saucers are of no possible use. We grow here 2500, and from March 10 we have had a daily supply—from the 7th of this month to the 15th we gathered 25 lb. of good useful fruit. We have no Strawberry-house proper, but grow them in vineries, Melon-houses, and Pine-stoves. Immediately they are coloured we put them into cold houses to flavour, and just now we have about 200 flavouring in the early pot vinery. If sods were used, shifting them would not be practicable, and as to emptying the saucers in dull weather, as practised by Mr. Ward, it would take up more time than can be spared here. *R. Gilbert, Burghley, Stamford.*

Camellias Flowering Out-of-Doors.—To prove that Camellias will bloom out-of-doors much further north than Leicestershire, I may note that one of the old single scarlet has stood many winters here (West Cumberland), being about 24 feet in circumference and 4 feet high, and has hundreds of flowers on it annually. It is growing in a light sandy soil. Another plant, growing in a sandy soil inclined to peat, is nearly the same in circumference and about 5½ feet high. It is a double variety, with the most luxurious dark bright green foliage, as you will see from the enclosed. I may also state that the Desfontainea spinosa and the Fabiana imbricata have stood out unprotected for many years, and flower with us profusely. Azalea sinensis is also just coming into bloom outside. *Cumbrian.*

Hydrangeas.—An early walk through Covent Garden has taken the conceit out of many a gardener, and has caused him to deeply ponder as to how such perfectly even and finished specimens can be produced; and it requires a visit to the manufactory, as it may be called, and see them in process of manufacture to realise the amount of skill and industry expended on the different things grown for market—and the best are not always produced in the most pretentious establishments. I have been led to the above remarks by a visit to Mr. Plimley's little place at Acton, where the Hydrangeas are now in splendid condition, and it will not be unfair to say they are generally acknowledged to be the best in the market. The stock consists of about 3000 plants, in three stages of forwardness. The first batch is now in full bloom, and such bloom! Each plant bearing from one to four heads, each head from 1 foot to 16 inches in diameter. They are all in 5-inch pots, called in the trade 40's, and grown in a low, narrow, span-roof house, and fully exposed to the full blaze of the sun, resulting in a perfectly even mass of flower from end to end of the house. Mr. Plimley is also equally successful with the old Crassula coccinea, of which he has hundreds at present in cold frames, and every plant throwing up strong heads of bloom. These results are not attained without the most untiring assiduity, and thorough knowledge of the subject. *J. W. Lawrence, Farnham.*

Natural History.

Wasps.—A large number of wasps has been noticed flying about the gardens here for some time past. I was very anxious to get as many of them destroyed as possible, and offered my men 2*d.* each for all they could catch, and by that means thirty-one were secured. I was fortunate enough to destroy twenty-three, making a total of fifty-four. As, no doubt, many of them were queen wasps, so, probably, the construction of a large number of nests has been prevented. *Robert Smith, gr. to Colonel Makins, M.P., Fairfield Court, Henley-on-Thames, Oxon.*

—— We have a plant trained up our garden cottage of the Cotoneaster microphylla. I have never seen so many queen wasps this year. I went out the other evening at 8 o'clock and in half an hour I killed eighteen, and with the help of my boys, &c., have killed over sixty. If a queen produces a nest we must have done a great amount of good for the fruit. Perhaps some of our kind friends, the entomologists, will tell us why the above plant proves so attractive to the wasps, for dozens have been fortunate enough to escape. I may state that the plant is just coming into flower, and they seem to go to the flowers. They are very large. I enclose a couple for you to see that there is no doubt about their being queens. *Noah Kneller, Malshanger, Basingstoke.*

Antliarhinus signatus, Sch.—The tribe to which this insect belongs is distinguished by one of the sexes having a remarkably long and slender straight proboscis, simulating a good deal the appearance of the Brenthidæ. It does not belong to them, however, but it is a true curculionid, and is placed by Lacordair in close proximity to our Centorhynchi, which also have a slender but curved rostrum, one of which (C. assimilis) causes the galls so frequent on the Cabbage roots in the neighbourhood of London. The Antliarhini would appear to have no such habit. It is a South African genus, and four or five species have been described (by Schonherr, vols. iii. and v.), but only two of them seem to be good species. These are—1. A. Zamiæ, which is stated by Schonherr to be found in the cones of Zamia Caffra in Caffraria. The species described under the names of brunneus, rectirostris, coriaceus and Dregei appear to be synonyms of this, the chief difference being in size. 2. The present species (A. signatus), which was brought under the notice of the Scientific Committee of the Royal Horticultural Society by Professor Thisselton Dyer as having been found dead in numbers in the empty kernels of the seed of a species of Encephalartos. There the dead beetles lay flat between the skin of the kernel and the shell, for which their very compressed form, as flat and as thin as a sheet of paper, is well adapted. Very great variation existed in their size, some being twice or three times as large as others, thus confirming the view that the small individuals, which differ from Zamiæ only in size, such as Dregei and coriaceus, are merely varieties of that species. The colour also varied considerably in intensity. It is normally of a rich burnt sienna-brown, with paler shoulders, and a pale band behind the middle of the elytra.

We have no information as to the adaptation of the remarkable structure of this insect to its habits. It no doubt will be something similar to that of our

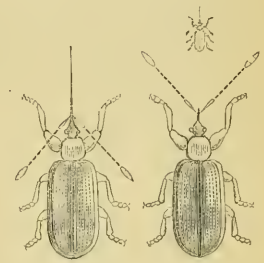

Fig. 147.—Antliarhinus signatus.

Balaninus nucum, which is one of the beetles that feed on the Hazel-nut, and is provided with a snout proportionately as long as that of the Antliarhinus, only curved instead of straight. There is, however, this important difference—in Balaninus both sexes have the snout long, although that of the female is a little shorter than that of the male; but in Antliarhinus one of the sexes only has it, and it is supposed, from other peculiarities, that, contrary to what usually occurs in insects, it is the female that has this very long apparatus, while the male has only a very short one. It is not improbably, therefore, a structure having some bearing upon the reproduction of the insect. Unlike Balaninus, it would appear to complete its metamorphoses in the seed it has been born in, not coming out as a full-fed grub to undergo its metamorphoses in the ground.

As they have utterly destroyed the imported seeds of the Encephalartos in which they were found, they are entitled to a place in our gallery of insects injurious to man. *Andrew Murray.*

Tetranychus Taxi.—Since writing the notice of this species, which appeared in last week's *Gardeners' Chronicle*, I have had the advantage of referring to Mr. Müller's description of the insect mentioned in my closing paragraph as brought to my notice by Dr. Masters, as the maker of the gall of the Yew bud, and which on the spur of the moment I thought might possibly be the mite I was describing. It turns out to have nothing to do with it. Mr. Müller's insect is a midge named Cecidomyia Taxi, and I have also had the means of verifying the accuracy of his observation by since examining some of the young bud-galls of the Yew in which already the gall maker has passed into the pupa state (a bright orange-red insect). His paper will be found in the *Gardeners' Chronicle* for 1873, p. 1110, and I certainly ought to have been aware of it. *Andrew Murray.*

HORTICULTURAL EXHIBITIONS, 1875.

JUNE.

9, 10, and 11.—Leeds Horticultural Society's Twelfth Annual Summer Show. Sec., James Birbeck, Delph Lane, Woodhouse, Leeds.
10.—South Essex Floricultural Society's Exhibition at Leyton. Sec., G. E. Cox, Leyton.
11, 12, and 13.—Rose Show at Lyons. Gen. Sec., Jean Sisley.
16.—Royal Botanic Society, Regent's Park. Summer Exhibition. Sec., W. Sowerby.
16.—Glasgow and West of Scotland Horticultural Society. Midsummer Exhibition. Sec., F. G. Dongall, 167, Canning Street, Glasgow.
16.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.
17 and 18.—Lee and Blackheath Horticultural Society's Exhibition. Sec., C. Helmer, 5, Boones Road, Lee.
18.—Scottish Pansy Society's Exhibition at Edinburgh. Sec., W. M. Welsh, 1, Waterloo Place, Edinburgh.

THE

Gardeners' Chronicle.

SATURDAY, MAY 29, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	May 31	Coventry and Warwick Horticultural Society's Show. Bath and West of England Society's Exhibition at Croydon (until June 4). Sale of Orchids and Lilium auratum, at Stevens' Rooms.
TUESDAY,	June 1	Royal Western Horticultural Society's Exhibition at Plymouth. Sale of Poultry and Pigeons, at Stevens' Rooms.
WEDNESDAY,	June 2	Royal Horticultural Society's Summer Show, and Meeting of the Fruit, Floral, and Scientific Committees. Inauguration Dinner of the Horticultural Club, at 6.30 P.M.
THURSDAY,	June 3	Meeting of the Linnean Society, at 8 P.M. Sale of Orchids, at Stevens' Rooms.
FRIDAY,	June 4	Adjourned General Meeting of the Royal Horticultural Society, at 3 P.M.

"QUOS Deus vult perdere prius dementat" is an aphorism which seems peculiarly applicable to the Council of the ROYAL HORTICULTURAL SOCIETY, or at least to certain members of it. By their inconceivable want of tact they have done more in one short half hour to extinguish a great society, and to disgust the few who still take interest in its affairs than years of feeble bewilderment or downright mismanagement have done. We all know that it has been found advisable, perhaps necessary, to postpone the payment of certain debts of honour, and we could sympathise with the Council in the difficult and humiliating position in which they were placed in having to make that announcement. We believe, however, that this is not the only Society which is obliged to postpone the payment of its obligations. Still, we should have supposed that a body of right-minded business men would have found means to meet this temporary difficulty; or, if this had not been practicable—which we altogether dispute—to have made some arrangements with the prize-winners, and induced them to wait till tardy Fellows had discharged their obligations to the Society, or till other means had been forthcoming to supply the funds necessary to raise the comparatively small amount required for this purpose. At any rate, we should have supposed that it would have been deemed imperative that the Davis Prize money, which we believe is trust money, should have been paid before now. We are convinced, moreover, that, had a proper application been made to the Fellows at large, sufficient might have been raised at once to enable the Council to keep faith with the exhibitors, and to have spared the Society the unspeakable humiliation inflicted on the Fellows of seeing the Society "County-Courted."

We are certain that, had the Council made overtures in a proper spirit to the leading exhibitors they, or a large majority of them, would, in the interests of the Society and of horticulture, have sunk any personal grievance they may have had, and come to the rescue of the Society, and made an exhibition on the last occasion, as well as made another on Wednesday next. This is no surmise of ours, we know it as a fact. It was even stated so publicly in the room on Tuesday last. A little wise generalship, a little proper courtesy and conciliation, and the present difficulties would have been met, and that good feeling would have been secured which is so necessary as a basis for any future reconstruction of the Society. Instead of that, it will scarcely be believed that the two leading members of the Council, the President and the Treasurer, seemed to try and outvie one another which should most deeply insult and wound the susceptibilities of gentlemen-exhibitors and their gardeners. We do not suppose that every individual, either in the one case or the other, is wholly immaculate. We would strenuously uphold the Council in any legitimate attempt to maintain the moral standard of exhibitions, and to discountenance any practice repugnant to a fine sense of honour. But that is a very different matter to running a-muck among exhibitors and gardeners in general, and insulting the whole body on account of alleged misdeeds on the part of some—allegations, moreover, publicly proclaimed without the slightest evidence set forward in corroboration, and which we are assured, in one case that has been brought under our notice, are utterly untrue.

No objections would have been offered to an adjournment, however inconvenient it may be. Most people came prepared for such a delay. Most people attended the meeting with an honest desire, not to embarrass the Council, but to aid them by their support in any reasonable attempt they may have made, or be making, with Her Majesty's Commissioners. Even if they had failed, every allowance would have been made for them. They would have failed where others had no greater success.

But now things are different. What possible confidence can we place in a Council which allows its leading exponents to indulge in such vagaries? It has been hard enough to put up with a Council the leading and more active members of which have shown themselves utterly ignorant of horticulture and its requirements, and, worse still, incapable of appreciating the nature of their duties. By force of circumstances, and the mistakes of our predecessors, horticulture, so far as the Royal Horticultural Society is concerned, has been starved, its energies wasted, its means dissipated, and its position lowered. It is a cruel thing, indeed, that its chosen protectors should now put the finishing strokes by directly insulting horticulturists, by flourishing a threat of insolvency, and by allowing a great and noble society to be dragged through the mire of the law courts. Of course all this arises, not so much from wilful wantonness, however much it may seem to do so, as from downright ignorance of and utter want of sympathy with horticulture. That being the case, it is clear that no effectual re-organisation of the Society as a horticultural society is possible so long as the leading spirits and the main officers of the Society are non-horticulturists. We do not deny the rights of the South Kensington party—as we would maintain our own so we can respect theirs,—but we do say, if the unhappy partnership with them is to be continued it must be on such a basis that each shall have its own department allotted to it, and in that department each must be free from the interference of its neighbour. Horticulturists, in fact, must undertake the horticultural work of the Society without let or hindrance from those who have shown themselves utterly incompetent to reign over them. There are many who think a wholesale secession of horticulturists the proper course to follow—we do not adopt that view; but if there is one thing more than another which would justify such a course it is the recent utterances of the President and Treasurer. Between this and the adjourned meeting it is to be hoped that wiser counsels may prevail, and that if the Society is to continue to exist, the Council may be able to come to some reasonable and equitable terms with Her Majesty's Commissioners, by virtue of which each section of the Society shall have free use of such portions of the Society's property as they may respectively want, and each portion have a proportionate share of the income of the Society inalienably set apart for its own purposes. It may thus be possible for both sections to work harmoniously together, and if they are to be tied together it is obviously advantageous that they should do so; but no harmony will be possible if to ignorance and incapacity to appreciate horticultural matters be added gratuitous insult to its professors.

Knowing the difficulty of organising a new Society we should prefer, so long as there is a shred of hope, to maintain and reorganise the old one; but if it should so happen that the old Society really falls to the ground, the responsibility for the fall will rest with the present Council, who have shown by their mismanagement of an old society that they are incompetent to organise a new one.

—— In the House of Commons on Monday last, Mr. COWEN asked the Home Secretary whether he had had his attention directed to the OPENING OF THE ZOOLOGICAL GARDENS, THE BOTANIC GARDENS, THE HORTICULTURAL GARDENS, and other places of public resort, ON SUNDAYS; and whether such opening was contrary to the provisions of the Act 21 Geo. III., under which the Brighton Aquarium had recently been closed; and, if so, whether he would take the necessary steps to secure uniform compliance with the law. Mr. CROSS said in reply that his attention had not been specially directed to the opening of the Zoological Gardens, the Botanic Gardens, and the Horticultural Gardens on Sundays. As to the latter part of the question, it was impossible for him to state what might be the opinion of the Court of Queen's Bench, or any other Court, as to a state of facts with which he was not thoroughly informed But, as far as he could obtain any information on the matter, he had no reason to believe that the judgment in the case of the Brighton Aquarium would be the same as in that of the Zoological, the Botanic, or the Horticultural Gardens, because he was advised that they stood on a different footing. Therefore, he had no intention whatever to interfere in the matter.

—— It is believed that the OLDEST EUCALYPTUS TREE IN FRANCE is in the nursery of Messrs. HUBER & Co., at Hyères, though there are several larger specimens in the same neighbourhood of less age. Is is the E. globulus, and was sown in 1857, and is now 65 feet high, with a circumference of nearly 7 feet at a yard from the ground. Another tree of the same species, two or three years younger, also at Hyères, is nearly 90 feet high, and still growing very rapidly. A very remarkable specimen, about 65 feet high, may also be seen in the beautiful grounds belonging to the Duke DE LUYNES. At the age of two years it was accidentally broken off about 2 yards from the ground, where it gave origin to three main branches, and has since grown most vigorously, forming at the present time a majestic tree. Mr. NARDY, who gives the foregoing details in the *Journal de la Société Centrale d'Horticulture de France*, goes so far as to say that this species, and some others of rapid growth, are preferable as shade-giving trees to the Plane, Chestnut, &c., in the Mediterranean region, where they are perfectly hardy. He also recommends them as foliage plants for the sub-tropical gardens in a climate similar to that of London. For this purpose they should be treated in the same manner as some gardeners adopt for the Paulownia imperialis, that is, cut down every winter, and they will doubtless make as great a show of foliage every season as the Paulownia, though of a very different nature. It may interest those who care to try their cultivation in the warmer parts of the kingdom to know which are the hardiest species yet tried. Mr. NARDY enumerates the following:—E. fissilis, Gunnii, cornuta, leucoxylon, and cornigera. This list does not include the hardiest species known to us, namely, E. polyanthemos, which has not been seriously injured by frost at Kew to our knowledge within these last fifteen years.

—— The STAMFORD FLORAL AND HORTICULTURAL SOCIETY proposes to hold a great show of plants, flowers, fruits, and vegetables on September 15 and 16, in connection with the Northamptonshire Agricultural Society's Annual Show, to be held in Burghley Park. A well-arranged and liberal schedule will shortly be issued; meanwhile an effort will be made to increase the number of special prizes, amongst which, received up to the present time, may be men-

tioned one of £20, for twelve stove and greenhouse plants in or out of bloom, given by the Marquis of EXETER, to which are added 2d and 3d prizes, respectively of £10 and £5, by the Society; and £10 as the 1st prize in a class for a dessert of twelve kinds of fruit, including not more than three varieties of Grapes, not more than two Pines or Melons, nor more than one kind of any other fruit, given by the Marchioness of EXETER. For a collection of twenty-four dishes of Potatos, distinct, nine tubers of each, three prizes are offered, of the value of £10, £5, and £2 respectively.

—— Nothing can compete with the common large-leaved or IRISH IVY, when employed to cover spaces beneath trees where grass will not grow. Even a dense shade suits it, such as that cast by the spreading branches of the Cedar of Lebanon. The woodland walks at Chiswick House, and the grounds surrounding Baron ROTHSCHILD's mansion at Gunnersbury, furnish many illustrations of this fact. Turf, Periwinkle, St. John's Wort, and other agents have been tried, but with indifferent results. At Gunnersbury the spaces beneath the great Cedars are all covered with this Ivy, and a dense green carpet, healthy and robust in appearance, is the result. Mr. EDMUNDS is now largely using it in the same way, and as a fringe to shrubbery and woodland walks, and the results are equally successful with those at Gunnersbury.

—— We have been favoured with a sight of some of the later seedling forms of PRIMULAS Mr. JAMES ALLEN, of Shepton Mallet, has raised from P. cortusoides lilacina and grandiflora. They show not only a considerable but a pleasant variation, and the result points to what appears now to be an ascertained fact, that this fine hardy Primrose can be made to produce as much variety as P. sinensis has displayed in recent years. Crosses with P. japonica, if actually made, which is a matter of considerable doubt, do not appear to have produced definite results, so far, in the case of attempts put forth by Mr. ALLEN. One of Mr. ALLEN'S happiest results is the production of flowers with fringed petals, which decidedly enhances the appearance of the flowers as decorative agents. One of these he has provisionally named Portia; it has the tint of amœna at the back of the flowers, with a white upper surface, the segments fringed and flaked with rose: this is very pretty and distinct. Valeria is something like Portia, but the colour is deeper on the surface of the fringed petals; it also is novel and very pretty. Fairy is a very pleasing variety; delicate mauve at back, almost pure white on the surface, the segments also handsomely fringed. Olivia is tinted with pale rosy mauve at back, the surface white, the segments stout, broad, and flat, and, as a whole, having much more substance than grandiflora. Octavia is in the way of Olivia, but has less colour at the back of the segments, which are very broad and stout. Cordelia, though in the same way, is decidedly better than either of the foregoing; the flowers are very large and fine, delicate mauve at back, segments very broad and stout. Another group is represented by Diana and Ophelia; the former is peculiar in hue, being much paler than amœna, with large broad segments, but thin in point of substance; it is yet pretty and attractive. The latter is a decided advance towards a purple amœna; the surface is rosy purple, the reverse pale rose, the flowers stout, and of good form and substance. Mr. ALLEN is to be congratulated on what he has achieved, and seedlings from the flowers just described will in all probability, as far as analogy warrants the prediction, show yet greater advances in variety, size, substance, and breadth of the segments.

—— A finely grown and handsomely variegated plant of PHORMIUM TENAX VARIEGATUM, growing in the large conservatory at Castle Ashby, Northampton, the residence of the Marquis of NORTHAMPTON, has thrown up a fine spike of flowers, some of the forward buds of which will be expanded in the course of a few days. The flower-stem issues from the centre or heart of the plant, and from the rim of the pot to the tip of the spike it is some 9 to 10 feet in height. Mr. BEECH, the gardener at Castle Ashby, states this is the first time in his experience that the plant has flowered.

—— From the Azores journal, *O Cultivador*, we find that, between October, 1874, and March, 1875, there were despatched from the Azores to various ports, chiefly English, 133,306 cases of Oranges, excluding Tangierines. Of these 14,446 were sent to Bristol, 56,965 to London, 4315 to Liverpool, and 29,333 to Hull. Of Pines 1189 were imported into Bristol, 5420 into London, 197 into Liverpool, and 1212 into Hull.

—— CHRYSANTHEMUM CATANANCHE, a new species, and a choice alpine, is flowering on the rockwork at Kew. Speaking from a horticultural point of view, it is one of the best of the plants sent home by the Moroccan expedition. In general appearance it much resembles Santolina alpina, though far superior from its ornamental flowers. It branches freely, forming a dense tuft. The leaves have long petioles, are about 2 inches in length, variously cut into linear acute divisions, and covered with silky hair. The scapes are erect, bearing a single head 2 inches in diameter, with rays of creamy yellow, maroon at the base, forming a ring of colour round the disc. The involucral bracts are scarious and transparent, with a green midrib, so much resembling Catananche as to have suggested the specific name. It was figured in the *Botanical Magazine* of last year, where it is said to be "one of the most beautiful plants of the Greater Atlas." It was found at elevations of 7000 to 9000 feet, forming large silvery-green patches on the slopes exposed to the sun, and in rocky valleys. Though it will doubtless succeed best on rockwork, it submits well to the confinement of pot cultivation. It is increased easily by division.

—— The new Rhododendron garden in the Old Nurseries, Cheshunt, Herts, which is equal in extent to the one in the Royal Botanic Society's Garden in the Regent's Park, and to the old one at South Kensington, is, now that the plants are in full bloom, particularly worthy of inspection. In adding this new feature to the attractions of their well known establishment, Messrs. PAUL & SON have had the laudable object in view of showing the value of AMERICAN PLANTS for the decoration of VILLA GARDENS. As regards the Rhododendron we may remark, that in the suburbs of Manchester it is much more largely grown in small gardens than is the case in the neighbourhood of the metropolis, where the climate is surely more in its favour.

—— A new conservatory for the ADELAIDE BOTANIC GARDEN is in course of erection. It was constructed in Bremen, after the plan of one already built in that city by Mr. HOPER. The cost of the house, with glass and all necessary requirements,

FIG. 148.—A FASHIONABLE QUARTER OF YEDO.

delivered in Bremen, will be £1087. The weight of the iron and glass will be 48,000 lb., and the cubical measure is 750 yards. The size of the house is as follows:—Length, 100 feet, and width, 35 feet. The height of the rotunda is 37 feet, and that of the wings, 23 feet high. To ensure the good effect of the building, it is necessary that it be built on a terrace 5 or 6 feet high. The house will be surrounded by a broad walk and a grass margin, adorned with flower-beds, statues, and fountains, and four separate stairs will lead to it.

—— We extract the following from Dr. SCHOMBURGK's report on the condition of the BOTANIC GARDENS, ADELAIDE, for 1874:—

"Notwithstanding we have had one of the driest seasons, the rainfall having been a little more than 17 inches—the minimum on record being 14 inches—yet as the rains fortunately fell in genial times for the development of the Wheat plant, we have been blessed with one of the most abundant harvests on record—a proof that in a dry season, if only the rain falls in proper time, we may also expect an abundant Wheat crop. Since the month of September the fall of rain has only been 1 inch, which is altogether insufficient for the orchards and gardens; and the setting in of very hot weather in the middle of January, the thermometer ranging from 105° to 111° in the shade, and 161° in the sun, would have proved very injurious to our young plantations, especially in the park, where about 4000 trees have been planted, had not the early planting, the attention paid to them, and the supply of water enabled us to save them nearly all; and I consider the loss of this season's planting—about 3 per cent.—a very low percentage indeed, considering the very dry summer—the trees from cooler climates, as New Zealand, Europe, and North America, having been generally the greatest sufferers. I understand the loss of trees planted by other public bodies this season is very material; but I consider this is their own fault. If a tree when planted is properly watered, so that the water carries the soil among the roots, it will become imbedded in it, and will withstand great dryness, which is impossible when the tree is planted without watering; the roots are then left hollow in the soil, and so dry up very soon. If trees are watered the first year it will secure their growth and safety. This fact may be observed at the Park, where all the trees are in a healthy growing condition. By neglecting the watering of new planted trees, thousands are lost annually, as may be noticed in a good many public places, where the planting has been repeated many years without success."

—— The anniversary meeting of the LINNEAN SOCIETY was held on Monday last, when the following gentlemen were elected members of the Council:—J. D. Hooker, M.D., C.B., J. G. Jeffreys, LL.D., Major-General Scott, C.B., R. B. Sharpe, Esq., and Charles Stewart, Esq., in the room of John Miers, Esq., F. P. Pascoe, Esq., Major-General Strachey, and Henry Trimen, M.B. The officers are G. J. Allman, M.D., President; J. G. Jeffreys, LL.D., Treasurer, and Frederick Currey, Esq., and St. George J. Mivart, Esq., Secretaries. The financial condition of the Society is very healthy, and in no year has more been done in the way of publications. The loss of members by death has been serious so far as the attainments and position of the deceased members are concerned, but in point of numbers the new members more than compensate for the old. Some discussion arose as to the method of rendering the evening meetings more generally interesting, and then the President delivered an address on the history and development of the Infusoria, in the course of which he showed that the tendency of modern research was in favour of the descent of all existing animal forms from two separate types. It was also shown that particular structures are common to the whole of the members of each group, and that though not necessarily present in the adult stage they were so at some stage or another of the creatures' existence. The address will be printed in full.

—— We believe that Parliament has sanctioned the appointment of an ASSISTANT-DIRECTOR TO THE ROYAL GARDENS, KEW, and that Professor W. T. THISELTON DYER has been selected to fill the office. From the tried ability and known energy of the Assistant-Director, we may hope not only that the Director's heavy labours will be materially lightened, but also that great advantage may accrue to botany and horticulture.

—— At the anniversary meeting of the ROYAL GEOGRAPHICAL SOCIETY, held on Monday last, the President presented the Founders' Gold Medal, awarded by the Council, to Lieutenant WEYPRECHT, of the Austrian Navy, for the enterprise and ability displayed in the command of two expeditions between Spitzbergen and Nova Zembla; also the Patron's Gold Medal, to M. JULIUS PAYER, for his sledge journey and discoveries along the coast of Franz Josef's Land. A presentation gold watch was also handed to Colonel T. G. MONTGOMERIE, of the Trigonometrical Survey of India, for transmission to Mr. W. H. JOHNSON, the explorer of the Verren Lun and Khotan. The annual Geographical medals offered by the Society to the chief public schools were then presented to the following successful competitors:—Physical Geography: gold medal, HENRY ALEXANDER MIERS, Eton College; bronze medal, ARCHIBALD EDWARD GARROD, Marlborough College. Political Geography: gold medal, SIDNEY H. B. SAUNDERS, Dulwich College; bronze medal, WM. C. GRAHAM, Eton College. It was announced that the next subject for competition would be the forthcoming Arctic Expedition.

—— Messrs. BARR & SUGDEN have favoured us with the following reply from a Dutch firm to a communication of theirs respecting the TULIP DISEASE (see *ante*, p. 534):—

"The misfortune you described about the Tulips of your lady friend is not a disease of the roots, but the fault lies with the soil the roots have been planted in. If she removes the soil, and puts fresh soil in, she will find the disease gone. We have observed the same soil in this country in some localities, although not frequently. It is what we call "'koss' in the ground" in this country, and the quality of the bulbs has nothing to do with the mischief, which, however, is very disagreeable to experience."

This explanation seems to us to be open to question.

—— The INAUGURAL DINNER of the HORTICULTURAL CLUB will be held at the Club house, 3, Adelphi Terrace, Strand, on Wednesday next, June 2, at 6.30, P.M., the Hon. and Rev. J. T. BOSCAWEN in the chair. As members of the Club have the power of admitting visitors, it is hoped that a large and representative gathering may be present. The Rev. H. H. DOMBRAIN, Westwell, Ashford, Kent, is the secretary, and to him communications should be addressed.

—— A ROSE SHOW, the jury at which will be composed of the principal European rosarians, is to be held at LYONS on June 11, 12, and 13. English rosarians are invited to send their new seedlings.

—— We have received the following letter from the gentleman who has distributed the so-called OAT-WHEAT. We are glad to give him the opportunity of making his statement, of which we do not for a moment contest the good faith; but we repeat, after Mr. EVERETT's letter, and after inspecting the sample he has sent us—which is a good sample of Nursery Wheat—that not a shred of proof has yet been adduced in confirmation of the statement. It is, moreover, one so extremely improbable that any evidence brought forward in support of it should be correspondingly strong.

"After your severe criticism of Mr. C. S. READ's remarks at the Society of Arts respecting Wheat being grown from Oats, I cannot let this opportunity escape without bearing witness to the truth of Mr. READ's statement. I was present at the planting of the Oats (which were Freeslands) in the spring of 1862; they were cut down three times in the course of the year so as to prevent them flowering, and protected during the winter with a covering of clean wheat straw to prevent the frost killing the plants. The straw was removed in the following spring, and the crop harvested in the month of August, 1863, producing a fine sample of red and white Wheat, mostly the former. I have grown the stock ever since, and consider it the best Wheat in cultivation, being a red Wheat with white chaff, large ears, very stiff in the straw, suitable for strong lands, and an extraordinary casting Wheat. I beg to enclose sample for your unbelieving eyes to behold. I have sent this 'Oat-Wheat' to all parts of England for seed, and it has always given satisfaction. By inserting these remarks in next Saturday's publication you will greatly oblige, yours faithfully, *F. H. Everett, Sudbourne, Wickham Market, May 25.*"

Appended is a public advertisement of the Wheat in question:—

SEED WHEAT! SEED WHEAT!

OAT WHEAT,

GROWN FROM OATS.

A RED WHEAT, white chaff, very stiff in the straw, suitable for strong lands. The best Wheat in cultivation. Price, 54*s.* per Quarter, on rail, sacks included. Samples forwarded on application.

Mr. F. H. EVERETT,

SUDBOURNE, WICKHAM MARKET.

—— The BEDDING PANSIES AND VIOLAS AT CHISWICK are just now coming into profuse flower, and will be for the next few weeks well worthy of inspection. Mr. BARRON has planted up with them the whole of the thirty-one beds that border the right-hand side of the entrance broad walk, the sorts grown being those selected by the Floral Committee last year as worthy of a further trial. Nearest the entrance the beds are planted with yellow kinds, then follow blues, purples and whites—all the best old sorts and many good new kinds being represented. Then in six of the large beds at the lower end of the lawn are growing, in quantities of four or more plants, some other forty-six kinds; many of these are not yet in commerce, whilst others are but recently introduced. There is an entire total of at least eighty varieties, and as the plants are doing well and have been top-dressed with cocoa-nut fibre refuse, they promise to make a display at once novel and effective.

—— A correspondent on whose judgment we can rely recommends, as a sure INSECTICIDE, a saturated solution of Camphor in methylated spirit mixed with soft soap to the consistence of cream; mixed with warm water this may be used with the syringe. The proportions of the insecticide to the water will naturally vary according to the nature of the plant, but for soft-wooded plants a table-spoonful to a gallon of warm water is about a fair proportion. Experience must determine the matter.

A FASHIONABLE STREET SCENE: YEDO.

THE fair city of Yedo extends for many miles along the shores of a lovely bay in the form of a crescent, and the collection of innumerable houses, temples, and gardens extends far inland. A wide river, spanned by large bridges, runs through the town and empties itself in the bay.

In the Daimio's quarter the streets are wide, straight, and cleanly kept, and have altogether quite a different appearance from the ruinous, ill-kept streets of Pekin. Good drains are carried down each side to take off the superfluous water. All that can be seen of the houses are the outer walls, the grated windows, and the massive looking doors, many of them decorated with the armorial bearings of their owners. The buildings are low, their foundations of massive stonework, and the upper part of wood and *chunam*. At the back of the houses are gardens, and on advantageous eminences various temples, whose precincts are well planted with Pines, Cryptomerias, Salisburia, Podocarpus, &c.; and in the gardens are Maples, Azaleas, Camellias, Plums, and Willows, &c. At certain distances, at the intersection of the long streets, are barriers and a guard-room for police, whilst also at intervals are fire alarm stations. These are provided with bells, and the manner in which these bells are tolled informs the people whether the fire be near or afar off; whether they ought to come to render assistance at once, or hold themselves in readiness to come on a second warning. Beyond the eastern suburb of Yedo is Dang-o-zaka, celebrated for its nursery gardens, fish-ponds, and tea-houses. The most curious objects here are imitation ladies, made up out of the flowers of the Chrysanthemum. Thousands of flowers are used for this purpose, and as these artificial beauties smile upon the visitors out of the little alcoves and summer-houses, the effect is rather startling. The Japanese gardener understands the art of Chrysanthemum culture better than we do, and produces blooms of wonderful size, by allowing only one or two blooms to be perfected at the end of a shoot. The favourite flowering Plum-trees are planted in groups and avenues in all parts of the garden, while little lakes and islands of rockwork add to the general effect. The Tea plant is commonly used as an edging, and kept clipped it has a pretty appearance. At Su-mac-yah, also a suburb of Yedo, the whole country is covered with nursery gardens; perhaps nowhere in the world are such large numbers of plants cultivated for sale. Each nursery covers 3 or 4 acres, and generally the proprietor's house is in the centre, up to which a winding path leads, bordered on either side with specimens of the many hardy ornamental trees and shrubs of the country, many of which are dwarfed or clipped into round table forms. The beautiful little Yew (Taxus cuspidata) which Robert Fortune introduced into Europe from China occupies a prominent place among these dwarf shrubs. Then there are Pines, Thujas, Retinosporas, and the handsome Sciadopitys verticillata, all duly represented. Plants cultivated in pots are kept near the house enclosed in a fence of bamboo-work. Instead of glasshouses the Japanese gardener uses sheds and rooms with shelves, into which are huddled all the tender plants for shelter during the winter months. Here the Acorns is cultivated in pretty Nanking square porcelain pots, with a little rock of agate, crystal or other rare stone, which produces a novel and striking effect. Altogether, Yedo, with its temples, watch-towers, and wooded hills, its hedges of Camellia and Rose, its flowering Plums and Cherries, forms a more picturesque city than any other throughout the world.

The population of this fine city has been estimated at about 2,000,000 of souls. The extent of the ground covered by Yedo and the main part of its suburbs has been stated to be about 16 English miles long, 12 miles broad, and 50 miles in circumference. When Robert Fortune was at Yedo, the highway of Yedo was a way of death to the foreigner; now the foreigner can ride in a railway carriage there in safety. In one short generation the Japanese have achieved a position in the civilised world that the foremost nations of Europe took centuries to accomplish. The

legitimate monarch has thrown aside the imperial seclusion, and, with his dynasty, has entered the comity of nations. The feudal system and its sanguinary domineering oligarchy have been swept away, and constitutional government on a foreign basis placed in its stead. The hated foreigners, their commerce and religion, are no longer debarred from the body politic, but are employed in the State; and last, not least, Yedo has now telegraphic communication with England within fifty hours. In the midst of these gigantic and revolutionary changes we trust the Japanese will lose neither their architectural nor their horticultural arts. *S. P. Oliver.*

THE COWSLIP.

This is one of the most popular of spring flowers—a favourite not only with country children, who delight to make from it the fragrant "Cowslip-balls," the manufacture of which is so charmingly described by Miss Mitford in *Our Village*, but even with the town-bred little ones, to whom it is familiar as one of the prominent members of the street flower-seller's collection. But to be really enjoyed, the Cowslip must be taken *en masse* in its native haunts. Just as Mr. Richard Swiveller proclaimed that beer could not be tasted in sips, so a solitary Cowslip gives no adequate idea of the beauty of the plant when seen in quantity; and this we say in spite of Mr. Fitch's admirable drawing which accompanies these remarks (fig. 149). Cowslips, like so many other beautiful things, are common enough in most districts of England; there is, indeed, a tradition that they are not to be found in Devonshire, but this has been disproved, as have the statements that the Mistleto and nightingale are also absent from that county. It was formerly stated to be very rare in Scotland, but this also is inaccurate, as a reference to our columns for January 24, 1874, will show, although it seems unfrequent in the west of that country, while it is also very uncommon in the north and north-west of Ireland.

So common a plant needs no description, but one or two points of interest in connection with it may receive a passing notice. Such, for example, is the fact that it is the parent of the garden Polyanthus, with all its forms and varieties; and that there is a general belief in England that a Cowslip planted upside down will become a Polyanthus. Wild Cowslips, which approach the Polyanthus in colour, and to a certain extent in form, are not so very unfrequent. We know besides, that Buckinghamshire is celebrated for its red Cowslips, and in the British Museum herbarium are some scarlet Cowslips from Northumberland, and a black one from Dr. Abbot, who wrote to Sir J. E. Smith that it was not uncommon in Worcestershire, in old rich pastures, at the edges of brooks and in orchards, and had also been found near Bedford. In this form the calyx is cleft almost to the base, a condition which is sometimes observed in ordinary Cowslips.

Cowslips, indeed, offer many aberrant forms of considerable interest. Not to mention the handsome, large-flowered variety, which is sometimes known as major, there is sometimes noticeable a tendency to produce a second umbel of blooms, the axis being prolonged, as it were, through the first, and terminating in a second bunch of flowers. The interest of this phenomenon, which is not so very uncommon, lies in the connection which it shows between the Cowslip type of the genus Primula and that verticillate arrangement of flowers which characterises the now well-known Primula japonica. The Cowslip sometimes varies in just the opposite direction; that is, the scape is suppressed, and the blossoms grow singly in long pedicels from among the leaves, just as do those of the Primrose. The development of the calyx-segments into leaves in some of the forms of Polyanthus is also curious; these are known in cottage gardens by many quaint names, such as "Dick in Green Doublets," and "Charles in the Oak." Parkinson figures one which he calls the "Franticke or Foolish Cowslip, or Jacke-an-apes on horsebacke." A glance at the varieties of Cowslip figured by this author in his *Paradisus* shows that the cultivation of the Polyanthus must have advanced very considerably since his time, as his examples approach neither in size nor colour the commonest forms now grown in cottage gardens. He includes, however, a double Cowslip, on the authority of Gerarde, and a "double green feathered Cowslip," in which the blossoms consist entirely of small green leaves; besides the still common "hose-in-hose" Cowslip, and another with a large jagged calyx, which "somewhat resembles men's hose that they did weare, and tooke the name of Gallegaskins from thence." It is much to be wished that the cultivation of the Polyanthus were more extensively carried out; it is sufficiently evident that the plant is one which varies to an indefinite extent, and would fully repay any trouble which might be expended upon it. The readiness with which the plant is propagated, whether by seeds or by roots, renders it additionally easy to experiment upon; and some of the really fine forms at present in cultivation would doubtless be capable of still further improvement.

Fig. 149.—THE COWSLIP.

Reports of Societies.

Royal Horticultural Society.—Last Tuesday afternoon a special general meeting of the Royal Horticultural Society was held in the Council-room, South Kensington, for the purpose of receiving a communication from the Council respecting the prospects and condition of the Society, and to receive an answer to proposals made by the Council to Her Majesty's Commissioners.

The chair was taken by Viscount Bury, President of the Society, and the room was crowded with a large number of Fellows, many ladies being also present. Amongst those who sat at the Council Board were Sir Coutts Lindsay, Bart., Mr. Dobree (Treasurer), Colonel Davenport (Assistant Secretary), the Hon. and Rev. J. T. Boscawen, Mr. W. E. Kellock, Mr. Henry Little, Mr. Henry Webb, Mr. Campion, &c. The proceedings appeared to excite a large amount of interest, and at times were particularly noisy.

After the preliminary business had been disposed of, the Chairman said: The first announcement which I have to make you is that of the resignation of our late Honorary Secretary, who says in the letter I hold in my hand that, having taken a very great interest in the Society, and adopted the best steps he could to improve its position, it was with deep regret that he could not agree with the policy of the Council or with the views of the President, and therefore he thinks it "best for all parties for him to resign." Now, ladies and gentlemen, I have to ask from this meeting a confirmation of the resignation placed in our hands by Mr. Lindsay.

The motion, to the effect that the resignation of

Mr. Lindsay should be confirmed, was put, and carried unanimously.

The Chairman on rising to address the meeting upon the subject which brought them together said: I have now to explain the position in which we are at this present moment, and my task, I very much regret to say, is an extremely easy one. It will be discharged in but a very few words, and the result of it is to tell you that the Council—and it is a matter of regret to them and to me—feel that it will be necessary to adjourn this meeting for ten days. On the last occasion you confided to us a certain trust, which was to make arrangements with Her Majesty's Commissioners for the future carrying on of the Society, and to submit to the Fellows a scheme for the future guidance and government of the Society. That, gentlemen, was the position in which we stood, and we had hoped to be prepared with such a scheme to lay before you, but I regret to say time has been against us. The meeting to which I have referred—that is, the meeting adjourned from the annual meeting—was held on March 9, but it was not until April 16 we were able to obtain a first interview or meeting with Her Majesty's Commissioners. As I have said, that meeting was obtained on April 16, and at it propositions were submitted by us which we had hoped, and which we thought, with good reason, would have been acceptable to Her Majesty's Commissioners. However, these propositions were not considered satisfactory by Her Majesty's Commissioners. We amended our propositions on that occasion and on subsequent occasions, and at last we felt that it was our duty to submit to you—to you, the Fellows of the Society, the circumstances in which we found ourselves placed. I may say that we were certainly under the impression that a definite "yea" or "nay" would have been received from Her Majesty's Commissioners, and then we should have been able to assure you that we had either entered into an agreement with Her Majesty's Commissioners, or that we had failed so to do. If it should have happened that the latter were the circumstances, and that we had failed to enter into an arrangement, we should have felt it our duty to say that, under the circumstances, it was due to our own honour to resign into the hands of the Fellows of the Society the trust they had committed to us, and beg of the Fellows to appoint in our stead those who might perhaps be more fortunate in their dealings with Her Majesty's Commissioners. It was under these circumstances we summoned the present meeting, believing as we did, that before the meeting was held a definite reply would have been received from Her Majesty's Commissioners to our last proposal, which I may say was one of six. I do not now enter into the subject, so far as it refers to the refusal of Her Majesty's Commissioners to accept our proposals—that is a question which will come up for discussion hereafter; and in making these observations I merely state the facts without prejudice to either party, and without imputing blame to any one. We thought we should have been in a position to give you what I may call definite information as to the future maintenance and conduct of the Society at the present time, and it was under that impression that we convened this meeting. In the meanwhile I may say we have received what we considered a definite answer from Her Majesty's Commissioners.

A Fellow asked his lordship when the answer had been received?

The Chairman: It was about seven or eight days ago that we received it, but shortly afterwards, in that outside intimate conversation in which, as we all know, business is more often transacted than in more formal meetings, we found that the Commissioners did not fully apprehend the meaning of a part of our last proposal, and that it was not at all probable that they could come to any decision. General Scott was good enough to attend the last meeting of our Council, which took place a week ago, and we then found the opinions of the Commissioners as to our last proposal were such as that it would be very possible that a little longer time would bring us face to face with Her Majesty's Commissioners. I offer no opinion upon this, but I should feel more pleased if my honourable friends sitting here at the Council and myself could say we had done all we could, and that we resigned our trust into your hands. But the circumstances of the case being as they are—the Commissioners having before them the explanations we thought it our duty to submit to them, and as we have not as yet received an answer to our communication—all, ladies and gentlemen, we can ask of you is to adjourn the present meeting. We are of opinion that ten days from this time will be ample for us to receive a definite reply from the Royal Commissioners. In justice to Her Majesty's Commissioners I must point out that during the Whitsuntide holidays one man was probably "gone to his farm," while another man had "gone to his merchandise," and hence it was not quite possible for the Commissioners to assemble together. So, as far as that goes, Her Majesty's Commissioners cannot be said to be in fault. Nevertheless, I cannot refrain from saying that it is very unfortunate for the Society that its Council should be, as it were, "hung up" in suspense; and I now speak for my colleagues here and for myself when I say that, should we be so unfortunate as not to be able to announce to you that a definite arrangement with the Commissioners has been come to, we shall feel it our duty to place ourselves unreservedly in your hands and ask you to take such action as to you may seem fit. I do not think I have anything further to add, with the exception of this, that if on this occasion you will take my advice—and it may be that it is given on the last occasion, but in any case it is given after due deliberation and consultation with my colleagues on the Council—you will refrain from any discussion at our present meeting on the position in which the Society now stands. It cannot possibly further the objects we all have in view to raise discussions which, in all probability, might be difficult to answer at this moment; and I therefore ask you to pass *sub silentio* the motion with which I shall conclude—that the meeting be adjourned for ten days. There is another observation I ought to make, and that is, our financial position has been greatly exaggerated. When we took office our debts—and I will not now enter particularly into figures—were very much larger than they are now. The amount of our debts has been steadily diminished under our exertions; but I regret to tell you that very unpleasant action has been taken against our Society by persons from whom, I think, our Society ought to have looked for better treatment. Every one here is aware that our funds have been falling off during the last two or three years, and every one is equally aware we have been obliged to postpone the payment of the prizes granted in former years—of course I mean, as you can well understand, in last year. Well, certain gentlemen having made arrangements with their gardeners that part of the wages of these men should be whatever prizes they could make out of the pocket of the Royal Horticultural Society, and their gardeners not having reclaimed those prizes, actions to recover them have been brought in the names of the gardeners, but in reality on behalf of gentlemen who ought, I think, to show greater consideration for our Society. We have now been placed in the position either of having to pay these prizes, or to be cited in the County Court for them. We choose the latter alternative, for this reason, that although we have funds in our hands, and more than sufficient, to pay those prizes, yet our entire debts at this moment are rather larger than the funds at our present disposal. We think, therefore, that to pay the gardeners under their threats of actions before us would be, under the circumstances I have described, an objectionable form of preferential payment. We (the Council) thought we ought not to pay at all under these circumstances—under threats—unless we could pay twenty shillings in the pound to all, which we can nearly do. But we thought it would be very unfair to our tradesmen if, because these gentlemen—for whom I have very little compassion—choose to press us in an indecent manner, we did not reserve the rights of those who have treated us with consideration. Our tradesmen have not pressed us, as they know very well we shall have ample funds from which every one shall have his due. Well, ladies and gentlemen, at the worst we do not owe half a year's income, and I should like to ask, Can any one, or can most people say they are not half a year in advance of their income? I know I may say a great many people who consider themselves extremely—indeed, remarkably—fortunate when they are no worse off than that. I merely mention this circumstance here because between this and the time of our adjourned meeting you may see reported in the newspapers proceedings in the County Court which may go against us, and in that case, in order to carry out our principle, we shall have to file a declaration of insolvency to protect our other creditors. I hope, however, we shall in a short time be able to make such a statement respecting an arrangement between the Commissioners, the Council, and our own Fellows outside, as will place us in ample funds. But it is well it should be borne in mind that, of all these liabilities we are the inheritors, not the causers. Take my own case as an instance. It was not until after the vote which displaced the late Council that I was induced to become a member of the Society. After that vote I was asked to become a Fellow of the Society, and to do the best I could to place the Society in a better position than that in which it then was placed. I acceded to the call, but I did not consider I should be made responsible for the state of things which then existed. In common with other members of the Society, I regretted that such a state of affairs should exist, but we did not consider ourselves responsible for it. I am prepared, and my friends of the Council around me are prepared, to enter fully and minutely into the circumstances of the Society. We are prepared to submit to you a scheme which we believe will land this society in a prosperous position among the great societies of the country, but, under the present circumstances, you see my lips are sealed, and the lips of my colleagues are also sealed. I hope you will take our advice, and not further discuss the position of the Society. We regret that many of you should have been brought from a distance to attend this meeting in order to aid the freeing of the Society from its difficulties. We, as a Council, are not responsible for the present position, and we anxiously hope and expect you will give us, after I have made this explanation, your undivided support.

Mr. S. H. Godson asked if the Council had any guarantee that Her Majesty's Commissioners would entertain their proposals between this and the expiration of the ten days spoken of by the Chairman?

The Chairman: We have no guarantee whatever.

Mr. W. A. Lindsay wished to say that he was of opinion that if the meeting wished to adjourn for ten days, it would be consistent with the duty the Council owed to the Society to state to the meeting what the nature of the proposals is which Her Majesty's Commissioners had under consideration. The schemes brought before the Commissioners, when he had a knowledge of these matters, were such as neither this meeting nor any other meeting of the Fellows would entertain; and if the Council of the Royal Horticultural Society was in a position to say Her Majesty's Commissioners had accepted them, it would be for the meeting to negative them, which he had no doubt they would do. It was highly important that this meeting, which was now asked to adjourn, should know exactly what the nature of the proposals before Her Majesty's Commissioners were. More than that, it was particularly important that the meeting should have the knowledge of the nature of the proposals, and be able to say whether they were such as they could or could not accept. So much for that part of the address of the Chairman, and he should, in the interests of the Society, ask the Fellows to weigh the matter carefully before they gave their vote upon this question. With regard to a statement of the Chairman he desired to say that as far his own knowledge went it was not perfectly correct to say that the debts of the Society were less than they had been when the present Council came into office. He believed that the debts of the Society were at present larger than they had been. Well, the debts were smaller in one sense, no doubt, but if they were smaller it was because the assets of the Society had been applied by the Council to the payment of the Society's debts. There was one other point in his lordship's speech to which he should allude—it was that with respect to the prizes. As regarded those gentlemen who had obtained the prizes, he felt bound to say that those of them to whom his lordship in the chair referred have very strong reasons to resent the way in which they had been reflected upon. He never knew a gentleman who made the prizes his gardener obtained a portion of his wages, but there were a great many gentlemen who said to their gardeners that if they chose to exhibit these things at their own cost they might exhibit that which had been grown at their cost and expense. Acts of that description were very common, and he did not think it right to say that gentlemen who acted in this way were conducting themselves in an ungentlemanly manner. These very gardeners who had been spoken of by his lordship were out of pocket according to the extent to which they exhibited, and the result of the present position of affairs with respect to the Society was that the gardeners who had exhibited not only did not receive the honours to which, as the prize winners, they were entitled, but, in addition, were out of pocket, and losing money which was their own *bonâ fide* property. Under these circumstances he did not think it justifiable to say the actions in the County Court were being taken in reality by the gentlemen and only ostensibly by the gardeners. He sincerely hoped these gardeners would succeed in their actions. The real reason why the funds of the Society had fallen off was through the neglect of provincial shows, but that was not the fault of the Council but of the general public. The Council might have held a show, and a good show, in the North this year. In conclusion, Mr. Lindsay said he was of opinion that the Chairman ought to state the grounds upon which an adjournment of the present meeting was asked for, and why it was necessary.

Mr. Kellock said that as regarded the gardeners and the loss of their prize-money, Mr. Lindsay really knew nothing at all about the matter. With respect to holding a meeting in the North, it was perfectly impossible to do so. There was no prize-money to be got up there, and it would have cost the Society £2000 in money prizes to go to Wigan at the least.

Mr. Lindsay: I ask you, have you any authority for that statement?

Mr. Kellock: Indeed I have. You were on the Council at that time, and you know all about it.

Mr. Lindsay: What is your authority for that statement?

Mr. Kellock: It was Wigan that you referred to, and it is unfair for any person to make such ungentlemanly and intemperate remarks. You only retired a few weeks ago from the Council, and if you had either good manners or good taste you would not to-day have spoken as you have done.

Sir ALFRED SLADE, Bart., observed that there could be no doubt any one would have thought that the late Secretary of the Council would or could have spoken with some authority. With respect to that he had exactly the same source of information that Mr. Lindsay, the late Secretary, had, and therefore he altogether objected to the principle laid down by Mr. Lindsay that the proposals of the Commissioners should either be disclosed to or discussed by that meeting. He had understood it was the expressed wish of the annual general meeting, and of the adjourned meeting of Fellows of the Royal Horticultural Society, that all these negotiations between this Society and Her Majesty's Commissioners should be entrusted to the Council of the Society. If Mr. Lindsay were in the Council now he would be the very last man to make the speech he had just delivered. Mr. Lindsay said it was untrue the debts of the Society were less than what they were when he first sat at the Board, but in the report presented that fact was stated, and that report was drafted by Mr. Lindsay himself, so that when on the Council he was one who assured the Fellows that he laboured constantly to reduce the debts of the Society. He (Sir Alfred Slade) could assure the meeting that he had as much confidence in the present Council—now that he sat amongst the Fellows—as he had when he sat at the Council Board.

Sir ALEXANDER GORDON remarked that there was one observation he wished to make, and it was this, that it would be most unfair were they to declare their approval of any proposals or arrangement in the meeting without consulting the 5000 Fellows of the Society. Verbal communications had been stated to be sufficient for adjourning the meeting, but he took verbal communications to be most unsatisfactory and dangerous to act upon. He should like to know whether the proposals made to Her Majesty's Commissioners were in writing, and whether they were to be taken into consideration at a future time by the Society?

Mr. GUEDALLA asked that the Council should withdraw the plea of insolvency, and pay the claims put forward in the County Court. It must be repugnant to every gentleman present, especially when it was considered their society was a "Royal" one, to have a plea of insolvency entered on their behalf. Why, he asked, should the Council file a plea of insolvency or a declaration of insolvency, as the Chairman told them? Let the Council pay every claim to the last farthing, and they would be supported by the Fellows of the Royal Horticultural Society.

The CHAIRMAN desired to call the speaker to order for one moment. He (the Chairman) did not say the Council was going to file a declaration of insolvency, but he said that if the cases went on, the Council would rather do so, than pay what they considered preferential claims.

Mr. GUEDALLA thought they should pay what was due to the prize-holders. Why should they be obliged to pay by compulsion? Let them pay away as far as they could, and, when they had paid all they had got, then let them fall back upon the Fellows. He was sure it must be repugnant to every member of the Society to do such a thing as that proposed by the Chairman.

The CHAIRMAN: I trust the subject will not be pressed further. We are ready with our schemes. There are two of them in my hand, and I could read them to you, and tell you everything that has taken place between ourselves and the Royal Commissioners. We are perfectly ready to explain, but we say it is not for the benefit of the Society that we should do so. Addressing to the meeting questions like that which Sir Alexander Gordon put will simply place the Society in the very position I deprecate.

Sir ALEXANDER GORDON: I will only put this question—Whether the fact of asking if the proposals made by the Council of this Society to Her Majesty's Commissioners are in writing, can place the Society in an embarrassing position?

The CHAIRMAN: Of course the whole correspondence with Her Majesty's Commissioners is in writing, and the only reason we do not bring the correspondence before the meeting is that we have not received an answer in writing from Her Majesty's Commissioners. We certainly expect an answer from Her Majesty's Commissioners within ten days, and then we shall be glad to lay the whole matter before you.

Sir ALEXANDER GORDON: Yet you may declare yourselves insolvent before the next ten days.

The CHAIRMAN: We will, as a matter of course, defend the actions. What I said was put by way of illustration. What I did certainly say was that it would be better for us to declare ourselves insolvent than to pay any preferential claim.

Mr. DOBREE (Treasurer): If the Fellows really want to support the Society they ought to pay up the amount of subscriptions they owe: they come to a very considerable amount.

A FELLOW: How much?

Mr. DOBREE: £1240 is due from Fellows on this year. Why do not these Fellows pay up their subscriptions? If they did so, they would materially assist us in carrying on the business of the Society. We have done all we can do, but we cannot get on without money.

A FELLOW: How much would put the Society on a sound financial footing?

Mr. DOBREE: If we could only get £5000 or £6000 dropped into our mouths we should be all right. Supposing we suspended payment to-day, we should have at the bank about £2000. We owe for prizes £1400, and, if I were to pay these rabid prizemen, we should come to a dead stand. I will rather cut my hand off than sign a cheque to pay these prizes. By paying them we should give an undue preference to those men who won prizes at their masters' expense, because those very men who win the prizes win them at the cost of their masters' fuel, hothouses, &c. The thing is ridiculous. I have here one of the most ungentlemanly letters I ever read from a man named Wilkins about his gardener.

A FELLOW: Read the letter.

Mr. DOBREE: No, we will not read it. Then to go on as to our financial position. We owe sundry accounts up to December 31, and some up to March 25, amounting to £1218 14s. 7d. We owe our accountant 52 guineas, and we owe a member of our Council, who put his hand in his pocket to pay for the die of the Lindley Medal, between £60 and £70. That brings up our liabilities to a sum of £2703. Then there are current accounts amounting to say £200 or £300, making us owe, supposing we stopped to-day, rather more than £3000. Against that we have in our banker's hands £2000, and that we intend to protect; and if judgment is given against us in these County Court cases, the best thing we can do is to file a declaration of insolvency, and bring matters to a crisis. (A Voice: "We will find funds.") What are we to do if these men get judgments against us? Are we to pay all or some of them? (Cries of "Pay, pay," and "Order, order.") Well, you may take my place as treasurer of the Society, but I will not sign a cheque to pay these prizes.

Mr. P. BARR: Then some one else must.

Mr. DOBREE: So you may, but I will not. As the treasurer of the Society, I am bound to protect the Society, and hence I will pay no preferential claims. If you insist on my doing it, you will have to find another treasurer. We owe about £3000, and against that you have £2000 in hand. That will pay a very handsome dividend. Your Fellows owe £1200, and we have a claim against Her Majesty's Commissioners for rent, &c., of between £900 and £1000. Still, all that won't enable you to get along to the end of the year. You will want a large sum to enable you to get along to the end of the year.

Dr. Denny and Mr. Godson rose to address the chair, but the latter gave way.

Dr. DENNY observed that the Treasurer had stated, whether rightly or wrongly he would not say, that they should declare themselves insolvent if judgment went against them. Well, they would be insolvent if judgment went against them previous to next meeting. Now he (Dr. Denny) asked what was to become of the Society's show after the statement made to-day that the prizes would not be paid? Would they have any show whatever on June 2? Would it not be better for them to close their doors? Let them not turn swindlers and take 7s. 6d. for admission and yet have no show. Let them keep up the Society as honourable men, and, even if the Society must fall, don't let them open their doors and charge 7s. 6d. for admission and have no show whatever. Let them pay their prizes, because if they went further and they declined to pay their prizes they would not have a single exhibited plant in their tent on Wednesday, June 2. All he could say was, that it was a very serious matter to take the public in.

The CHAIRMAN said the Council did not propose to take the public in. On the last occasion they did not consider the show sufficiently good to warrant them in charging the prices fixed, and they altered the admission to one shilling.

Dr. DENNY: Very good so far, but what is to become of the Society, my lord?

The CHAIRMAN: Perhaps you will find the way to put it straight.

Dr. DENNY: Had we not better wind it up.

The CHAIRMAN: I say wait for ten days, and for God's sake wind it up then.

Dr. DENNY: You actually propose to do it before then.

Mr. A. MURRAY observed that the Society was not altogether insolvent, because they had a large amount of stock at Chiswick, and various matters at Kensington which would bring in considerable sums of money. They had a large number of subscribers and Fellows, and these prizemen, if they were asked, would be only too glad to postpone pressing their claims.

Mr. S. H. GODSON said that one-and-twenty years ago they were in a position similar to their present one, and what did they do? They did not listen to the cuckoo-cry uttered not only by the present but by the former Council. Why did not the Council and the Fellows put their hands in their pockets? He (Mr. Godson) was ready to put down £20 and £5 towards the prizes. Let one hundred others say the same and the whole business would be easily settled. If the present Council or the Royal Commissioners could not give their time to the business of the Society, let a Committee of Investigation be appointed the same as there was twenty years ago. At that time they paid everybody. Let them all now pay as honest men, and let every Fellow put down his name for a certain sum. What had the Society done? They had induced people to come there and go to the expense of exhibiting various produce for prizes. Let them be honest at all events, even if they took the coats off their backs. If, however, a Commission of Investigation were appointed he should be able to show that the Commissioners owed the Fellows some £9000. Well, it was the question now whether they would pay or would not pay.

A FELLOW: Pay of course.

The CHAIRMAN: I now formally move "that this meeting do stand adjourned for ten days."

Mr. ANDREW MURRAY seconded the motion, which was put from the chair and carried, about half a dozen hands being held up against it.

Mr. W. BULL said he wished, before the meeting separated, to say, that while he sympathised with the Council, he was anxious to know was anything being done about the show announced to take place next week. They had not heard a syllable as to what was being done to carry out that show. He thought some scheme should be adopted by which prizes could be got. Why did not the Council take some action with those who were the friends of the Society? The prize money would amount to some £600 or £700, and what was to prevent a number of the Fellows making up the amount? It was a most humiliating thing to see the Society in such a position as it was. In the concluding part of his remarks, Mr. Bull was understood to say that he should be glad to put down £100 towards the prize money.

The CHAIRMAN assured Mr. Bull that his suggestion would be duly considered.

The meeting, which began to break up as soon as the motion for adjournment was carried, then closed.

—— With reference to the statement made by the President, that part of the wages of the gardeners of those gentlemen who exhibit at the Society consisted in the prize money the gardeners might happen to obtain, we are requested by Mr. F. G. Wilkins to state that that statement is, as regards himself, utterly untrue. We are further requested by him to state that he has brought no action against the Society, and has nothing to do with any steps that may have been taken in the matter by his gardener.

Royal Botanic: *May* 26.—The first summer show at Regent's Park, held on Wednesday last, was a marked improvement on many of its predecessors, and as the day was a fine one, though the wind was rather chilling, there was a fair attendance of fashionables, despite the counter attractions at Epsom. The stove and greenhouse flowering plants were, as usual, the chief features of the display, and the palm of superiority may fairly be awarded to Mr. J. Ward, gr. to F. G. Wilkins, Esq., Leyton, who contributed the finest group in the exhibition to the amateurs' class for ten. Most noticeable in his collection were Statice profusa, a plant about 4 feet over, well flowered, and very telling in colour; Erica Cavendishiana, of gigantic proportions, and well done, reminding us of Messrs. Cole's famous old plant; a fine Dracophyllum gracile, with large flowers, and perfectly fresh; Azalea indica sinensis, 4 feet through, with a rich profusion of bright orange flowers, charmingly combined with its fresh green foliage; Aphelexis macrantha purpurea, also very fine, but will be better yet; capital examples of Azaleas Louise Margottin and Duc de Nassau, and a fine Anthurium Scherzerianum. In the same class the 2d prize collection came from Mr. W. Chapman, gr. to J. Spode, Esq., Hawkesyard Park, Rugeley, and it contained, amongst others, an attractive specimen, some 4 feet through, of Ixora Dixiana, and which bore quite a profusion of trusses of its orange-red flowers; Erica eximia superba was also finely represented; while the next good things in the group were Ixora coccinea and Pimelea mirabilis. Mr. J. Carr, gr. to P. L. Hinds, Esq., Weybridge, Mr. G. Wheeler, gr. to Sir Francis Goldsmid, and Mr. G. Toms, gr. to W. Wettenhall, Esq., Seven Sisters' Road, Holloway, were also competitors. For six, the two leading prizes were also taken by Messrs. Ward and Chapman, in the order named. The first-named exhibitor put up his very fine variety of Anthurium Scherzerianum, now distinguished as variety Wardianum, and which bore seven immense spathes; together with another good example of Azalea indica sinensis, a large and fine Erica Cavendishiana, and a beautifully-flowered Erica florida, some 4 feet over. Mr. Chapman had Ixora Williamsii, in fine flower and foliage, some of the trusses measuring quite 6 inches across; and Aphelexis macrantha rosea, very bright in colour, and most attractive by its freshness. In the nurserymen's class for twelve, Messrs. Jackson & Son, of Kingston

took the lead, followed by Mr. B. S. Williams and Mr. E. Morse, of Epsom. In Messrs. Jackson's fine group were Erica depressa multiflora, from 3 to 4 feet through, and finely flowered—a very telling plant; Dracophyllum gracile, large and nicely flowered; Aphelexis macrantha purpurea, over 4 feet through; a good Anthurium Scherzerianum, Statice profusa, and Pimelea Hendersoni, both well done, &c. Mr. B. S. Williams followed, with a large and finely flowered Azalea Baron de Pret, a good Hedaroma tulipiferum, and capital specimens of Erica Cavendishiana, E. tricolor Wilsoni, Aphelexis rupestris rosea, and an Anthurium Scherzerianum with some thirty spathes. In a group of six from Messrs. Jackson & Son the most noticeable examples were of Clerodendron Balfourianum, and Phænocoma prolifera Barnesii, though all were in fine condition.

Fine-foliaged plants were not represented in any numbers. The best six amongst amateurs came from Mr. G. Legg, gr. to S. Ralli, Esq., Clapham Park, who put up some young plants remarkably well grown, including Dracæna Baptistii, from 3 to 4 feet high, and possessing most perfect foliage; Croton Weismanni, a cone-shaped plant, about 5 feet high, finely furnished with foliage, but hardly in so fine colour as it will be presently; a fine Geonoma pumila, a good Dieffenbachia nobilis, and a very fine Croton Youngii. Mr. W. Chapman was 2d, with good examples of Croton angustifolium, Latania borbonica, Croton variegatum, Corypha australis, a fine Dæmonorops, &c. In the corresponding class for nurserymen Mr. B. S. Williams was 1st with two fine Crotons, a very fine Livistonia, Cycas revoluta, Gleichenia semivestita, and Pandanus Veitchii.

The Orchids were few in numbers, but very fair in quality for a metropolitan show. The most attractive plant of the whole was one of Odontoglossum vexillarium, with three spikes upon one bulb, the total number of flowers being seventeen, and all magnificent in size, and most charming in colour. This, with a nice Odontoglossum Phalænopsis, a Cypripedium villosum with about thirty flowers, Phalænopsis grandiflora with seven branching spikes, &c., came from Mr. J. Ward, and took the 1st honours in the amateurs' class for six. Mr. J. Child, gr. to Mrs. Torr, Garbrand Hall, Ewell, was 2d in the same competition with Dendrobium Farmeri having six good spikes, Lælia purpurata superba, Oncidium ampliatum majus, Aerides Fieldingii, &c. Mr. B. S. Williams took the lead amongst nurserymen with a fine Cypripedium villosum, Lælia purpurata, with seven spikes of five and six flowers each, richly coloured; Cattleya Mossiæ with seventeen flowers, a fine mass of Cypripedium barbatum superbum, and nice examples of Vanda tricolor insignis and Aerides odoratum majus. Messrs. Jackson & Son stood next with Vanda suavis, bearing a dozen spikes; Cattleya Mossiæ superba, with twenty flowers; Dendrobium macrophyllum giganteum, &c. Mr. E. Morse, Epsom, was 3d.

Azaleas were plentifully represented as to numbers, but, generally speaking, they were rather poor. In the amateurs' class for six in 12-inch pots, a neat group of well flowered cone-like plants, some 3 feet high, came from Mr. Child, and took the 1st prize; Mr. G. Wheeler being 2d, and Mr. Ratty, gr. to R. Thornton, Esq., Sydenham Hill, 3d. The last named exhibitor had the best six amongst amateurs, all being large specimens, and the best, a flat-headed plant, about 5 feet over, of Striata formosissima. Mr. Child was 2d. The corresponding class for nurserymen brought out a group from Messrs. J. Ivery & Sons, Dorking, which, though only of medium size, were unsurpassed by anything for finish, profusion of bloom and richness of colour, and the 1st prize was awarded to them; Messrs. B. S. Williams being 2d, and Messrs. H. Lane & Son 3d. For a dozen plants in 12-inch pots the Messrs. Ivery & Son again came in 1st, followed by Mr. Turner and Messrs. H. Lane & Son, the latter of whom were also awarded a bronze medal for a small group.

Heaths were capitally represented as to numbers, but the plants ran small all through. Mr. Ward and Messrs. Jackson & Son took the 1st prizes in the amateur and trade classes respectively. Mr. Ward's specimens of E. tricolor impressa, elegans, ventricosa magnifica, eximia superba, and ventricosa coccinea minor, were very nicely bloomed. Messrs. Jackson's best were of E. depressa, a fine plant, and E. ventricosa coccinea minor. Mr. Morse came in 2d with, amongst others, well bloomed plants of E. Westphalingia and E. mirabilis. The last two exhibitors also took the prizes in the same order in the class for twelve, while in a corresponding competition among amateurs Mr. Ward and Mr. G. Wheeler took the lead.

Of exotic Ferns there were but a few, and the best of these came from Mr. Ritchie, gr. to R. H. Prance, Esq., Frognal, Hampstead; his specimen of Davallia Mooreana, the only plant calling for any particular notice, is certainly a grand plant, surpassing in its dimensions Mr. Oswald Wrigley's specimen alluded to in our last. This fine Fern promises to become one of the most popular for exhibition work. Mr. Williams had the best six amongst nurserymen.

The competition with Roses in pots was confined to Messrs. Paul & Son and Mr. Turner, the first-named firm being 1st for nine and for twenty in 8-inch pots, Mr. Turner being 2d in both cases, while he was 1st for six, with the Messrs. Paul 2d. Amongst the examples from the latter firm we noticed highly-finished specimens of Céline Forestier, Vicomte Vigier, Madame Alice Dureau, Victor Verdier, and Camille Bernardin; and Mr. Turner's best were of Miss Ingram, Madame Margottin, Maréchal Vaillant, Juno, Victor Verdier, all fresh and well bloomed.

The show Pelargoniums, as a whole, were an improvement on last year's plants, and made a capital display. Mr. J. Ward occupied his old position in the show as well as in the prize list, and his specimens, though good, will yet be better in a few days. The varieties he staged were Rose Celestial, Alabama, Rob Roy, Maid of Honour, Desdemona, Lady Canning, Warrior, Mary Hoyle, and Royal Albert. Mr. J. James was 2d, showing a better-finished group of plants than we have seen from him before; Messrs. Dobson & Sons being 3d. Mr. James was also 1st for six, with a neat group.

Herbaceous plants were particularly well represented in a dozen specimens from Mr. R. Parker, most noticeable amongst which were Pinguicula grandiflora, with nineteen flowers, very fine; Hyacinthus amethystinus, porcelain-blue, very pretty; Orchis foliosa, with eleven strong spikes; Spiræa palmata; Lupinus polyphyllus magnificus, Pyrethrum, Pæonies, &c.

New plants were shown, as usual at the summer shows here, in considerable numbers, by Messrs. Williams, Veitch, Henderson, Bull, and others; and Botanical Certificates were voted to Mr. Croucher for Agaves Bessereriana major, Veitchii, Beaucarnei, marmorata, Pilgrimii, polyacantha, pubescens, Fourcroya variegata, and Dasylirion longifolium glacum. To Messrs. Jackson & Son for Athyrium Filix-fœmina Jacksoni and Phegopteris Dianæ. To Messrs. Veitch & Sons for Vanda Parishii, Cattleya tricolor, Cypripedium selligerum, Nepenthes albo-marginata, Abutilon Darwinii, Agave Salmiana foliis aureo-variegata, Adiantum Hendersoni, Platycerium Wallichii, and Odontoglossum vexillarium album. To Messrs. Jackman & Son for Clematis albam agna (see p. 685), Mrs. Hope and J. P. Gassiott. To Mr. B. S. Williams for Acalypha marginata, Agave marmorata, Alsophila australis Williamsii, Geonoma gracilis, Platycerium Wallichii, Dictyogramma japonica variegata, and Polystichum lepidocaulon. To Messrs. E. G. Henderson & Son for Sonerila Hendersoni, and Dracæna Princess Teck. To Messrs. Low & Co., for Dendrobium Wardianum var. To Mr. Bull for Blandfordia princeps, Athyrium Filix-fœmina apicale, Osmunda obtusifolia, Sadleria cyatheoides, Cibotium glaucum, and Nephrodium truncatum. Floral Certificates were awarded to C. B. Foster, Esq., Clewer Manor, for Show Pelargoniums Sappho, Flirt, Magician, Eclipse, Revenge, and Edith. To Mr. Turner for Fancy Pelargoniums Miss Porter and Countess of Dudley; and for forcing Pink, Derby Day. To Mr. Bull for Pelargonium Beauty of Oxton.

Blackburn Horticultural: *May* 17, 18, *and* 19.—This flourishing Society held its annual show on the above dates. Notwithstanding the sunless season we have had and the exhibition being held a fortnight earlier than usual, the show was a good one. Stove and greenhouse flowering plants especially were produced in such numbers, and so profusely flowered, as to evidence the close attention that had been bestowed upon them. Orchids were forthcoming in good condition, but there was not so much variety as is possible a little later on. Exhibitors of Pelargoniums put in any appearance in numbers and made a fine display, as also was the case with variegated and fine-foliage plants. Mr. Bull's handsome cups brought out three competitors, showing a dozen plants each. Mr. E. Whitehead, gr. to R. B. Dodgson, Esq., Bearwood, Blackburn, was 1st, with a very good collection, the best of which was Croton majesticum, large and well grown, Vriesia reticulata, and Dracæna Baptistii; Mr. J. Eyes, gr. to John Tattersall, Esq., Quarry Bank, Blackburn, 2d, with a smaller group. For ten miscellaneous plants, in 10-inch pots, not less than five in flower (the prizes given by Mr. B. S. Williams), Mr. Eyes took 1st honours, with a nice fresh lot, noticeable amongst which was a fine plant of Ixora Prince of Orange, and Dendrobium Devonianum. Mr. Whitehead, who was 2d, also staged an interesting collection. In the class for ten large mixed flowering and foliage plants (Orchids excluded) there was a keen competition, all the competitors staging well grown examples of both flowering and foliage subjects. Mr. Eyes was 1st; his Hedaroma tulipiferum, H. fuchsioides, Clerodendron Balfourianum, and Ixora Williamsii were beautifully flowered: amongst his foliage plants were good specimens of Cocos Weddelliana and Phormium Veitchii variegatum. Mr. R. Goodall, gr. to John Thompson, Esq., Bank Villas, Blackburn, was 2d; and conspicuous amongst his blooming subjects were a beautiful example of Acrophyllum venosum, a very large and well flowered Anthurium Scherzerianum, the bright red Erica ventricosa grandiflora, and Azalea Duc de Nassau. In this lot was a good specimen of the rush-leaved Buonapartea juncea. Mr. Walton, Edge End, near Burnley, was 3d, exhibiting amongst others a well bloomed Chorozema cordatum splendens, and a fine specimen of Cycas revoluta. For six stove and greenhouse plants in flower Mr. Whitehead was 1st, his best plants being Anthurium Scherzerianum, with some forty large well-coloured flower-spathes, a highly coloured Bougainvillea glabra and Dracophyllum gracile; Mr. Goodall, who was 2d, had a nice example of Adenandra fragrans, Clerodendron Balfourianum, and Epacris Eclipse. In the class for four stove and greenhouse plants in flower Mr. Goodall came in 1st, showing a well-flowered Anthurium Scherzerianum, and Erica ventricosa magnifica.

For six Orchids Mr. Whitehead took both 1st and 2d prizes, with, amongst others, a well bloomed Cattleya Mendelii, the lovely Vanda teres Andersoni, with four good spikes—a scarce plant, which few succeed in flowering well; Dendrobium densiflorum with thirty spikes, D. Schroderii bearing eleven spikes, and Aerides virens in beautiful condition, many of its spikes branching. Mr. J. Perrin, gr. to W. Bury, Esq., Accrington, was 3d, his plants being smaller than Mr. Whitehead's, but well grown and very fresh—the best were Masdevallia Lindeni, and Aerides Fieldingii. Mr. Whitehead was again 1st for four Orchids, his collection containing a very good Cattleya Warneri; Mr. Goodall 2d, Mr. Perrin 3d. For six fine-foliage plants Mr. Whitehead was 1st, having amongst others a very fine Livistonia altissima and Maranta Veitchii Four fine-foliage plants: Mr. Eyes 1st, showing a good example of Zamia Lehmanni, Anthurium crystallinum, and others; 2d, Mr. Whitehead, his best being Macrozamia spiralis eburnea, and Pandanus Veitchii. Fine-foliage plants, in 8-inch pots, were collectively well shown: 1st, for eight, was Mr. Eyes, his Aralia Veitchii, Croton Weismanni, and Curculigo recurvata variegata were remarkably well done. Mr. Walton and Mr. Whitehead were respectively 2d and 3d. Mr. Goodall had the best six Azaleas, his finest plants being magnificans and Juliana. For four Azaleas Mr. Goodall was here again 1st, Mr. Eyes 2d.

For Twelve exotic Ferns Mr. Eyes was 1st, showing amongst others Gleichenia circinata glauca, G. Speluncæ, Davallia Tyermannni, and D. Mooreana; 2d, Mr. Whitehead. Six Ferns: 1st, Mr. Eyes. In the class of ten and also six British Ferns, Mr. Whitehead was 1st, with nice evenly matched plants.

For six show Pelargoniums, which were well shown, Mr. Eyes was 1st. In the tricolor class Mr. Faragher, gr. to William Thompson, Esq., Clerk Hill, Whalley, and Mr. Newsham, gr. to W. F. Calvert, Esq., Accrington, were equal 1st. In Zonals and Bronzes Messrs. Goodall and Faragher took 1st prizes respectively.

Mr. Eyes exhibited half-a-dozen very good pot Roses clothed with healthy foliage, and well flowered. Mr. Rylance, nurseryman, Ormskirk, showed a good collection of Pelargoniums; Mr. B. S. Williams a varied and interesting group of miscellaneous plants; as also did Mr. Walton, of Edge End Nurseries, Burnley; and Mr. Bury, nurseryman, New Mills. Mr. Matthews, of the Royal Pottery, Weston-super-Mare, had a very extensive assortment of vases, pots, and Orchid baskets. (*From a Correspondent.*)

Garden Operations.

(For the Ensuing Fortnight.)

PLANT HOUSES.

Greenhouse Hard-wooded Plants. — Small plants of *Aphelexis* that it is desirable to grow on quickly will be much benefited by the removal of the flowers as soon as open; so treated they will make double the growth through the season that they can be induced to do if the blooms are allowed to remain long upon them. The bright flowered *Gompholobium polymorphum splendens* and *G. barbigerum*, *Chorozemas*, *Dillwynias*, and *Pimeleas* must not be allowed to remain without shade when in bloom, or the colour of the flowers will be much injured, and their duration shortened. Specimen plants of all the above, and also *Epacris*, *Polygalas*, *Boronias*, *Acrophyllums*, and any others of similar character required for exhibition later on must be shaded from the sun more or less, according to the time they will be wanted, but whatever is used in this way must not be too thick so as to darken them too much, neither should it ever be allowed to remain over them when not absolutely required. Light the plants must have, or they will suffer in health, as also in the quality of the present season's bloom: plant that are thus placed in retarding houses are much cooler than such as are in houses that the sun comes full upon, and if they are shaded make little progress at the root, and require to be watered with care, letting the soil

get drier before watering than would be advisable with plants whose roots were in a more active state. Young hard-wooded stock that was potted early, and whose roots have now got well hold of the soil, should receive more water.

It is a very common but obvious error to suppose that only stove plants require the water they receive to be at a temperature something like the atmosphere of the house they are in. In this way greenhouse subjects often have water applied to them many degrees colder than the air they exist in; this naturally cools the soil and chills the roots, and at no time in the year is it so injurious as during the spring, when both roots and leaves are in a growing tender state. Water used for plants of this description should stand in the house where they are grown. Provision should be made for this by a cistern, large tub, or anything that will hold enough for at least a day's supply; if in a small cistern, this should not be sunk in the earth within the house, or the surrounding soil will keep the water much colder than the air in the house, especially when the quantity held is small and has to be replenished from day to day. Neither is water from large underground tanks, wherein is collected that which falls from the roofs, always fit for any, even the most common plant—if, as often seen, such tanks are insufficiently ventilated, emitting a putrid bad smell. Plants watered continuously with such water cannot be expected to keep in a healthy condition.

Camellias.—The plants that flowered late, now making growth, will, if their pots are well filled with roots, be benefited by the use of manure water, which may be given regularly to them until the buds are set. Those that bloomed early and were at once started into growth so as to have them in bloom by the end of October and through the close of the year, will by this time have set their flowers. The buds in some cases having attained considerable size the plants must not be allowed to remain in heat too long or they may possibly open their flowers before the time they are wanted. The rate of progress they make after being removed from heat will all depend upon the aspect of the house they are kept in. Should there ever be signs through the summer of Camellias coming into bloom too early, a north house, if such is available, will be the proper place to put them in, or behind a north wall with a temporary covering of loose lights; this means, if taken in time, will effect the desired object. Camellias should never, if avoidable, be placed out fully exposed, for although they require a deal of water whilst making their growth, the soakings they get during thunderstorms, when in the open air after their growth is completed, during what may be termed their dormant season, often has the effect of doing serious injury by causing the buds to fall later on, although this may occur at a time so far after as not to be always attributed to the true cause.

Azaleas. — Plants that have flowered some time back will now be making growth, and such as require more root-room should be at once potted. It is not well to shift Azaleas before the growth has made some progress (as is done with most other hard-wooded plants), through the fact of their not beginning to root until after flowering and some progress made in growth. Do not over-pot, as they do not require so much root-room as many things. Shade for a few weeks after potting, and keep the house close and moist. Keep a good look-out for thrips, especially on any plants that were much affected last year. As has frequently before been advised, washing with tobacco-water is the safest remedy, as fumigation is always liable to injure the leaves, and more so whilst they are in a young and tender state. *T. Baines.*

FRUIT HOUSES.

PINES.—Strong suckers which were potted last March should by this time be in the fruiting pots, and those of lesser size should likewise be already advanced a stage towards that condition. If this be not the case with regard to the plants in question, no further delay should be tolerated, as even under most careful attention, to retain such plants for a prolonged period in small pots at this season will prove to be both debilitating and detrimental to them. Recently potted plants should have a regular temperature of from 85° to 95° at the roots, and be thoroughly watered after being repotted. If there is a period at which more care than usual should be exercised in this matter, it dates from this time onwards until new roots have taken firm hold of the new soil; much care, therefore, is necessary, and the state of individual plants should be first ascertained before its application. All young stock should now be making rapid progress; every necessary requirement should, therefore, be attended to with regularity. By all means allow such plants liberal space; nothing is more inimical in the formation of sturdy plants than crowding them thickly together at this stage of growth; slightly ventilate the structures early in the day at 75° or 80°, so as to withdraw from the foliage of the plants condensed moisture before powerful sunshine comes in contact with them; its frequent presence will have by this time sufficiently inured it so as to withstand its effects without injury; therefore, shading should be discontinued to successional plants, but in the case of fruiting ones, with the crowns in close proximity to the glass, it will be prudent to continue it. Continue to afford every encouragement to plants with fruit swelling off, as before advised. Where too many fruits are ripening at one time, and it is desirable to somewhat retard that period, remove the plants to a cooler place after the colouring process has commenced. *G. T. Miles, Wycombe Abbey.*

THE ORCHARD HOUSE.—*Apricot trees* in this structure should by this time have had their fruit carefully thinned out. In nearly all instances this fruit has this season set in abundance. Strong growing shoots should also be stopped or pinched back in order to give increased strength to more weakly ones, and by this means secure if possible a uniform development of the trees. *Peaches* and *Nectarines* will now likewise require similar attention as regards pinching in of strong shoots and thinning of fruit. And this may also be necessary in the case of *Cherries, Plums,* and *Pears,* as a moderate crop of fine well-ripened fruit is much to be preferred to a larger crop of inferior quality. *Figs* have also set plentifully, and all strong shoots should now be stopped, and weak and superfluous ones rubbed off. All trees in pots may now be benefited by weak manure-water, applied at intervals, say about twice a week, in order to encourage the swelling of the fruit. In cases where *Peach* and *Nectarine trees* are planted out in prepared borders of soil, the surface of the same should be kept well mulched with partially rotted manure, as this encourages the roots to remain near to the surface, and tends also to check undue evaporation, and to render less water necessary. It also prevents the water when applied from running off, or forming channels for itself, which it is very likely to do should there be the least inequality in the level of the surface of the soil; consequently, portions of the borders are not unfrequently left quite dry, the water having merely flowed over the surface without having had time to sink into and thoroughly moisten the earth. *P. Grieve, Culford, Bury St. Edmunds.*

KITCHEN GARDEN.

Tender things, comprising the following subjects, if properly hardened by gradual exposure, will be in a fit state for planting out, and should forthwith have attention. *Capsicum, Sweet Basil, Knotted Marjoram,* and *Summer Savory,* will do well planted in individual rows at the base of a wall having a south or eastern aspect, at about 9 inches or a foot distant apart, or otherwise on warm, sheltered borders in rows about 15 inches asunder. For *Vegetable Marrows* choose a piece of ground which is fully exposed to sunshine, which abounds with manure, and where water can readily be supplied whenever it be required. If hand-glasses — "those from early Cauliflowers being generally available in private establishments for this purpose"—can be afforded for a short period it will be an advantage.

Tomatos.—These plants delight in well-enriched soil, and which, if prepared for the purpose, should consist of two parts strong loam, with one part decomposed manure, to which, under any conditions of cultivation, about 3 inches more of the latter should be added as a surface mulching. The earliest fruits of this useful esculent ripen tolerably well in the southern and midland counties generally. This, however, is not the case in all parts of the country, and even where it is so, quantities are cut annually in the autumn in an immature state, and consigned in bunches, or laid out singly on shelves, in glasshouses or elsewhere, to be ripened in an unnatural manner. Under such a conditions the fruit cannot be expected to obtain that degree of perfection which is to be found, both in regard to colour and flavour, in those which are perfectly matured on the plant; therefore, where means are at command to cultivate them entirely under glass, the practice is worthy of commendation. Our chief supply is obtained in this way. The conditions under which we have secured the best results, have been in places where a free circulation of air is provided, a somewhat dry, atmospheric state, keeping the fruit entirely free from moisture, but supplying it liberally with an admixture of guano at the roots.

Celery plants in an advanced state should also be put out in trenches; single rows are preferable now, because in that way it is not so likely to get drawn, and become piped. In the preparation of trenches, a plentiful supply of well-decomposed manure is requisite. This should be dug in in a moist state, and be kept so constantly, leaving from 4 to 6 inches of soil on the surface. The rain we have recently had has already produced marvellous effects on vegetation, and so far the condition of things generally is such as to prognosticate the promise of abundant fruitfulness. The early crops of *Peas,* &c., which were mulched, will now withstand drought. The occasion was timely for all thinning operations, and for such purposes was doubtless made available, and for planting out advanced crops of *Cauliflower, Broccoli, Brussels Sprouts, Savoys,* &c. At all seasonable times keep the surface soil, when it is exposed, well stirred about all growing crops. Stake *Scarlet Runner Beans* before the vines are much advanced in growth, using strong, stout stakes for this purpose if they are obtainable. If requisite, another sowing of *Dwarf* and *Runner Beans* should be made at the end of this month. Well ventilate late crops of *French Beans* in frames, and keep them and *Carrots* also abundantly supplied with water. *G. T. Miles, Wycombe Abbey.*

Variorum.

TO AN EMINENT POMOLOGIST—
ONE OF THE JUDGES AT THE CRYSTAL PALACE CAT SHOW.

Forsaking Apple, Plum, Grape, Pear and berry,
The pips of Quinces and the stone of Cherry,
Pomiceous Doctor —— what *are* you at
To leave your Pippins—all to judge a cat!

Whether this Tom was heavy, that one light,
Whether that Tabby *would* stop out all night,
To find why Toms are all so fond of outing,
And whether Manx's tails had taken to sprouting—

Why blue-eyed cats are deaf, Angoras fat,
And kittens blind are born as any bat.
Is it that Codlin Cat-heads led the way,
Or solely was it honour had the day?

Has the great Crystal Palace, like a stove,
Forced you from Malic pleasures far to rove?
Did *animal delights* tempt you away
To furry cages on the Cat-show Day—
From garden joys as straight as is a pea-line
To quiz those "cats-heads" from a *fellow feline?*

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
FOR THE WEEK ENDING WEDNESDAY, MAY 26, 1875.

MONTH AND DAY.	BAROMETER. Mean Reading Reduced to 32° Fahr.	BAROMETER. Departure from Average of 18 Years.	TEMPERATURE OF THE AIR. Highest.	TEMPERATURE OF THE AIR. Lowest.	TEMPERATURE OF THE AIR. Range.	TEMPERATURE OF THE AIR. Mean for Day.	TEMPERATURE OF THE AIR. Departure of Mean from Average of 18 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Degree of Humidity. Sat.=100.	WIND. Average Direction.	RAINFALL.
	In.	In.	°	°	°	°	°	°			In.
May 20	29.58	−0.16	50.8	13.8	13.0	19.5	− 4.2	49.4	89	S.S.W.; S.	0.13
21	29.52	−0.22	70.8	52.8	18.0	59.7	+ 5.8	53.1	81	S.; S.S.E.	0.00
22	29.69	−0.06	66.4	52.0	14.4	56.4	+ 2.3	50.4	80	SSW.; S.	0.03
23	29.98	+0.23	64.5	47.8	16.7	54.7	+ 0.4	42.9	64	S.W.	0.00
24	30.21	+0.46	70.6	45.4	25.2	56.8	+ 2.2	41.8	64	S.W.; WSW	0.00
25	30.11	+0.35	68.2	48.2	20.0	57.0	+ 2.0	47.4	70	W.; WNW	0.00
26	30.05	+0.29	64.0	48.2	15.8	54.6	− 0.6	49.1	58	NNW.; N.	0.00
Mean	29.83	+0.13	65.9	48.3	17.6	55.5	+ 1.1	46.4	72	S.S.W.	sum 0.16

May 20.—Overcast, dull; heavy rain in afternoon. A gale of wind.
— 21.—A fine day, though dull at times. A smart shower of hail fell at 4 P.M.
— 22.—A very fine clear day.
— 23.—Fine, bright, and partially cloudy throughout.
— 24.—A very fine cloudless day. Warm.
— 25.—A fine day, but dull and gloomy in morning.
— 26.—Fine, bright, and partially cloudy throughout.

—— In the vicinity of London the reading of the barometer at the level of the sea decreased from 30.25 inches at the beginning of the week to 29.58 inches by about noon on the 18th. It then turned to increase, and by the morning of the 20th was 29.81 inches; decreased to 29.74 inches by the afternoon of the same day, increased to 29.85 inches by the early morning of the 21st, decreased to 29.62 inches by the afternoon of the same day, and increased to 29.92 inches by the end of the week. The mean reading for the week was 29.84 inches, being 0.39 inch lower than that of the preceding week.

The highest day temperatures of the air at 4 feet above the ground varied from 72° on the 16th to 56¾° on the 20th, the mean weekly value being 65¾°. The lowest night temperatures of the air ranged between 43¼° on the 17th and 52¾° on the 21st, with a mean for the week of 47¾°. The mean daily range of temperature was 18°, varying from 24¼° on the 17th to 13° on the 20th. The mean daily temperatures of the air, and the departures from their respective averages were as follows:—16th, 58°.9, +6°.1; 17th, 54°.5, +1°.3; 18th, 55°, +1°.5; 19th, 48°.6, −5°; 20th, 49°.5, −4°.2; 21st, 59°.7, +5°.8; and 22d, 56°.4, +2°.3. The mean temperature for the week was 54°.7, being 1°.3 below the average as deduced from sixty years' observations.

The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in sun's

rays, were 133½° and 135¼° on the 16th and 17th respectively, but on the 20th it did not rise above 96½°. The lowest readings of a thermometer on grass with its bulb fully exposed to the sky, were 39½° on the 17th, and 40¼° on the 20th, but on the 16th 40° was the lowest reading recorded by this instrument. The direction of the wind was mostly from the S.W., and its strength gentle. The weather was fine throughout with the exception of the 20th, which was dull and overcast. Lightning was seen on Monday night, and a thunderstorm occurred on Wednesday afternoon, accompanied by heavy rain and hail. Rain fell on four days to the amount of 0.30 inch.

In England, the extreme high temperatures observed by day ranged from 77° at Manchester to 68° at Liverpool and Hull, the general average being 71°. The extreme low temperatures observed by night varied between 44° at Truro and 36° at Manchester and Hull; the general average over the whole country was 39¾°. The mean of the extreme ranges of temperature in the week was 31½°, the greatest range being at Manchester, 41°, and the least range at Liverpool, 25⅛°. The mean high day temperatures ranged between 66¼° at Manchester and 59¾° at Liverpool, with an average value of 63¾°. The mean low night temperatures varied from 48¾° at Truro to 42° at Eccles and Hull, the general average being 44¼°. The mean daily range of temperature in the week was 19¼°; the greatest range was at Sunderland 23¼°; and the least at Liverpool, 14¼°. The mean temperature of the air for the week was 52¼°, being 3° higher than the value for the corresponding week in 1874; the highest occurred at Blackheath, 55¼°, and the lowest at Eccles, 50⅛°. Rain fell on five or six days in the week at most stations, the amounts collected at the various places varying from one inch and six-tenths at Sheffield, and one inch and three-tenths at Manchester and Eccles, to two-tenths of an inch only at Norwich; the average fall over the country was eight-tenths of an inch.

The weather was fine and bright throughout, except on the 20th, which was dull, and overcast throughout.

Lightning was seen on Monday night, and a thunderstorm occurred on Wednesday afternoon.

In Scotland the highest temperatures ranged from 67° at Perth and 59° at Paisley, the general average being 63°. The lowest temperatures varied between 40° at Glasgow and 38° at Perth, with a general average of 39¾°. The mean range of temperature in the week was 23¾°. The mean temperature of the air for the week was 51¾°, being 2¼° above the value of the corresponding week in 1874, the highest being at Leith and Dundee, 52¼°, and the lowest at Glasgow and Paisley, both 50°. Rain was measured at each of the above-mentioned stations, the amounts ranged between six-tenths of an inch at Glasgow and two-tenths of an inch at Dundee, the average fall over the country was four-tenths of an inch.

At Dublin the highest temperature was 71°, the lowest 34°, the mean 51¾°, and the fall of rain 0.45 inch.

JAMES GLAISHER.

Answers to Correspondents.

ADIANTUM: *J. S.* The variety magnificum is one with very large pinnules, rather thickly placed, so that the fronds look well filled. What you send does not appear to be this, but a somewhat vigorous growth of Adiantum Capillus-Veneris.

APPLE: *L. H. V.* We are unable to name it. It is too late in the season to name such fruits with any degree of certainty.

BLUE BEDDING PANSY: *C. P.* Try Viola Blue Bell. We cannot say whether it comes true from seed.

CALCEOLARIAS: *F. & S.* The flowers sent represent a very good strain of the yellow ground spotted series.

CURRANT SHOOTS INJURED: *A Northern Subscriber.* The materials you have sent are scarcely sufficient to enable us to give an answer. From the poor development of the only bud, and a peculiar appearance about the impoverished shoot, we suspect that your Currant tree is attacked by the little mite which is so destructive, and which has been so often described in the *Gardeners' Chronicle*. If you will send next year some buds from the same bush just ready to be developed, and packed so as to arrive in a fresh condition, we may possibly be in a condition to answer the question. *M. J. B.*

DAISY: *G. M., Wemyss Bay.* Your seedling quilled red Daisy is certainly worth growing on account of its rich deep blood-red colour. The conical form of the flower, too, is very peculiar.

INSECTS: *Ch. Van G.* The insect sent, found upon a plant of Euonymus angustifolius, is a species of Coccus closely allied to, if not identical with, the common Vine fretter, C. vitis. The eggs are deposited beneath the body, and as they increase in number and size they raise up the body of the parent (which gradually assumes the appearance of a scale), and are enveloped in the waxy cotton-like material so common in these and allied insects. *J. O. W.*

MONSTROUS APPLES: *H. Morgan and G. Cannon.* You send us double Apple blossoms in which the true fruit, the core, is not formed, and wherein the petals are increased in number. Such productions are more common on the midsummer shoots than on the earlier ones.

NAMES OF PLANTS: *John Fryer.* Pavia rubra. You ought to be able to get it at any tree nursery.—*F.* Solanum jasminoides.—*Zit.* 1, Tilia europæa, var. laciniata; 2, Æsculus flava; 3, Lonicera alpigena; 5, Cornus.—*J. A. P.* Allium subhirsutum.—*H. H. C.* Yours is the true Viola pubescens, Ait. The plant mentioned as being in flower at Kew, p. 630, under the name of V. pubescens, was incorrectly named. It is V. cucullata, Ait.—*Galloway.* 1, Anchusa sempervirens; 2, Corydalis lutea; 3, Phlox procumbens; 4, Symphytum tuberosum; 5, Pulmonaria officinalis; 6, Epimedium alpinum.—*G. E.* Daphne Cneorum.—*N. C.* 1, Vaccinium corymbosum; 2, Staphylea pinnata; 3, Halesia tetraptera. We shall be obliged for the sketches you propose sending.

PHORMIUM TENAX FOLIIS VARIEGATIS: *W. Brown.* This plant is not often seen in bloom. The flowers of P. tenax are bright orange tipped with red, and produced on a long panicle.

ROYAL HORTICULTURAL SOCIETY: We inadvertently omitted to mention in our report of the last meeting of this Society that Messrs. James Carter & Co. were voted a silver medal for a nice group of plants, including some excellent pot specimens of Mignonette, and their richly coloured new Coleus, Duchess of Edinburgh.

WIREWORMS: *Amateur.* There is no more efficient method of getting rid of wireworms than by turning the soil over several times and hand-picking them. As the space you have infested with them is so limited this would seem the easiest and best way to deal with them. Other remedies are to mix a little gas lime or spirit of tar with the soil, freely turning it over subsequently; or mix pieces of linseed cake and Potatos with the soil.

CATALOGUES RECEIVED.—Louis Van Houtte (Royal Nurseries, Ghent, Belgium), Illustrated Catalogue of Stove and Greenhouse Plants, Cactuses, Pelargoniums, New Roses, &c.—E. G. Henderson & Son (Wellington Road, St. John's Wood, London), Illustrated Spring Catalogue of Stove, Conservatory, and Bedding Plants.—Messrs. Paul & Son (The Old Nurseries, Cheshunt), Catalogue of New Roses, and Dahlias, Delphiniums, Fuchsias, Pelargoniums, &c.

COMMUNICATIONS RECEIVED.—Beta.—J. S., Updown.—J. A. S.—J. B. D.—R. S. H.—J. S.—J. D.—R. D.—R. T.—T. L.—N. B.—J. B.—W. P.—J. G. B.—W. P.—A. D.—P. L. S.—J. C.—J. Ce.

Markets.

COVENT GARDEN, May 27.

A FREE supply of outdoor produce, and better attendance at market; that from under glass does not at present come up to the usual standard. Gooseberries and Ashleaf Potatos are a dull trade, at considerable reduction, the consignments being very large during the week. We have notice of a fresh arrival of St. Michael's Pines, most probably will be sold by this time. *Thos. Taylor, Wholesale Apple Market.*

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Azaleas, p. 12 sprays	0 6-	1 6	Narcissus, do., dble., per doz.	..	0 6- 1 6
Carnations, 12 blooms	1 6-	3 0	Nemophila, 12 bun.	1 6-	3 0
Cineraria, p. bunch	0 9-	1 6	Pelargoniums, 12 spr.	0 6-	1 6
Deutzia, per bunch	0 4-	1 0	— Zonal, do.	..	0 4- 1 0
Eschscholtzia, 12 bun.	3 0-	6 0	Pæonies, 12 bun.	..	4 0-12 0
Encharis, per doz.	.. 6	0-12 0	Primula, dbl., p. bun.	0 9-	1 6
Heliotropes, 12 spr.	0 6-	1 0	Ranunculus, p. bun.	0 4-	1 0
Lily-of-the-Valley, 12 sprays	..	0 6- 2 6	Roses, indoor, p. doz.	2 0-	6 0
Mignonette, 12 bun.	4 0-	6 0	— French, Moss	2 0-	4 0
Myosotis, per bunch	0 4-	0 9	Spiræa, 12 sprays	..	2 0- 4 0
Narcissus, Pheasant's-eye, per doz.	..	0 2- 0 6	Stephanotis, 12 sprays	2 0-	6 0
			Stocks, 12 bun.	..	6 0-12 0
			Tulips, per bunch	..	0 4- 1 0

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Azaleas, per dozen	24 0-	60 0	Hydrangeas, per doz.	12 0-	24 0
Begonias, do.	.. 6	0-12 0	Lily of the Valley, 12 sprays, about	.. 1 0-	3 0
Bouvardias, do.	.. 9	0-18 0	Mignonette, do.	.. 6 0-	9 0
Calceolarias, do.	.. 9	0-18 0	Myrtles .. do.	3 0-	9 0
Cineraria, do.	.. 6	0-15 0	Pelargoniums, dble., per doz.	.. 6	0-12 0
Cyperus, do.	.. 6	0-12 0	— Scarlet, do.	.. 6	0- 9 0
Deutzias, do.	.. 8	0-18 0	Petunia, per doz.	.. 6	0- 9 0
Dracæna terminalis	30	0-60 0	Roses, do.	..	12 0-60 0
— viridis, per doz.	12	0-24 0	Solanums, do.	.. 6	0-18 0
Ficus elastica	.. 4	0- 7 6	Spiræa, do.	..	12 0-24 0
Fuchsia, per doz.	.. 6	0-18 0	Stock, do.	.. 6	0- 9 0
Gardenias, do.	..	12 0-60 0			

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, Fr., doz.	4 0-	..	Leeks, per bunch	.. 0 2-	0 4
Asparagus, English, per bundle	.. 5	0- 6 0	Lettuces, per doz.	.. 1 6-	..
— French, p. bund.	4 0-	15 0	Mint, per bundle	.. 0 4-	..
Beans, French, p. 100	2 6-	..	Mushrooms, per pott.	1 0-	2 0
— broad, p. ½-sieve	10 0-	..	Onions, young, bun.	0 4-	0 6
Beet, per doz.	.. 1 0-	2 0	Parsley, per bunch	.. 0 4-	..
Cabbages, per doz.	.. 1 0-	2 0	Parsnips, p. doz.	.. 0 9-	1 0
Carrots, p. bundle	.. 0 6-	0 9	Peas, per quart	.. 2 6-	..
— French, do.	.. 1 6-	..	Radishes, per bunch	0 2-	0 4
Cauliflowers, per doz.	2 0-	6 0	Shallots, per lb.	.. 0 3-	..
Celery, per bundle	.. 1 6-	2 0	Salsify, per bundle	.. 1 6-	..
Cucumbers, each	.. 1 0-	2 6	Sprue, French, bund.	1 6-	..
Endive, per doz.	.. 1 0-	2 0	Tomatos, per doz.	.. 4 0-	..
Herbs, per bunch	.. 0 2-	0 4	Turnips, per bundle	0 6-	..
Horse Radish, p. bun.	3 0-	5 0	— French, p. bund.	1 6-	..

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, per ½-sieve	3 0-	4 0	Oranges, p. 100	.. 8 0-	12 0
Apricots, per box	.. 3 6-	6 0	— Malta, per doz.	.. 2 0-	3 0
Cherries, per box	.. 3 0-	5 0	Peaches, per doz.	.. 15 0-	24 0
Figs, per doz.	.. 6 0-	12 0	Pine-apples, p. lb.	.. 6 0-	10 0
Grapes, English, lb.	4 0-	10 0	Pomeloes, each	.. 0 6-	1 0
— foreign, do.	.. 2 6-	4 0	Shaddocks, each	.. 2 0-	3 0
Lemons, per 100	.. 8 0-	12 0	Strawberries, per oz.	1 0-	2 0
Nuts, Cob, p. lb.	.. 2 0-	.. 0	Walnuts, p. bush.	..16 0-	..

SEEDS.

LONDON: *May 27.*—Our markets are now, as might be expected, very thinly attended, with scarcely any business passing. The sowing demand for Clover seeds is now, of course, at an end, and for the small stock of seeds remaining unsold no speculative demand has yet sprung up. An unusual and larger inquiry is shown for spring Tares, which are with difficulty met with; the supply being all but exhausted, long prices are easily obtained. For agricultural Mustard and Rape seed quotations remain steady. There is a good sale for blue boiling Peas. The unparalleled rates demanded for Canary seed (now about six times the average) are beginning to materially diminish its consumption, and other kinds of seeds, such as Millet, Hemp, and Rape-seed, are being used in its place. Hemp seed must be noted 1*s.* per quarter cheaper. Linseed unchanged. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C.*

CORN.

At Mark Lane on Monday the supplies of English Wheat were limited, and of foreign the quantity offering was moderate. Business opened very quiet, and at the close English gave way 1*s.* under the rates of Monday fortnight; common quotations of foreign, 1*s.* to 2*s.* Flour was neglected, and drooping in value. For French malting Barley there was some inquiry, but rates were rather under those of a fortnight back. Grinding sorts sold slowly, at 1*s.* lower on the week. Beans were 1*s.* per qr. lower, but Peas sold at the extreme of late quotations. For Oats the market has given way 9*d.* since Friday. Maize was 6*d.* to 9*d.* lower on the week.—On Wednesday business was without improvement, and rates had a downward tendency. The supply of English Wheat was small, while that of foreign was moderate, and dealings in both descriptions were made on rather lower terms than on Monday. Barley was weak, so also was malt, and less money was taken for Oats in most cases, the supplies offering being considerable. Maize also was flat, but there was no material change in the value of Beans, Peas, and flour.—Average prices of corn for week ending May 22:—Wheat, 42*s.*; Barley, 38*s.* 3*d.*; Oats, 31*s.* 3*d.* For the corresponding week of last year:—Wheat, 62*s.* 4*d.*; Barley, 45*s.* 11*d.*; Oats, 30*s.* 1*d.*

CATTLE.

In the Metropolitan Cattle Market on Monday the previous advance in beasts was not fully upheld, but there was an improvement in the prices obtained this day week by 2*d.* to 4*d.* per stone, making 6*s.* 4*d.* the fairly current top rate. The sale of foreign stock was adversely affected by arrivals, and Dutch were the turn lower, say 5*s.* 4*d.* to 5*s.* 6*d.* for best. In sheep prices went back to about those current on Monday week. We quote 7*s.* as the top price for very choice sizeable Down wethers, but 6*s.* 10*d.* was, perhaps, a more general price for best qualities. On the foreign side also prices receded to last Monday's level, but the pens cleared pretty readily at the reduction; 6*s.* 2*d.* to 6*s.* 4*d.* were considered the topping rates for sheep and 6*s.* 8*d.* for tegs. Lambs hardly exceeded 8*s.* 6*d.* for the prime. Calves were in short supply and dear, prime realising 6*s.* 4*d.* Pigs were not much in demand.—On Thursday choice beasts were freely disposed of, but trade for other kinds was dull. The increase in the supply of sheep and lambs was extraordinary; prices were considerably lower for all kinds—a large proportion remaining over unsold. Calves were plentiful, and lower in price. Trade was dull for milch cows.

HAY.

The Whitechapel market report states that there was a large supply of fodder, which sold with difficulty on rather easier terms. Prime Clover realised from 100*s.* to 126*s.*; inferior ditto, 85*s.* to 95*s.*; prime meadow hay, 90*s.* to 118*s.*; inferior ditto, 55*s.* to 75*s.*; and straw, 35*s.* to 39*s.* per load.—Cumberland Market quotations:—Superior meadow hay, 126*s.* to 134*s.*; inferior, 100*s.* to 112*s.*; superior Clover, 120*s.* to 128*s.*; inferior, 95*s.* to 112*s.*; and straw, 40*s.* to 44*s.* per load.

POTATOS.

The demand at the Borough and Spitalfields markets has been quiet, and principally limited to the better descriptions, the arrivals of which were proportionally small. The quotations were:—Regents, 80*s.* to 120*s.*; Victorias, 115*s.* to 140*s.*; flukes, 110*s.* to 155*s.*; rocks, 65*s.* to 75*s.* per ton. The imports of Potatos into London last week consisted of 1315 tons, 10,527 sacks, and 361 bags from Dunkirk; 10,612 bags from Antwerp; 2038 packages and 1943 boxes from Lisbon; 577 sacks Boulogne, 653 bags Brussels, 292 casks Rouen, 145 tons Harlingen, 576 bags Bruges, 60 bags Rotterdam, and 1 bag from Jamaica.

COALS.

There was a good demand for best house coals at market on Monday, at an advance of 1*s.* per ton; Seconds remained unaltered in value. Even the "Derby" affects coals, for, Wednesday being "Derby Day," there was no attendance at market.

Potatos, old:—Regents (early), 80*s.* to 120*s.*; best, 160*s.*; Flukes, 120*s.* to 130*s.*; and Victorias, 160*s.* per ton. New: Lisbons, 16*s.* to 18*s.* per cwt.

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WINNER OF THE GOLD MEDAL AT THE NATIONAL LAWN MOWER CONTEST, BIRMINGHAM, July 8, 1874.

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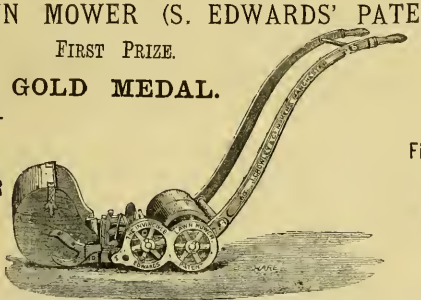

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The Wood Rollers can be used either at the Front or at the Back of the Cutters. It will do all that any other Lawn Mower can do, of whatsoever make or description.

6 in.	8 in.	10 in.	12 in.	14 in.	16 in.	18 in.	20 in.
Prices, 25s.	50s.	70s.	£4 10s.	£5 10s.	£6 5s.	£7	£8 10s., Carriage Paid.

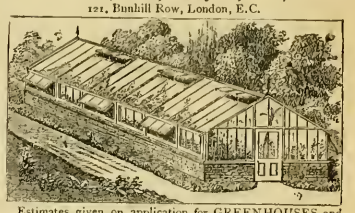
SOLE MAKERS:

JOHN CROWLEY & CO., Meadow Hall Ironworks, near SHEFFIELD.

SIR J. PAXTON'S HOT-HOUSES for the MILLION are SIMPLE, CHEAP, and PORTABLE. Illustrated Price Lists free.

HEREMAN AND MORTON, 14, Tichborne Street, Regent Quadrant, W., Horticultural Builders and Hot-water Engineers.

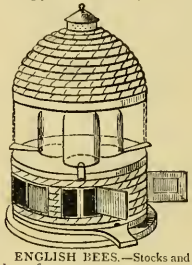
W. H. LASCELLES, HORTICULTURAL BUILDER, Finsbury Steam Joinery Works, 121, Bunhill Row, London, E.C.



Estimates given on application for GREENHOUSES and CONSERVATORIES of all kinds, and to any design.

Beehives.—Two Silver Medals awarded to GEO. NEIGHBOUR AND SONS at the Paris Exhibition of 1867. The only English Exhibitors who obtained a Silver Medal for Beehives.

NEIGHBOUR'S IMPROVED COTTAGE BEEHIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, working three bell-glasses, is neatly and strongly made of straw; it has three windows in the lower Hive. This Hive will be found to possess many practical advantages, and is more easy of management than any other Beehive that has been introduced.



Price, complete £1 15 0
Stand for ditto 0 10 6

The LIGURIAN or ITALIAN ALP BEE being much in repute, G. N. & SONS supply a Swarm of Bees with genuine Italian Queen, in the Improved Cottage Hive, at £4, Hive included.

An Italian Alp Queen, with full directions for uniting to Black Stocks, 15s. each.

ENGLISH BEES.—Stocks and Swarms may be obtained as heretofore.

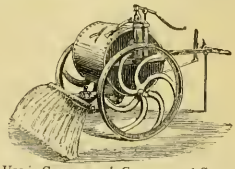
THE APIARY. By A. NEIGHBOUR. 5s., postage 4d.

A newly arranged Catalogue of other improved Hives, with Drawings and Prices, sent on receipt of two stamps.

Agents for Straw, Woodbury, and other Hives and Supers, made by James Lee, at his prices.

GEO. NEIGHBOUR AND SONS, 127, High Holborn, W.C., or 149, Regent Street, London, W.

COLEMAN AND MORTON'S HAND WATER-CART and GARDEN ENGINE.



For USE in GENTLEMEN'S GARDENS and GROUNDS.

The delivery valve can be worked at the outlet when filling a watering pot. It holds 35 gallons. The Spreader, for watering lawns, &c., can be removed at pleasure.

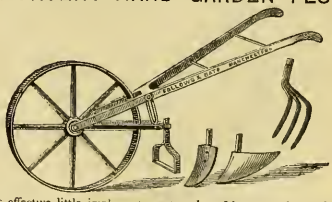
Price, with Spreader £6 0 0
Price, fitted with Garden Engine 8 0 0

PRIZE WATER and LIQUID MANURE CARTS.

Prices and particulars on application at the London Road Ironworks, Chelmsford.

Important to Market Gardeners and Others.

THE PATENT HAND GARDEN PLOUGH.



This effective little implement meets a long-felt want. It consists of one light but strong steel shovel, for marking out rows to plant, or for loosening up the ground after the plants are up. Also a small Steel Plough, to be used for hilling up the rows when desired; and a Cutter for exterminating weeds, and Rake for pulverising the ground. These pieces are made separate, and attached or detached in a moment by means of a simple fastening. Its construction enables the user to push it readily and easily through the ground, stirring the earth, if required, to a depth of six inches. It is exceedingly light, strong, and tasty, and fully adapted to the purposes designed. A large number have been sold, and are giving unqualified satisfaction.

Price, complete, with Shovel, Plough, Weed-Cutter, and Rakes, £2 2s.

FOLLOWS & BATE, Makers, Dutton Street Works, MANCHESTER.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by WILLIAM RICHARDS, at the Office of Messrs. BRADBURY, AGNEW, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the County of Middlesex, and Published by the said WILLIAM RICHARDS, at the Office, 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, May 29, 1875.
Agent for Manchester—JOHN HEYWOOD. Agents for Scotland—Messrs. J. MENZIES & Co., Edinburgh and Glasgow.

THE

GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

No. 75.—Vol. III. { New Series. } SATURDAY, JUNE 5, 1875. { Registered at the General Post Office as a Newspaper. } Price 5d. Post Free, 5½d.

CONTENTS.

Important Notice to Foreign Subscribers.

FOREIGN SUBSCRIBERS are PARTICULARLY REQUESTED, *when sending Post Office Orders through the Post Office, to Advise the Publisher that they have done so.* *(Signed)*

W. RICHARDS, Publisher.

Post Office Orders should be made payable at the King Street Office, Covent Garden, London, W.C.

The "Gardeners' Chronicle" in America.

THE ANNUAL SUBSCRIPTION TO THE GARDENERS' CHRONICLE, Including postage to the United States, is **$6.30** gold, to which add premium on gold for U.S. currency at the time, and 25 cents exchange—payable in advance.

Agents:—Messrs. B. K. BLISS AND SONS, Seed Merchants, 34, Barclay Street, New York: Messrs. M. COLE AND CO., Drawer No. 11, Atlanta Post Office, Atlanta, Fulton County, Georgia; and Mr. C. H. MAROT, 814, Chestnut Street, Philadelphia; through whom Subscriptions may be sent.

THE LINDLEY CLUB (late the Horticultural Club).—The attendance of all interested in Horticultural pursuits is requested at an AGGREGATE MEETING of HORTICULTURISTS, convened by the above Club, to be held at the Charing Cross Hotel, Strand, W.C., on WEDNESDAY, June 16, at 4 o'Clock in the afternoon, to consider the present position and prospects of the Royal Horticultural Society. The Chair will be taken by A. F. Godson, Esq., M.A.

The Club will dine at 6.30 P.M., and any friends desirous of dining are requested to communicate their wish to the undersigned.

RICHARD DEAN, Secretary.

Ealing, London, W.—June 2.

GRAND FLORAL FÊTE, YORK, JUNE 16, 17, and 18.—Prizes nearly £550. Entries close June 9. Schedules, &c. on application to

13, New Street, York. JOHN WILSON, Secretary.

THE LEE and BLACKHEATH HORTICULTURAL SOCIETY will hold its ANNUAL EXHIBITION, in the Grounds of John Penn, Esq., The Cedars, Lee, on JUNE 17 and 18. Special Prizes, open to all England:—48 Cut Roses, distinct, £3, £2, £1; 8 Stove or Greenhouse Plants, in flower, £4, £2 10s., £1 10s. Schedules and forms of entry may be had on application to

5, Boones Road, Lee, Kent. Mr. C. HELMER, Sec.

ALEXANDRA PALACE.—The GREAT ROSE SHOW will take place on THURSDAY and FRIDAY, June 24 and 25. Last day of Entry, Thursday, June 17.

NOTE.—Rule No. 7 of Schedule will be altered, making the time for Specimens to be ready 10 o'Clock instead of 9 o'Clock.

SCHEDULES of PRIZES, &c., may be had on application to A. McKENZIE, Alexandra Palace, Muswell Hill, N.

ALTRINCHAM and BOWDON UNITED FLORAL, HORTICULTURAL, and ROSE SOCIETY, Cheshire.

The Exhibition this year will be held on FRIDAY and SATURDAY, July 16 and 17, when TWO HUNDRED POUNDS will be offered in Prizes. Several classes of Roses open to all England. Schedules on application to

JOHN HAMS, Secretary.

WAKEFIELD HORTICULTURAL SHOW and FÊTE.—The SIXTH ANNUAL EXHIBITION will be held on SATURDAY, August 28. Prizes of upwards of £250 will be given for Plants, Flowers, Fruits, and Vegetables. Schedules may be had of

ABRAHAM HOLMES, Secretary.

EXHIBITION of RHODODENDRONS, at the "Old" Nurseries, Cheshunt, one mile from the Cheshunt Station of Great Eastern Railway.

Messrs. PAUL AND SON respectfully invite an inspection of this unique Exhibition, which in its arrangement is an entire departure from the Rhododendron Shows in London.

Now Ready,

CARTER'S PLANT CATALOGUE for 1875, containing a beautifully coloured Engraving of the new Coleus, Duchess of Edinburgh. Post free, 6d.; gratis to Purchasers.

CARTERS, The Queen's Seedsmen, 237 and 238, High Holborn, London, W.C.

Transit Agency for Plants, Seeds, &c.

C. J. BLACKITH AND CO., late BETHAM & BLACKITH, Cox's and Hammond's Quays, Lower Thames Street, London, S.E.—Forwarders to all parts of the World.

To the Trade, &c.

ROSES.—Now ready, in great quantities, New and Tea and Noisette Roses, in Pots (best sorts only). CATALOGUES free.

EWING AND CO., The Royal Norfolk Nurseries, Norwich.

SIR GARNET WOLSELEY.—The best new Rose of the season. See coloured plate in the *Floral Magazine* for April. Strong plants now being sent out, price 7s. 6d. each. The usual discount to the Trade.

CRANSTON AND MAYOS, Nurseries, King's Acre, near Hereford.

NEW FRENCH ROSES.—Twelve of the best varieties of New French Roses for the present season, in very vigorous plants, sent carriage and package paid to any Railway Station in the United Kingdom, on receipt of a post-office order for 27s. 6d.

EWING AND CO., The Royal Norfolk Nurseries, Norwich.

DWARF ROSES in Pots, for Bedding, at 9s. to 12s. per dozen; or, 70s. to 80s. per 100. Roses by the dozen, 100, or 1000. Many thousands to select from. Splendid Plants. Inspection invited.

WM. WOOD AND SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

SARRACENIAS.—The Subscribers have just received an importation of S. flava and purpurea in splendid condition. Price 5s. each.

W. P. LAIRD AND SINCLAIR, Nurserymen, Dundee, N.B.

ADIANTUM FARLEYENSE.—Four fine specimen Plants, grown in 8-inch pots, for Sale. Price 2 guineas each, or 7 guineas for the four. Apply to

JAMES TRINDER, Florist, Cirencester.

CYPERUS LAXUS and ADIANTUM FARLEYENSE, in 60's and 48's, at low rates.

H. B. SMITH, Ealing Dean Nursery, Ealing, W.

DAISIES.—Strong plants of the following varieties: best Red, best Crimson, best White, and the Golden Variegated, at 20s. per 1000.

POLEMONIUM CERULEUM VARIEGATUM, fine for summer bedding, 8s. per dozen.

HENRY HOLMES, Five Bells, Folkingham, Lincolnshire.

VERBENAS.—Strong Plants of the best sorts, to name. Trade Price on application.

RICHARD SMITH, Nurseryman, Worcester.

Verbenas, Verbenas.—To the Trade.

JOHN SOLOMON offers White, Scarlet, Purple, and other mixed sorts, good strong plants, well hardened, in thumb-pots, at 1s. 6d. per dozen, package included. Cash to accompany all orders from unknown Correspondents.

Islington Nursery, Park Street, Islington, N.

Verbenas for Sale.

S. BIDE can still supply Purple King, White, and a few other varieties of VERBENAS, good strong, well hardened plants, at 8s. per 100, for cash, package free.

SAMUEL BIDE, Alma Nursery, Farnham, Surrey.

Verbenas, Verbenas.

WILLIAM BADMAN offers Purple, White, Scarlet, Crimson, and Rose VERBENAS, strong, healthy, well-rooted cuttings, at 6s. per 100, 50s. per 1000, package included. Terms cash.

Cemetery Nursery, Gravesend.

Calceolaria Kay's floribunda.

FRANCIS R. KINGHORN can offer the above, in quantity—cheap, fine, healthy, and thoroughly hardened plants, in 60-sized pots. Price on application.

Sheen Nursery, Richmond, Surrey.

GERANIUMS—Vesuvius, Christine, Vaucher, and the leading varieties, from 16s.; AUREA FLORIBUNDA, VERBENAS, and General Collection, 10s. and 12s.; DAHLIAS, finest varieties, 12s. per 100. The above may still be had in quantity of

W. F. AND H. BOFF, Northampton Park Nursery, Canonbury, Islington, N.

CUTTINGS of GERANIUMS, &c.—100 Geraniums, in forty choice varieties, including Tricolor, Gold and Bronze, Variegated, Zonal, Nosegay, and Ivy-leaf, for 10s., 50, 5s. 6d., 25, 3s.; 24 Fancy Pelargoniums, 3s. 6d., 12, 2s.; 24 Chrysanthemums, 2s. 6d., 12, 1s. 6d.; 24 Pompons, 2s. 6d., 12, 1s. 6d.; 24 Fuchsias, 2s. 6d., 12, 1s. 6d. All post free.

CATALOGUES one stamp.

J. COOMBS, The Ferns, Enfield.

Nertera depressa.

ROBERT T. VEITCH offers several hundreds of this beautiful and exceedingly attractive plant, all well berried. Price on application.

The Nursery Exeter.

Dutch Bulbs.

Before ordering HYACINTHS, TULIPS, &c., for the ensuing season, Nurserymen and the Trade generally should send for

P. VAN WAVEREN (JUN.) AND CO.'S (Hillegom, Haarlem, Holland) WHOLESALE CATALOGUE. It may be had free on application to

Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London, E.C.

"The Rhododendrons at Knap Hill."

ANTHONY WATERER begs to announce that the American Plants at this Nursery are now in bloom, and may be seen daily, Sundays excepted.

They promise to be unusually fine this season.

Knap Hill Nursery, near Woking Station, Surrey.—May 22.

Hyacinths, Tulips, Crocus, Narcissus, &c.

Best Roots Only, and at Moderate Prices.

BUDDENBORG BROS.' (Hillegom, Haarlem, Holland) WHOLESALE CATALOGUE of DUTCH BULBS now ready, and may be had free on application to

Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London, E.C.

Best Seeds Only.

WM. CUTBUSH AND SON'S CATALOGUE of SEEDS, GLADIOLI, &c., should be had by all Gardeners and Amateurs purchasing really first-class goods at a moderate price. Post-free on application.

Highgate Nurseries, London, N.

J. LINDEN'S Establishment for the Introduction of New and Rare Plants, Ghent, Belgium.

CATALOGUES of Palms, Orchids, New, Rare, and Decorative Plants of all kinds, Camellias, Azaleas, &c., post free.

Agents—Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London, E.C.

ALEXIS DALLIERE, NURSERYMAN, Ghent, Belgium, begs to announce that his GENERAL CATALOGUE for 1875 is now ready, and may be had free on application to

Messrs. R. SILBERRAD AND SON, 5, Harp Lane, Great Tower Street, London, E.C.

Adiantum farleyense.

MESSRS. JOHN STANDISH AND CO. have a number of magnificent specimens of the above splendid FERN, fit for immediate exhibition. They are in 26 and 22-inch pots, and of perfect form. Also a few well-grown specimens of ADIANTUM GRACILLIMUM, fine plants, 18 inches through, in 8-inch pots.

Further particulars and price on application.

Royal Nurseries, Ascot, Berks.

ORCHARD-HOUSE TREES, Fruiting, in Pots.—Peaches, Nectarines, Pears, Apples, Mulberries, and Oranges.

RICHARD SMITH, Nurseryman and Seed Merchant, Worcester.

Cinerarias, Cinerarias.

MESSRS. JOHN STANDISH AND CO. have to offer SEED saved from their celebrated strain of CINERARIAS, 2s. 6d. and 3s. 6d. per packet. Also, PRIMULA SEED, 2s. 6d. and 3s. 6d. per packet. Post free on receipt of Stamps or Post Office Orders.

Royal Nurseries, Ascot, Berks.

TO BE DISPOSED OF, a number of ELM, OAK and ASH TREES, together with a quantity of TURF, at Balham. Apply to

Mr. STOCKER, 24, Billiter Street, E.C.

ORANGE TREES, of all sorts and sizes under 10 feet, good bearers of good fruit, grafted, from imported trees, by the owner, who is overstocked. LEMON CITRON TREES, and other Plants, may also be had.

CLERICUS, *Gardeners' Chronicle* Office, W.C.

VEITCH'S AUTUMN GIANT and WALCHEREN CAULIFLOWER PLANTS.—Good Plants of the above now ready at 2s. per 100, or 500 for 7s. 6d. Cash with order.

W. H. CUTTS, Seed Grower, Kelvedon, Essex.

Wright's Grove and Giant Celery Plants.

W. WRIGHT offers strong, healthy, transplanted GROVE RED and GROVE WHITE CELERY plants, 1s. 6d. per 100; also his New GIANT WHITE CELERY, at 2s. per 100, cheaper by the 1000. Cash accompanying Orders will have prompt attention.

The Nurseries, Retford, Notts.

FARMERS are INVITED to INSPECT the Growing Crop of an early variety of ACCLIMATISED AUSTRALIAN WHEAT, now (May 24) in ear on HILL FARM, Lolworth, Cambridgeshire.

Full information will be given by CHARLES PLUMB, the Bailiff, to whom Orders for Seed may be addressed.

RICHARD DAINTREE, Jun.

WEBB'S PRIZE COB FILBERTS, and other PRIZE COB NUTS and FILBERTS. LISTS of these varieties from Mr. WEBB, Calcot, Reading.

WEBB'S NEW GIANT POLYANTHUS, Florist Flower, and GIANT COWSLIP SEEDS: also Plants of all the varieties, with Double PRIMROSES of different colours; AURICULAS, both Single and Double; with every sort of Early Spring Flowers. LIST on application.

Mr. WEBB, Calcot, Reading.

SALES BY AUCTION.

Willesden.—Clearance Sale of Choice Stove, GREENHOUSE, and BEDDING PLANTS.

MESSRS. PROTHEROE AND MORRIS are instructed by the Owner to SELL by AUCTION, without reserve, on the Premises, Haslesden House, within five minutes' walk of Willesden Junction, Middlesex, on WEDNESDAY, June 9, at 12 for 1 o'Clock precisely, the whole of the well-grown STOVE and GREENHOUSE PLANTS, comprising many fine specimens; also about 12,000 BEDDING PLANTS, consisting principally of Wintered Geraniums, including 1000 Mrs. Pollock; also a large number of other leading kinds, Lobelias, &c.

May be viewed the day prior to the Sale. Catalogues had on the Premises, and of the Auctioneers and Estate Agents, 98, Gracechurch Street, City, E.C., and Leytonstone, E.

Very Choice Orchids from New Granada and the EAST INDIES.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, June 10, at half-past 12 o'Clock precisely, 200 strong selected specimens of ODONTOGLOSSUM ALEXANDRÆ (BLUNTI), unusually fine both as to size and condition; strong imported plants of MASDEVALLIA HARRYANA, ODONTOGLOSSUM GLORIOSUM: strong growing plants of DENDROBIUM WARDIANUM, FALCONERI, and CRASSINODE; PHALÆNOPSIS GRANDIFLORA, P. LOWII, VANDA CATHCARTI, PHALÆNOPSIS LUDDEMANNIANA, one P. LEUCORRHODA, one P. CASTA, the plant recently described in the *Gardeners' Chronicle*; also strong imported plants of SACCOLABIUM BLUMEI var. DAYI; and thirty-six fine plants of MUSA ENSETE.

On view the morning of Sale, and Catalogues had.

New Phalænopsis.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on FRIDAY, June 11, at half-past 12 o'Clock precisely, SEVERAL NEW PHALÆNOPSIS, including a fine strong plant of P. casta. This beautiful variety was fully described by Professor Reichenbach at p. 592 of the *Gardeners' Chronicle*. Only two plants of it are known to exist. Also a good plant of the new Phalænopsis leucorrhoda, described by Professor Reichenbach at p. 366 of *Gardeners' Chronicle* for March 20; and six very distinct varieties of P. amabilis, as described at pp. 685 and 686 of the *Gardeners' Chronicle* for May 29; a plant of the new Phalænopsis fuscata; also a quantity of plants of Phalænopsis Schilleriana and Phalænopsis grandiflora aurea.

On view the morning of Sale, and Catalogues had.

Established Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on FRIDAY, June 11, at half-past 12 o'Clock precisely, a small Collection of ESTABLISHED ORCHIDS, including Oncidium curtum. This is extremely rare, and one of the handsomest Oncidiums known; a plant of it in flower will be exhibited at the Sale. At the same time will be sold the rare Oncidium concolor in flower; also Pescatorea Dayana candidula in flower, Cypripedium Dominianum, C. lævigatum, Lælia elegans Andersonianum, one of the handsomest Lælias known; Yanda Denisoniana, Angræcum sesquipedale, Odontoglossum sceptrum, Cattleya aurea, C. Mendelii, C. gigas, Dendrobium crassinode, and various other rare species.

On view the morning of Sale, and Catalogues had.

Imported Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on FRIDAY, June 11, at half-past 12 o'Clock precisely, a large importation of ORCHIDS from New Granada, including several hundreds of Masdevallia Harryana and its handsome varieties, many of them in very fine masses, and some good plants of a new Sobralia. It has large pure white flowers, with yellow centre, the labellum attractively margined with purple, and, the Collector writes, "so deliciously fragrant, that the air is completely perfumed where it grows"; Cypripedium Schlimii, Odontoglossum triumphans, Anguloa Clowesii, Odontoglossum coronarium, O. hastilabium, Cattleya Trianæ; also an importation of Orchids from Burmah, including several new Dendrobiums.

On view the morning of Sale, and Catalogues had.

Worcestershire, in the far-famed Vale of Evesham.
PRELIMINARY ADVERTISEMENT.

MESSRS. CHESSHIRE AND GIBSON have received instructions to SELL by AUCTION, in JULY NEXT, in consequence of the death of the Proprietor, unless in the meantime an acceptable offer be made by Private Contract, a very excellent FREEHOLD ESTATE of 240 Acres, known as "Seaford Grange," situated at Peopleton, within 1½ mile of the Pershore Station on the Great Western Railway.

A considerable portion of the above has been laid out as Fruit Gardens, the Trees being of the choicest kinds, now in their prime, the produce finding a ready sale at Liverpool, Manchester and Birmingham, where a very lucrative business was carried on by the late Proprietor.

In addition to a complete set of FARM BUILDINGS, with COTTAGES, there is a very comfortable and desirable RESIDENCE, replete with every convenience, and the portion of the Estate not laid out as Fruit Gardens is occupied as a FARM, and comprises Arable and Pasture of excellent quality.

A Balance-Sheet, showing the profits for the last five years has been prepared, and may be obtained of the undermentioned Referees.

Further particulars and plans will be issued in due course, in the meantime further information may be obtained of H. G. GOLDINGHAM, Solicitor, or A. BUCK, Estate Agent, both of Worcester; or to the Auctioneers, Messrs. CHESSHIRE AND GIBSON, 93, New Street, Birmingham.

Freehold—28 Miles S.W.

TO BE SOLD, a beautiful ESTATE of 240 acres, with elegant Swiss Villa, and capital Stabling, Gravelly Soil, fine views, and extensive frontages, free from tithe and land-tax. Two thirds on mortgage. The Furniture may be taken at a valuation.

A Plot of about 50 acres, planted with fine Evergreens, Fruit, and other trees, would be Sold separately; also a Plot of 25 acres. Apply to

W. TARRY, Bailiff, "Golden Farmer," Bagshot, Surrey.

Victoria Estate, Kansas, U.S.—To Farmers and OTHERS.

FINE STOCK FARMS of 640 Acres and upwards, to be SOLD, Freehold, from 12s. to 30s. per acre. Grass in its natural condition unsurpassed for feeding Sheep and Cattle. For PAMPHLET containing full particulars respecting this Property, apply to

ROBERT W. EDIS, Esq., F.S.A., 14, Fitzroy Square, London, W., Architect to the Estate.

TO BE DISPOSED OF, a small FLORIST'S BUSINESS, with Garden, Greenhouses, and Dwelling-house. Most desirable for a young Man. Can be viewed any day, except Sundays, by applying to

G. M. THURSTON, Hertford Road, Edmonton, N.

TO BE LET, about 10 acres of MARKET GARDEN GROUND, with some good Cottages on it, at Fulham. No agent need apply.

BETA, Mr. Young, Confectioner, near the Station, Putney, S.W.

To Nurserymen and Others.

TO BE LET, with immediate possession, the GUILFORD NURSERY, Whitfield, near Dover, comprising Residence, Stable, and Outbuildiog, with 7 acres of first-class Land. Rent £60. The Vinery, Greenhouse, Stove and Fern Pits, together with some Nursery Stock, to be taken by valuation or arrangement. Apply to

Messrs. WORSFOLD AND HAYWARD, Auctioneers, New Bridge, Dover.

WISBECH "ALL ENGLAND PRIZE" ROSE SHOW and HORTICULTURAL EXHIBITION will be held on WEDNESDAY, June 30, in the Grounds of Colville House, Wisbech. No Entrance Fees to Exhibitors. SCHEDULES of PRIZES and all particulars may be had on application to CHARLES PARKER, Hon. Sec.

SHOW of HORTICULTURAL BUILDINGS, GARDEN FURNITURE, IMPLEMENTS, APPIANCES, &c., at the MIDLAND COUNTIES GRAND HORTICULTURAL EXHIBITION, to be held at the Lower Grounds, Birmingham, JULY 1, 2, 3, and 5. Intending Exhibitors should apply at once for a Schedule of Prizes, &c., to

Mr. H. G. QUILTER, Lower Grounds, Aston Park, Birmingham.

WEST KENT HORTICULTURAL SOCIETY.

President—The Right Hon. the EARL SYDNEY, G.C.B., &c.

The ANNUAL EXHIBITION of this Society will be held on SATURDAY, July 3 next, in Camden Park, Chislehurst. The Schedule includes Prizes in considerable value and number, open to all England, for Plants, Cut Flowers, Fruit, &c., and also for Dinner-table Decorations.

ENTRIES CLOSE, JUNE 19.

Applications for information, and for copies of the Schedule, to be addressed to the Hon. Sec., H. NEYILL, Esq., Chislehurst, Kent.

NOTTINGHAM and MIDLAND COUNTIES GRAND ROSE SHOW and HORTICULTURAL EXHIBITION (open to all England) will be held at the ARBORETUM, NOTTINGHAM, on THURSDAY, FRIDAY, and SATURDAY, July 8, 9, and 10. The Mayor of Nottingham President; the Town Clerk Honorary Secretary. Prize List amounting to £750. Prizes for Roses upwards of £240. Space will be allotted for the exhibition of Horticultural Implements and Garden Furniture. Certificates of Merit awarded. Schedules are now ready, and may, with particulars, be obtained on application to

ALFRED KIRK, Municipal Offices, Nottingham.

SHROPSHIRE HORTICULTURAL EXHIBITION.—A Grand Horticultural Exhibition will be held in the magnificent Quarry Grounds, adjoining the town of Shrewsbury, on the same days as the Agricultural Society's Meeting, viz., JULY 29 and 30 NEXT. The Band of the Coldstream Guards will be engaged for the occasion.

Prize Lists will shortly be ready, and may be had on application to

H. W. ADNITT } Hon.
WALTER W. NAUNTON } Secs.

Shrewsbury, June 2.

Bedding Plants for the Million.

JAMES HOLDER can supply the following Plants:—Alternanthera, Alonsoa, Ageratum, Calceolaria, Campanula, Cineraria maritima, Coleus, Dahlias, Echeveria, Fuchsia, Geraniums (Scarlet, Variegated, and Ivy-leaved), Gazania, Heliotrope, Iresine, Koniga, Lobelia, Mesembryanthemum variegatum, Pentstemon, Petunia, double, Pyrethrum, Salvia, Stachys, Sempervivum californicum, Tropæolum, Verbena, &c. Eight dozen for 20s.; or four dozen for 10s. 6d., basket included, cash.

Crown Nursery, Reading.

PELARGONIUMS—Queen Victoria, Captain Raikes, Marie Lemoine, best three Pelargoniums ever offered to the Public; one plant of each, free by post, 5s. 6d. FUCHSIA PROCUMBENS, 1s. 6d. each. Herbaceous PHLOXES, best varieties, 1874, 6s. per dozen. Double PYRETHRUMS, flowering plants, 6s. per dozen, 40s. per 100. GERANIUM, Happy Thoughts, 6s. per dozen. PANSY, Blue King, best blue bedder, 3s. per dozen, 20s. per 100. Trade price on application.

FREDERICK PERKINS, Nurseryman, Regent Street, Leamington.

JOHN PERKINS AND SON beg to offer the following strong plants, established, in single pots:—VERBENAS—Ariosto Improved, Blue King, Purple King, Sunny Thoughts, at 12s. per 100.
HELIOTROPE, Miss Nightingale, 12s. per 100.
CALCEOLARIA, aurea floribunda and Prince of Orange, 14s. per 100.
AGERATUM, Dwarf, 10s. per 100.
LOBELIA, speciosa, 8s. per 100.

52, Market Square, Northampton.

Australian Seeds and Plants.

SEEDS of TIMBER TREES, PALMS, SHRUBS, &c. Plants indigenous to Australia, New Zealand, and Fiji, including ARAUCARIAS, TREE FERNS, variegated FLAX, &c. Orders may be left with our London Agents, Messrs. C. J. BLACKITH AND CO., Cox's Quay, Lower Thames Street, London, E.C., for transmission.

SHEPHERD AND CO., Nurserymen and Seedsmen, Darling Nursery, Sydney, New South Wales. (Established 1827.)

ROYAL BOTANIC SOCIETY
REGENT'S PARK, N.W.

The following Awards of Prizes were accidentally omitted in the List of Awards published in the GARDENERS' CHRONICLE *for May 29.*

EXHIBITION, MAY 26.

LARGE SILVER-GILT MEDAL.

Mr. Ward, for 12 Heaths in 12-inch pots.
Mr. James, for 9 Pelargoniums.
Messrs. Jackman & Son, Nurserymen, Woking, for 12 Clematis.

SILVER-GILT MEDAL.

Mr. Charles Turner, Nurseryman, Royal Nurseries, Slough, for 6 Roses in pots.
Messrs. Paul & Son, for 20 Roses in pots.
Mr. Ward, for 6 Heaths.
Mr. Legg, Gr. to S. Rallie, Esq., Cleveland House, Clapham Park, for 6 Fine-foliage Plants.
Mr. Williams, for 6 Fine-foliage Plants.
Mr. James, for 6 Pelargoniums.
Messrs. Jackson & Son, for 6 Stove and Greenhouse Plants.
Messrs. Jackson & Son, for 12 Heaths in 12-inch pots.
Messrs. Jackson & Son, for 6 Heaths in 12-inch pots.

SMALL SILVER-GILT MEDAL.

Mr. Toms, Gr. to H. Wetenhall, Esq., Seven Sisters Road, for 10 Stove and Greenhouse Plants.
Mr. Carr, for 10 Stove and Greenhouse Plants.
Mr. Chapman, for 6 Stove and Greenhouse Plants.
Mr. Child, for 6 Exotic Orchids.
Mr. Williams, for 6 Greenhouse Azaleas.
Mr. Turner, for 12 Greenhouse Azaleas.
Mr. Ratty, for 12 Greenhouse Azaleas.
Mr. Child, for 6 Greenhouse Azaleas.
Mr. Wheeler, for 12 Heaths in 12-inch pots.
Messrs. Jackson, for 6 Exotic Orchids.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.

Patron—HER MOST GRACIOUS MAJESTY THE QUEEN.
President—HIS GRACE THE DUKE OF RICHMOND, K.G.

Founded 1860.

For the Relief of Decayed Farmers and their Widows, and for the Maintenance and Education of their Orphans.

The FIFTEENTH ANNIVERSARY FESTIVAL, in aid of the Funds of the Institution, will take place at WILLIS'S ROOMS, King Street, St. James's, W., on SATURDAY, June 5, at half-past 6 o'Clock—

H.R.H. the PRINCE OF WALES, K.G., in the Chair.

List of Stewards:—

Sir William Bagge, Bart., M.P.	Sir Edward C. Kerrison, Bart.
John Baldwin, Esq.	Colonel Kingscote, M.P.
Frank Battcock, Esq.	Hanslip Long, Esq.
Thomas Beddall, Esq.	The Rt. Hon. Lord Mahon, M.P.
George Cavendish Bentinck, Esq., M.P.	The Rt. Hon. the Earl of Malmesbury
John B. Brandram, Esq.	His Grace the Duke of Manchester
The Rt. Hon. the Viscount Bridport	John Marten, Esq.
William Cunliffe Brooks, Esq., M.P.	Sir Heron Maxwell, Bart.
J. W. Brown, Esq.	John J. Mechi, Esq.
His Grace the Duke of Buckingham and Chandos	William Adam Mundell, Esq., Q.C.
Chas. S. Cantrell, Esq.	Mr. Alderman Naish
John Collins, Esq.	The Rt. Hon. the Earl of Normanton
Joseph Druce, Esq.	Col. Windsor Parker, M.P.
The Rt. Hon. the Earl of Dunmore	Albert Pell, Esq., M.P.
The Rt. Hon. and Rev. Lord Dynevor	Clare Sewell Read, Esq., M.P.
The Rt. Hon. Lord Egerton of Tatton	The Rt. Hon. Lord Rivers
The Most Noble the Marquis of Exeter	B. B. Hunter Rodwell, Esq., Q.C., M.P.
The Rt. Hon. Lord Fitzwalter	George Russell, Esq.
John Floyer, Esq., M.P.	Thomas Scott, Esq.
J. K. Fowler, Esq.	Charles Shaw, Esq.
Abraham Garrett, Esq.	Abel Smith, Esq., M.P.
The Rt. Hon. the Earl of Hardwick	The Rt. Hon. Earl Spencer, K.G.
The Most Noble the Marquis of Hertford	The Rt. Hon. Lord Sondes
Sir Edward Hulse, Bart.	V. F. Bennett Stanford, Esq., M.P.
The Most Noble the Marquis of Huntly	The Rt. Hon. Lord Vernon
A. H. Johnson, Esq.	William Vivian, Esq.
	Thomas Wagstaff, Esq.
	The Rt. Hon. Lord Walsingham
	Sir Alexander Wood.

Dinner Tickets 21s., application for which should be made to the SECRETARY, at the Offices of the Institution, 26, Charles Street, St. James's, W.

Tree Ferns.

THE NEW PLANT and BULB COMPANY having received large importations, Tree Ferns need no longer be considered a luxury. They can be had in all sizes and in a fine growing condition, from 10s. 6d. each. Detailed Lists of sizes and Prices, just published, free on application.

FILMY FERNS, LOMARIAS, POLYSTICHUMS, and other FERNS from New Zealand, all suitable for a Cool Fernery, for planting out, or pot culture, shortly to give effect, at the prices of ordinary pot plants.

ORCHIDS are being constantly received in splendid condition in fine pieces. We respectfully invite Cultivators of these to send their Names and Addresses, that particulars of consignments, as to condition and quality, may be forwarded from time to time, as all are sold at a moderate profit. For present consignments, see Lists, free on application.

AMARYLLIS.—Hundreds of these now throwing up fine flower-spikes.
CYPRIPEDIUM JAPONICUM.—See Catalogue.
FREESIA LEICHTLINIANA.—For particulars of this grand bulbous plant, see *Gardeners' Chronicle*, May 7, 1875.
LILIES and other BULBOUS PLANTS.—An unrivalled collection.

Lion Walk, Colchester.

IMPORTANT SALE OF PLANTS OF MUSA ENSETE.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY NEXT, June 10, at half-past 12 o'Clock precisely, a number of vigorous young Plants of the above magnificent MUSA—hitherto rare and expensive, but well known to be unequalled as a "Sub-tropical" or grand foliaged Plant, and withal of easy culture.

On view the morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

VERY CHOICE ORCHIDS from NEW GRANADA and the EAST INDIES.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, June 10, at half-past 12 o'Clock precisely, 200 strong selected specimens of ODONTOGLOSSUM ALEXANDRÆ (BLUNTI), unusually fine, both as to size and condition; strong imported plants of MASDEVALLIA HARRYANA, ODONTOGLOSSUM GLORIOSUM, strong growing plants of DENDROBIUM WARDIANUM, FALCONERI, and CRASSINODE; PHALÆNOPSIS GRANDIFLORA, PHALÆNOPSIS LOWII, VANDA CATHCARTI, PHALÆNOPSIS LUDDEMANNIANA, one PHALÆNOPSIS LEUCORRHODA, one PHALÆNOPSIS CASTA, the plant recently described in the *Gardeners' Chronicle;* also strong imported plants of SACCOLABIUM BLUMEI var. DAYI; and thirty-six plants of MUSA ENSETE.

On view the morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

ESTABLISHED ORCHIDS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on FRIDAY, June 11, at half-past 12 o'Clock precisely, a small Collection of ESTABLISHED ORCHIDS, including ONCIDIUM CURTUM. This is an extremely rare and one of the handsomest Oncidiums known; a plant of it in flower will be exhibited at the Sale. At the same time will be sold the rare ONCIDIUM CONCOLOR, in flower; also, PESCATOREA DAYANA CANDIDULA in flower; CYPRIPEDIUM DOMINIANUM, CYPRIPEDIUM LÆVIGATUM, LÆLIA ELEGANS ANDERSONIANUM, one of the handsomest Lælias known; VANDA DENISONIANA, ANGRÆCUM SESQUIPEDALE, ODONTOGLOSSUM SCEPTRUM, CATTLEYA AUREA, C. MENDELII, C. GIGAS, DENDROBIUM CRASSINODE, and various other rare species.

On view the morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

NEW PHALÆNOPSIS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on FRIDAY, June 11, at half-past 12 o'Clock precisely, SEVERAL NEW PHALÆNOPSIS, including a fine strong plant of PHALÆNOPSIS CASTA. This beautiful variety was fully described by Professor Reichenbach at p. 590 of the *Gardeners' Chronicle.* Only two plants of it are known to exist. Also a good plant of the New PHALÆNOPSIS LEUCORRHODA, described by Professor Reichenbach at p. 366 of the *Gardeners' Chronicle* for March 20; and six very distinct varieties of PHALÆNOPSIS AMABILIS, as described at pp. 685 and 686 of the *Gardeners' Chronicle* for May 29; a plant of the New PHALÆNOPIS FUSCATA; also a quantity of plants of PHALÆNOPSIS SCHILLERIANA and PHALÆNOPSIS GRANDIFLORA AUREA.

On view the morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

IMPORTED ORCHIDS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on FRIDAY, June 11, at half-past 12 o'Clock precisely, a large importation of ORCHIDS from New Granada, including several hundreds of MASDEVALLIA HARRYANA and its handsome varieties, many of them in very fine masses; and some good plants of a new SOBRALIA (it has large pure white flowers with yellow centre, the labellum attractively margined with purple, and so deliciously fragrant that the air is completely perfumed where it grows); CYPRIPEDIUM SCHLIMII, ODONTOGLOSSUM TRIUMPHANS, ANGULOA CLOWESII, ODONTOGLOSSUM CORONARIUM, ODONTOGLOSSUM HASTILABIUM, CATTLEYA TRIANÆ; also an importation of ORCHIDS from Burmah, including several new DENDROBIUMS.

On view the morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

ROYAL HORTICULTURAL SOCIETY.

SUMMER SHOW, JUNE 2, 1875.

AWARDS OF THE JUDGES.

Class 6.—12 ORCHIDS, distinct. (Amateurs.)
1st, Mr. J. Douglas, Gr. to F. Whitbourn, Esq., Loxford Hall, Ilford, E.

Class 8.—9 ORCHIDS, distinct. (Open.)
1st, Mr. J. Douglas.

Class 10.—12 NEW PLANTS (Orchids excluded), in or out of commerce; those in commerce sent out in 1873, 1874, or 1875. (Open.)
1st, Mr. W. Bull, King's Road, Chelsea, S.W.
2d, Mr. B. S. Williams, The Nurseries, Upper Holloway, N.

Class 11.—8 GREENHOUSE AZALEAS, distinct. (Nurserymen.)
1st, Messrs. J. Ivery & Son, Dorking, Surrey.

Class 12.—6 GREENHOUSE AZALEAS, distinct. (Amateurs.)
1st, Mr. A. Ratty, Gr. to R. Thornton, Esq., The Hoo, Sydenham Hill, S.E.

Class 13.—15 GREENHOUSE AZALEAS, distinct, in pots not exceeding 12 inches in diameter. (Open.)
1st, Messrs. J. Ivery & Son.

Class 17.—20 FINE-FOLIAGE PLANTS, in pots not exceeding 12 inches in diameter. (Open.)
1st, Mr. W. Bull.
2d, Mr. J. Wills, Sussex Place, Old Brompton, S.W.
3d, Mr. J. Aldous, Gloucester Road, South Kensington, S.W.

Class 23.—6 LILIES, distinct. (Open.)
1st, Mr. W. Bull.

Class 24.—12 HARDY PERENNIALS, in pots not exceeding 12 inches, in flower, distinct. (Open.)
1st, Mr. R. Parker, Exotic Nursery, Tooting.
2d, Mr. R. Dean, Ranelagh Road, Ealing, W.

Class 25.—9 FINE-FOLIAGED PLANTS, distinct. (Nurserymen.)
1st, Mr. J. Wills. | 3d, Mr. J. Aldous.

Class 29.—4 TREE FERNS, large. (Nurserymen.)
1st, Mr. J. Wills.

Class 31.—12 PALMS, distinct, in pots not exceeding 8 inches in diameter.
1st, Mr. J. W. Wimsett, King's Road, Chelsea, S.W.
2d, Mr. W. Bull.

Class 32.—6 PALMS, distinct, large. (Nurserymen.)
1st, Mr. J. Wills.

Class 34.—6 CROTONS, distinct. (Open.)
1st, Mr. W. Bull.

Class 35.—12 DRACÆNAS and CORDYLINES, distinct. (Open.)
1st, Mr. W. Bull. | 2d, Mr. J. Wills.

Class 36.—6 NEW PLANTS (Orchids excluded), in or out of flower, not in commerce. (Open.)
1st, Mr. W. Bull.

Class 37.—NEW ORCHIDS, in flower, not in commerce. (Open.)
1st, Mr. W. Bull, for Odontoglossum Roezlii alba.

Class 38.—NEW PLANT, in flower. (Open.)
1st, Mr. W. Bull, for Blandfordia princeps.

Class 41.—2 DASYLIRIONS. (Open.)
1st, Mr. J. Croucher, Gr. to J. T. Peacock, Esq., Sudbury House, Hammersmith, W.

Class 42.—2 BEAUCARNEAS. (Open.)
1st, Mr. J. Croucher.

Class 43.—6 YUCCAS, distinct. (Open.)
1st, Mr. J. Croucher.

Class 44.—6 CYCADS, distinct. (Open.)
1st, Mr. W. Bull.

Class 46.—12 HARDY FERNS, distinct. (Nurserymen.)
1st, Messrs. J. Ivery & Son. | 2d, Mr. R. Parker.

Class 48.—2 SMOOTH CAYENNE PINE-APPLES. (Open.)
1st, Mr. G. T. Miles, Gr. to Lord Carrington, Wycombe Abbey, High Wycombe.

Class 49.—1 PINE-APPLE, any other kind. (Open.)
1st, Mr. A. Grant, Gr. to J. B. Glegg, Esq., Withington Hall, Congleton.
2d, Mr. G. T. Miles.

Class 50.—3 Bunches of BLACK HAMBURGH or FRANKENTHAL GRAPES. (Open.)
1st, Mr. J. Douglas.
2d, Mr. G. Brush, Gr. to Lady Hume Campbell, High Grove, Pinner.
3d, Mr. T. Bannerman, Gr. to Lord Bagot, Blithfield Hall, Rugeley.

Class 53.—3 Bunches of MUSCAT of ALEXANDRIA GRAPES. (Open.)
1st, Mr. W. Bones, Gr. to D. McIntosh, Esq., Havering Park, Romford.
2d, Mr. J. Douglas.
3d, Mr. J. Stephenson, Gr. to F. C. Barker, Esq., Leigh House, Essex.

Class 54.—3 Bunches of BUCKLAND SWEETWATER GRAPES. (Open.)
1st, Mr. J. Douglas.

Class 55.—3 Bunches of GRAPES, any other white kind. (Open.)
1st, Mr. T. Bannerman. | 3d, Mr. W. Bones.
2d, Mr. J. Douglas.

Class 56.—3 Bunches of FRONTIGNAN GRAPES, or any other Muscat-flavoured, round-berried kind. (Open).
1st, Mr. W. Earley, the Gardens, Valentines, Ilford.
2d, Mr. T. Bannerman.

Class 57.—6 PEACHES, any kind. (Open.)
1st, Mr. G. T. Miles.

Class 58.—9 NECTARINES, any kind. (Open.)
1st, Mr. G. T. Miles.

Class 60.—9 FIGS, any kind. (Open.)
1st, Mr. G. T. Miles.
2d, Mr. J. Pottle, Gr. to Sir R. Wallace, Bart., Sudbourne Hall, Wickham Market.

Class 61.—50 BLACK CHERRIES, any kind. (Open.)
1st, Mr. G. T. Miles.

Class 62.—50 WHITE CHERRIES, any kind. (Open.)
1st, Mr. G. T. Miles.

Class 63.—25 STRAWBERRIES, of the British Queen or Dr. Hogg type. (Open.)
1st, Mr. J. Douglas. | 2d, Mr. J. Pottle.
3d, Mr. W. S. Stevens, Gr. to J. B. B. Elliott, Esq., Chesterford Park, Essex.

Class 64.—25 STRAWBERRIES, of the Sir J. Paxton or Sir C. Napier type. (Open.)
1st, Mr. J. Douglas.
2d, Mr. J. Ridout, Gr. to W. S. Brown, Esq., Woodhatch Lodge, Reigate.
3d, Mr. J. Pottle.

Class 65.—1 MELON, Green or Pale-fleshed. (Open).
1st, Mr. R. Gilbert, Gr. to the Marquis of Exeter, Burghley House, Stamford.
2d, Mr. W. S. Stevens.

Class 66.—1 MELON, Scarlet-fleshed. (Open.)
1st, Mr. R. Gilbert. | 2d, Mr. W. S. Stevens.
3d, Mr. W. Sanders, Gr. to J. East, Esq., Longstock House, Stockbridge.

Prizes Offered by Mr. W. Bull.

(Classes 67 to 70.)

Class 67.—12 NEW PLANTS introduced by Mr. Bull, and sent out for the first time since the commencement of 1872. (Amateurs.)
1st, Mr. J. Croucher, Silver Cup, value £15 15s.
2d, Mr. G. Legge, Clevedon House, Thornton Road, Clapham Park, Silver Cup, value £10 10s.
3d, Mr. E. Pilgrim, Fern Lawn, Pitville Crescent, Cheltenham, Silver Cup, value £6 6s.

Class 68.—12 NEW PLANTS introduced by Mr. Bull, and sent out for the first time since the commencement of 1872. (Nurserymen.)
1st, Messrs. J. & R. Thynne, Great Western Nurseries, Glasgow, Silver Cup, value £15 15s.
2d, Mr. J. W. Wimsett, Silver Cup, value £10 10s.

Class 69.—12 NEW PLANTS introduced by Mr. Bull, and sent out for the first time since the commencement of 1872. For those not having previously won any of Mr. Bull's Silver Cups. (Amateurs.)
1st, Mr. G. Legge, Silver Cup, value £15 15s.
2d, Mr. J. Coomber, Gr. to Lieut.-Col. Wilkinson, Southampton Lodge, Fitzroy Park, Reigate, Silver Cup, value £10 10s.
3d, Mr. E. Pilgrim, Silver Cup, value £6 6s.

Class 70.—12 NEW PLANTS introduced by Mr. Bull, and sent out for the first time since the commencement of 1872. For those not having previously won any of Mr. Bull's Silver Cups. (Nurserymen.)
1st, Mr. H. Wright, Lee, Kent, Silver Cup, value £15 15s.
2d, Mr. W. E. Dixon, Norwood Nursery, Beverley, Silver Cup, value £10 10s.
3d, Mr. J. Cypher, Queen's Road Nursery, Cheltenham, Silver Cup, value £6 6s.

Prizes offered by Messrs. J. Carter & Co.

Class 71.—For 6 Dishes of PEAS, to include Carter's Extra Early Premium Gem, Maclean's Blue Peter, Carter's First Crop, and Carter's White Gem.
1st, Mr. W. G. Pragnell, Gr. to G. D. W. Digby, Esq., Sherborne Castle, Dorset, £2 2s.
2d, Mr. G. Brown, Gr. to E. McKenzie, Esq., Fawley Court, Henley-on-Thames, £1 1s.

Prizes offered by Messrs. Sutton & Sons,

Reading.—(Classes 72 and 73.)

Class 72.—For the best 6 Dishes of PEAS, to include Suttons Emerald Gem, Suttons' Ringleader, and Suttons' new early dwarf wrinkled Pea, Bijou.
1st, Mr. W. G. Pragnell, Silver Medal and £2 2s.

Class 73.—Four sorts of MELONS, and four sorts of CUCUMBERS, one brace of each, to include Suttons' new Scarlet-flesh Hero of Bath, Read's Hybrid Scarlet-flesh, and Suttons' Royal Horticultural Prize Melons, and Suttons' Duke of Connaught and Marquis of Lorne Cucumbers.
1st, Mr. J. Read, the Gardens, Arley Hall, Northwich, Cheshire, Gold Medal and £3 3s.

Davis Competition Prizes.

Class 74.—8 STOVE or GREENHOUSE PLANTS. (Open.)
1st, Mr. W. Kemp, Gr. to the Duke of Northumberland, Albury Park, Guildford.

Miscellaneous.—Extra Prizes.

Mr. J. Wills, for large Group of Foliage and Flowering Plants, Gold Medal.
Mr. B. S. Williams, for Group of Foliage and Flowering Plants, Silver Medal.
Mr. J. Laing, The Nurseries, Forest Hill, for Group of Foliage Plants, Silver Medal.
Mr. J. Wills, for Group of Dracænas, Silver Medal.
Messrs. Kelway & Son, The Murseries, Langport, for Cut Blooms of Pyrethrums, Bronze Medal.
Mr. J. Harris, Gr. to Mrs. J. H. Vivian, Singleton, Swansea, for One Smooth Cayenne Pine-apple, Bronze Medal.
Mr. G. T. Miles, for One Dish of Tomatos, and One Dish of Chilies, Bronze Medal.

SATURDAY, JUNE 5, 1875.

MAITRANK.

THIS somewhat strange-looking word has for the last few years appeared about this season in the windows of some of the more enterprising of the London and Liverpool restaurants, and has no doubt puzzled many passers-by. The name, which is simply the German form of "May-drink," is applied to a beverage which is very popular in Germany at this season, and of which the Woodruff (Asperula odorata)—surely one of the most charming among our wild flowers—supplies the characteristic feature. German manners and customs—albeit unpopular with a few—are undoubtedly in general favour just now; and it is probable that some of our readers may like to experimentalise for themselves in the manufacture of Maitrank. Its preparation is by no means difficult; it consists simply in throwing the young shoots of Woodruff into any of the light Rhine wines, and allowing it to remain there for a few hours, when it will be found that the plant has communicated its hay-like fragrance to the wine. We are told that "a tablespoonful of young shoots, about an inch in length, will be sufficient for a bottle of wine:" and it is recommended that the shoots should be picked clean, so as to avoid the necessity of washing them. The above simple process is that by which the genuine Maitrank is prepared; some, however, consider the addition of sugar, or the juice of a Lemon or Orange, as an improvement. "It is generally made in a bowl and served in green glasses, allowing the herb to remain in the fluid," says a genial writer in *Notes and Queries*: "if bottled, the drink has to be strained through muslin."

The use of Woodruff in beverages is by no means a new one in England. Gerarde and Parkinson mention it, although the latter seems to regard it as a German custom: and Langham in his *Garden of Health* says that, "being put in wine, it rejoyceth the heart, comforteth the diseased liver, and so it doth being sodden in wine," besides being useful in divers and sundry diseases. Its pretty old German name of Hertfreydt, or "Heart's delight," which is given by Gerarde, probably refers to this cordial property. Miss Pratt tells an amusing story regarding the Maitrank, which is only equalled by that of the gentleman who, being on his travels, came across a common glowing with furze in full blossom, and on his return home at once told his steward to order a large supply, oblivious of the fact that it abounded on portions of his own estate. He says:—"A gentleman, known to the author, was travelling with a friend in Germany, when, stopping at a hotel, this May-drink was brought as a refreshment to the travellers. They inquired of what the pleasant beverage was composed, and were informed that sugar, Rhine wine, and sweet Woodruff were the ingredients. Next morning, at breakfast, the gentleman missed his companion, and was, some hours after, amused to see him returning to the hotel, accompanied by a peasant laden with a basket of the roots of the sweet Woodruff, which he had patriotically determined to transplant to the woods of his native land, that Englishmen might henceforth enjoy the delicious May-drink. It was not without some disappointment that he heard from his friend that his early morning labour was wasted, and that he had only need to walk into some woods within a mile of his own house to find the plant as beautiful as in those of Germany." Let us hope that the readiness with which the plant could be obtained did not depreciate its value in his eyes.

Among ourselves the Woodruff was one of the favourite plants for church decoration, and entries "for Rose garlands and Woodrove garlandis on St. Barnebe's Daye" occur in accounts of the reign of Edward IV. At Rheimsberg, in Prussia, a feast which takes its name from this plant, which figures prominently in its observance, is annually celebrated on the Sunday after Ascension Day. It is known as the Möske-fest, Möske being a local German name for the Asperula. In old times the festival simply consisted of the going into the woods of the children of the town to gather the Woodruff, with which on their return they decorated the altars and pillars of the church. But in 1757, by a coincidence, the news of the victory of the Prussians in the battle of Prague reached Rheimsberg on the Sunday of the Möske-fest, and the festival has been kept more generally ever since.

The peculiar hay-like fragrance of the Woodruff, which is shared by the Melilot, Anthoxanthum, Tonquin Bean, and other plants, is very remarkable in recently-dried specimens of the rare and beautiful Orchis purpurea. It is due, as most of our readers will be aware, to a fragrant principle called by chemists coumarin, and the scent of the Woodruff so exactly resembles that of the Tonka or Tonquin Bean (Dipterix odorata) that we have heard it called by the latter name in London gardens. Gerarde tells us how in old days it was customary to hang up bunches and garlands of Woodruff in houses to "attemper the aire, and coole and make fresh the place, to the delight and comfort of such as are therein."

This custom still prevails in Germany, especially in the northern districts, although it is said that if a great quantity be kept in a bedroom it will produce sickness and other disagreeable symptoms. These wreaths and bunches are even regarded as weather indicators, their scent being much more powerful in damp weather.

The name Woodruff, which is the generally received title of the plant in England, demands a brief notice. It is usually understood as referring to the whorls of leaves, which Turner, as long ago as 1548, speaks of as representing "certain rowelles of spores" (spurs), and as having been originally Woodrowel. Woodrowe is Gerarde's name for it, It has been suggested, however, that Woodruff is rather a corruption or modification of woodreeve, the steward of the wood, in allusion to the large patches which it forms in Beech and other woods; and the common German name for the plant, Waldmeister, as well as the French Reine des Bois in a lesser degree, tends to support this theory. Its name forms an old-fashioned puzzle, in consequence of the number of double letters which it may be made to contain. Thus:—

"Double u, double o, double d, e,
R o, double u, double f, e."

New Garden Plants.

FRITILLARIA (MONOCODON) MACRANDRA, *Baker, n. sp.**

This is another Fritillary, brought by Mr. Elwes from the East last spring, which proves to be an entirely new species. It is a native of the island of Syra, in the Levantine Archipelago, and was flowered by him at Cirencester in May of the present year. It comes nearest the Greek F. conica of Boissier, a plant

* *Fritillaria* (*Monocodon*) *macrandra*, Baker, n. sp.—Caule unifloro semipedali; foliis 5—6 omnibus sparsis viridibus ascendentibus inferioribus magnis oblongo-lanceolatis, superioribus linearibus; perianthii infundibularis semipollicaris segmentis dorso purpureis glaucescentibus facie flavidis obscure foveolatis nullo modo tessellatis, exterioribus majoribus obovato-oblongis, interioribus angustioribus oblongo-lanceolatis; staminibus perianthio vix brevioribus, antheris magnis distincte cuspidatis filamentis glabris æquilongis; pistillo perianthio triente breviore; stylo dimidio superiore trifido.

which I know from description alone. In habit and leaf it looks like F. tulipifolia and dasyphylla, but these belong to the section Amblirion, which has an entire style and a capitate stigma.

Bulb like that of F. Meleagris, but larger in proportion to the size of the plant. Stem half a foot high, single-flowered. Leaves 5—6, beginning a little below the flower, and extending within a short distance of the ground, all scattered, green, fleshy, ascending, lowest oblong-lanceolate, 3—4 inches long, an inch broad at the middle; upper linear, under an inch long, ⅛ inch broad. Perianth half an inch deep, funnel-shaped, the divisions purple with a glaucous tinge on the outside, yellow with green lines quite untessellated on the face, the foveole round, greenish, very small, placed near the base, the tips incurved and yellowish green, the outer three obovate-oblong, ½ inch broad, the inner three lanceolate-oblong, 2 lines broad. Stamens nearly as long as the perianth; anthers 2½ lines long, oblong, with a very distinct cusp, as long as the glabrous filaments. Pistil reaching to the base of the anthers. Style as long as the ovary, slit halfway down into three slender connivent subulate branches. *J. G. B.*

Eriospermum calcaratum, *Baker, n. sp.**

A new species, well marked by its peculiar bracts; sent by Mr. Bolus, in 1873, from Graaf-Reinet to the Kew collection, where it flowered in June, 1874, the leaf not being produced till the end of August.

Corm large, fleshy, just like that of E. latifolium. Leaf sessile, lanceolate acute, 2 inches long, 5—6 lines broad, glabrous on both sides, marked with two longitudinal depressed lines. Scape terete, half a foot long, slender, glaucous. Raceme laxly 20—30 flowered, 3—4 inches long when fully expanded, under an inch broad. Pedicels ascending, cernuous at the tip, the lowest ¼ inch long. Bracts minute deltoid, furnished with a very large spur (1½—2 lines long). Perianth 2½ lines long, the segments oblanceolate obtuse, white with a green keel, a line broad, the inner three rather smaller. Stamens nearly as long as the perianth; filaments deeply perigynous subulate, twice as long as the oblong anthers. Style as long as the oblong ovary; ovules many in a cell. *J. G. B.*

Eriospermum albucoides, *Baker, n. sp.*†

A new species from Cape Colony, which came to Kew amongst a quantity of bulbs gathered by Mr. Thos. Cooper. It flowered for the first time in July, 1873, the leaf not being developed till October.

Corm oblong, grey, irregular, an inch thick. Leaf round-cordate, bright green, fleshy, glabrous on both sides, 2 inches long and broad, with a petiole ½—1 inch long. Scape half a foot long, very slender. Raceme laxly 10—12 flowered, when expanded 2—3 inches long, 1¼ inch broad. Pedicels erecto-patent, 6—10 lines long. Bracts deltoid, very minute. Perianth 2 lines deep, the divisions yellow with a green keel, the outer oblanceolate-oblong obtuse, the three inner shorter, conniving permanently like those of an Albuca, obovate-spathulate with a cucullate apiculus. Stamens half as long as the perianth, the outer three lanceolate, the inner three shorter and broader, not more than half a line long. Style as long as the ovary. Ovules biseriate, several in each of the three cells. *J. G. B.*

THE OXLIP.

Dr. Prior has shown very conclusively that the "Primrose" of former days was not our Primula vulgaris, but the Daisy; and our American cousins apply the name of the Cowslip to our Marsh Marigold (Caltha palustris); but in spite of this there are few plants which are more generally recognised as distinct, both in popular nomenclature and in gardening, than the two which we nowadays call respectively Primrose and Cowslip. They may both be forms of one species, as Linnæus believed, and as many modern writers suppose; but they are sufficiently distinct for all practical purposes.

This, however, cannot be said of their near ally, the Oxlip; indeed, there are few plants which have been more confused, or have caused more confusion among botanists. The popular observer, indeed, is able to solve the matter by applying the name indiscriminately to any plant with yellow Primrose-like flowers, which form an umbel at the top of a scape; but when it is desired to trace the origin of such plants the difficulty of such a task is apparent. Mr. Fitch has at fig. 150 represented one form which appears to be the umbellate variety of the common Primrose; but the name Oxlip is applied to at least three, or perhaps four, distinct plants, only one of which can claim specific rank, while the origin of the other three is in each case different.

To begin with the true Oxlip, as botanists often call the first of these, which is better known to them as Primula elatior of Jacquin, but not of many other authors; indeed, until 1842 it was confused with the hybrid Oxlip hereafter to be noticed. In our columns for February 20 (p. 239) we called attention to this as a desirable garden plant, and each season convinces us of its importance for horticultural purposes. At the page referred to will be found the more obvious characters by which this plant is distinguished from the other Oxlips, such as the drooping flowers, more erect leaves, and peculiar scent. Dr. Boswell-Syme points out that it differs from its ally the Cowslip "in the leaves being generally less contracted at the base, though in some specimens they are quite as much so, in the flowers being less drooping, the calyx-teeth longer and much acuminated towards the apex, which is acute. The corolla has the limb usually larger than in the Cowslip, and widely funnel-shaped, not saucer-shaped, and of a pale buff-yellow, without any contraction at the throat, being quite destitute of the bosses which are present in the Primrose and Cowslip [this character is most important]; the segments of the limb are also narrower. The capsule is much longer in proportion to the calyx. The pubescence is longer and more shaggy." The plant is distinct enough, not only from a botanical but from a gardener's standpoint; and we can only repeat our advice to those of our readers who live in Suffolk, Cambridge, or Essex—the three counties in which this Oxlip occurs—or who have correspondents in those counties, to secure a good supply of specimens for cultivation. It seeds freely, and is easily grown from seed.

The second Oxlip on our list is a not very common variety of the Cowslip, which is sometimes called Primula veris major. This is a plant which is at once recognisable as belonging to the Cowslip type, but the limb of the flower is flat or nearly so, as in the Primrose, although darker in colour, and is also much larger than in the Cowslip. This form is alluded to in the *Flora Londinensis*, and is probably the original of some of our Polyanthuses, of which more anon.

The most common representative of the Oxlip has yet to be considered, and this is the plant most frequently cultivated under that name. It is usually regarded as a hybrid between the Cowslip and the Primrose, and doubtless has this origin in many cases; but it seems at least probable that a developed form of the Primrose is also so called. We have often found this Oxlip among Primroses, and at a considerable distance from any Cowslips; and when it is remembered that in the common Primrose the flowers are really umbellate, although the scape is not developed, it is easy to see that an accidental development of the scape would produce a very good Oxlip. In the *Flora Londinensis*, indeed, (where there is a beautiful figure of this plant), Sir W. J. Hooker states that he "found that the flowers almost regularly appear with the common scape imbedded in the ground, so that they would be considered as growing altogether single." Dr. Syme says that the hybrid Oxlip usually differs from P. elatior, Jacq., in its large flowers on much longer pedicels, triangular calyx-teeth, and in the limb of the corolla being brighter coloured, more spreading, the segments much broader and rounder, and the throat somewhat contracted with five bilobed bosses, as in the Primrose and Cowslip; while others approach the latter more closely, and in a third form the Primrose type is more prominent. He is of opinion that in all cases this Oxlip is a hybrid; but this we are inclined to doubt. We have found a plant in which Oxlips and Primroses grew from the same root. If the hybrid theory, however, be accepted in every case, the plant which we have referred to as Primula veris major, is probably only a form in which the Cowslip predominates over the Primrose type.

The statement at p. 695, that the Polyanthus is derived from the Cowslip, was written *currente calamo*, and requires some modification. It is probably true in some cases, but it is more likely that the Oxlip last described has given rise to the majority of the kinds of Polyanthus. Miller considers that the Primrose, Oxlip, and Cowslip have each produced Polyanthuses, which he says in his time were so much esteemed in some parts of England as to sell for a guinea a root. A writer in *Science Gossip* for 1867 (p. 137), states that he has raised Cowslips, Oxlips, and Polyanthuses, but no Primroses, from the seed of a garden Polyanthus. The original Polyanthus appears to have been a red-flowered variety. When the name first appeared in books, we have not yet been able to ascertain definitely. Rea, in his *Complete Florilege* (1665), does not give it, although he appears to have been acquainted with the plant, as he says "the red Cowslip or Oxlip is of several sorts, all of them bearing many flowers on one stalk, in fashion like those of the field, but of several red colours, some deeper, other lighter, some bigger, like Oxlips, others smaller, like Cowslips." He also says he had "five distinct diversities" of "the red Cowslip hose-in-hose," which differed in size and colour. Miller in the *Gardeners' Dictionary* (1752), mentions the Polyanthus by name, and gives full directions for its culture; it appears to have attained its greatest popularity about this period.

RICHLY-COLOURED AVENUES.

An avenue plantation over 200 yards long, of six rows of leaf-coloured ornamental trees, has recently been planted on either side of a gravel walk in our Isleworth Nursery, and I was so much struck with the brilliant effect produced by the rich contrast of foliage so early as the middle of May, that I resolved to give you some idea of the effect that may be obtained by the judicious selection of trees, whose colouring will either contrast or blend with each other. I do no mean to say that the avenue above-named is planted quite in the manner I am about to describe, but it contains short lines of most of the kinds named below, which serve to illustrate my meaning. For the use of planters, I will now give lists of twelve lines to be planted on each side of a broad road; the width between the lines should be increased from 5 feet between the first and second lines, up to 10 or 15 feet between the eleventh and twelfth lines; and the width from plant to plant from 3 feet in the first line increased gradually to 10 to 15 feet in the twelfth line. The number of lines may be increased or reduced at the pleasure and convenience of the planter.

1st List.	Height.	*2d List.*	Height.
1. Deutzia gracilis	2 ft.	1. Ligustrum vulgare chinense	2 ft.
2. Golden Spiræa	3 ,,	2. Golden Elder	3 ,,
3. Purple Oak	4 ,,	3. Purple Barberry	4 ,,
4. Silver Cornus	5 ,,	4. Silver Negundo	5 ,,
5. Robinia colutæoides	6 ,,	5. Purple Filbert	6 ,,
6. Golden Oak	7 ,,	6. Tilia filicifolia	7 ,,
7. Purple Beech	8 ,,	7. Golden Elm	8 ,,
8. Golden Catalpa	9 ,,	8. Purple Beech	9 ,,
9. Silver Elm	10 ,,	9. Tilia argentea	10 ,,
10. Acer colchicum rubrum	11 ,,	10. Betula platyphylla	12 ,,
11. Quercus Tauza splendens	12 ,,	11. Purple Elm	13 ,,
12. Alnus cordata	14 ,,	12. Ailantus	14 ,,

These trees can all be kept within bounds by judicious winter pruning and occasional summer stopping, the height of each row remaining the same as indicated for many years with increasing vigour and effect. I have inserted a good many green-leaved varieties, that the lines may not appear too much painted up, and these different shades of green may be increased at pleasure. I am frequently asked at what period of the autumn the colouring of the foliage of trees is at its best, and I can only reply that autumn tints are never so conspicuous in England as they are in America. This arises from two causes. One is that many American autumn-tinted trees do not abound in England, and the other, the want of intense sun-heat to ripen the wood to produce the colouring before leaf-fall.

The merit, however, of our leaf-tinted trees is that they are in beauty throughout the summer, and so allow us the advantage of planting them in contrast to trees of various shades of green, and they thus far surpass in utility those which yield only the short-lived tints of autumn. Not that I do not appreciate the richness of such of the latter as we possess in this country, but every climate has its peculiar treasures; and as I believe we shall never have the opportunity of enjoying autumn tints to the extent our cousins rightly glory in, let us be satisfied that we can enjoy throughout the summer of our moderately warmed climate a goodly display of leaf colouring that is yearly increasing in number and interest, and which the intense heat of America would so far injure as to render them objects anything but enjoyable.

I think I ought to say a few words about some of the shrubs and trees in my two lists.

First List.—No. 1 is of a lovely green, and among leaf tinted trees may well be excused for giving out its snowy flowers in May; 2, is very showy in early spring; 3, is a rare and beautiful Oak: Quercus nigra is the best coloured variety, but it is a slow grower and is often obliged to give place to Q. purpurascens, which, though not quite so dark, is still effective. 4, is well known as of silvery whiteness; 5, is of an exquisite light green; 6, is the glory of the plantation; 7, is too well known to need description; 8, is simply a magnificent sheet of brown gold; 9, is a bright silver variegation and is very elegant and effective; 10, 11, 12, form a rich background, but they must not be allowed to grow so high as to cast a shade over the golden trees.

Second List.—No. 1 is an elegant Privet of a lively

* *Eriospermum calcaratum*, Baker, n. sp.—Cormo magno difformi; folio unico post scapum producto sessili lanceolato acuto glabro lineis duabus longitudinalibus percurso; racemo laxe 20—30 floro; pedicellis perianthio æquilongis; bracteis minutis deltoideis conspicue calcaratis; perianthio campanulato 2½ lin. longo, segmentis oblanceolatis obtusis albis viridi carinatis; staminibus perianthio paulo brevioribus, filamentis conformibus subulatis.

† *Eriospermum albucoides*, Baker, n. sp.—Cormo magno difformi; folio unico post scapum producto petiolato rotundato-cordato utrinque glabro; racemo laxe 10—12 floro; pedicellis erecto-patentibus perianthio multo longioribus; bracteis minutis deltoideis; perianthio 2 lin. longo; segmentis flavis viridi-carinatis; exterioribus oblanceolato-oblongis obtusis; interioribus conniventibus oblongis cuspidatis; staminibus perianthio duplo brevioribus, tribus exterioribus lanceolatis, tribus interioribus brevioribus latioribus.

pale green, and ought to be more known; 2, if I have said the Golden Oak is the glory of the plantation, surely this Elder is the glory of the shrubbery, and deserves extensive cultivation; 3, is of a soft, light purple tint; 4, who will deny to Negundo variegata the title of Queen of the silver trees? 5, here we have a real gem, fit to occupy a place in every shrubbery; 6, an interesting Lime, of elegant habit and neat foliage; 7, of the Rosseel's Golden Elm I cannot speak too highly, it is simply a mountain of the richest gold; 8, is inserted here to form a contrast in colour and habit to 9, which is a truly magnificent tree; 10, 11, 12, will form a good background, and the latter has quite an oriental appearance.

The above lists might be varied according to taste by the substitution of such trees as Alnus glutinosa imperialis and A. incana laciniata, two beautiful cut-leaved trees; Fagus ferruginea latifolia and F. macrophylla, F. filicifolia, Juglans nigra (true Hickory), J. regia laciniata, Liquidambar, whose leaves are scarlet in autumn, as are also those of Quercus coccinea and Q. nobilis. Among other fine Oaks I may name Q. Cerris variegata and Q. pannonica, Fraxinus aucubæfolia, very effective this season; the golden Acacia, the colour of Australian gold; the Tulip tree, Sophora, Tamarix japonica, the most elegant of its class; and many others too numerous to mention.

I must now add a caution to planters of the golden-leaved portion of these trees, and that is, they demand being planted in the fullest exposure to the sun. If they are over-topped by other trees, or the rays of the sun are not directed fully upon them, they will only prove miserable failures. *Charles Lee, Hounslow, May* 29.

WORTLEY HALL.

Mr. Simpson of Wortley, of whose skill as a fruit culturist we had evidence lately, when visiting the gardens under his charge, has to contend with a cold bleak situation, and a thin poor soil in the midst of a coal and iron district. Even Apples do not ripen to perfection at Wortley. It is, therefore, in the forcing-houses that Mr. Simpson has fairest play, and there he well sustains his reputation as a Vine grower. At the end of April we noticed some leaves of Black Hamburgh 14 inches across and in fine health. Mr. Simpson speaks well of the Rivers' Victoria Nectarine as a good bearer that may always be depended on. For forcing purposes Mr. Simpson sets great store on Vicomtesse Héricart de Thury Strawberry. Pines are but little grown, the improved quality of the Pines introduced from the Azores to a large extent obviating the necessity of growing them here. For first-rate quality, nevertheless, an English-grown Pine is still unsurpassable.

The edgings in the kitchen-garden here are made of pressed asphalte, which is serviceable and very durable. For bedding purposes great use is made of Pachyphytums, Echeverias, Kleinias, and other succulents. Mr. Simpson has adopted one of the handiest and most efficient latches for the doors of his houses that we have ever seen. The handle which raises the latch is curved like the letter *O*, so that to raise the latch from the one side of the door the handle is raised, while it is lowered for a similar purpose on the other side. So simple and efficient is this fastening that we observed all the houses in Messrs. Fisher & Holmes' nurseries were provided with this style of latch. In the immediate vicinity of Wortley are Wharncliffe woods and crags, the former well peopled with noble Oaks, remnants of the old Sherwood forest, the latter consisting of a lofty wall of rock, reaching from the high table moorland to the valley of the Don, and thickly bestrewn with magnificent rock-masses of millstone grit, between whose crevices stunted trees struggle for existence, while wherever shelter is afforded the Ling, the Bilberry, and other moorland plants thrive to perfection. From the lofty and exposed situation the trees are frequently blown over, and it is then surprising to see how little anchorage they have, the hard rock being so close to the surface that such things as tap-roots have no chance of going down. The view from hence is very magnificent; the air fresh and invigorating. It is no small boon to the Sheffield folk that Lord Wharncliffe allows free access to these romantic woods and crags on certain days of the week. The dragon of Wantley has long since departed this life, which is not remarkable, seeing that

> "Houses and churches
> Were as geese and turkeys;
> He ate all, and left none behind,
> Save some stones, dear Jack, which he could not crack,
> Which on the hillside you will find."

Such a monster would form an excellent substitute for a "trespassers beware" notice-board, but a similar purpose is now filled by some American bisons, which it is not prudent to approach too closely. Wharncliffe has other associations than those connected with grand natural scenery or questionable legend. It was the residence of the beautiful and witty Lady Mary Wortley Montagu, the brave woman who was the first to introduce inoculation into Britain, a boon we can hardly estimate, now that it has been superseded by the far more valuable and less dangerous practice of vaccination. At Wortley there is a portrait of this clever though fierce lady, whose charming "Letters" and bitter encounters with Pope and Swift give her no mean place in the literature of the last century.

THE AMERICAN PLANTS AT KNAP HILL.

"Your English gardens are greatly indebted to us," observed an American tourist recently while surveying the floral treasures of the Knap Hill Nurseries. "I meet with 'our' Rhododendrons, 'our' Azaleas, 'our' Kalmias and Andromedas, wherever I go." It is true we are indebted to the Land of the West for the originals of these plants, but our Transatlantic cousins greatly overstep the mark when they thus lay claim to the results which have followed from the application of horticultural skill and science on the part of our English cultivators. Even enthusiastic Americans are at last obliged to confess, that America herself cannot produce such a display of what she claims as her own plants, as we can do in such establishments as that of Mr. Waterer of Knap Hill, and that, in this respect at least, she cannot claim precedence of "all creation."

Seldom of late years has the season been so favourable for the flowering of the American plants at Knap Hill as it has been the present year. The Rhododendrons and Azaleas are now in glorious bloom, and those who desire a feast of flowers such as we venture to say is nowhere to be equalled, should at once seek Mr. Waterer's permission to inspect them. It is well-known that on these moist, low-lying grounds the spring frosts often damage the floral display, but this year the fates have been propitious.

There is something peculiarly enchanting in a fine display of these so-called American plants. The very

Fig. 150.—THE OXLIP.

air is redolent of the perfume of the Azalea flowers, which in every lovely shade of scarlet, rose, pink, orange, yellow, and white, together or combined, cluster on every twig, so that the individual plants are literally masses of blossoms, just relieved, in many of the newer sorts, by the tender green of the peeping young shoots, which it has been an effort of years, in this establishment, to secure at the same season as the flowers. Then the Rhododendrons, with their persistent dark green leaves and tender-coloured flowers of every hue, spreading out as they do over acre after acre, far as the eye can trace them—here forming huge bushes sheeted with bloom, there noble standards, decked with choicest floral gems—these are indescribably lovely. A walk through the grounds, one straight drive in which is at least a mile long, confirms this, for in passing down it the visitor finds Rhododendrons to the right, to the left, in front and behind; hosts of bedded stock plants, furnishing their quota of flower trusses; border after border of specimen plants whose value runs high up the golden scale; and everywhere dotted about tree-like examples with noble heads, waiting for removal to the pleasure-ground of some spirited admirer of flowers. Besides these, there are other marshalled hosts of well-grown plants, less generally attractive perhaps, but of great interest to the proprietor, being seedlings, which at this season are closely scanned, day by day, the search being every now and then rewarded by the discovery of some novelty hitherto unattained, or of some improvement upon types already existing, not before realised, occasionally but less often than might be expected by the acquisition of a gem of the first water.

Still one of the best of the Rhododendrons for growing in the tree form is an old sort called roseum elegans, a soft pleasing shade of rosy lilac, and one of the hardiest of the whole race, a certain bloomer, and one which always forms a close well-furnished head somewhat pendulous at the extremities. Some varieties cast off their old leaves too readily, and become mere scarecrows; these are not at all adapted for standards, nor indeed are they fit for growing as ordinary bushes, since they have a starved and miserable appearance when not in bloom. It has in consequence always been an object at Knap Hill to breed from close-habited bold-leaved sorts, which to the sterling quality of fine showy flowers might add the "all-the-year-round" character of a well-furnished evergreen.

To attempt an enumeration of even the choicer varieties would be tedious. Those who are interested in these had better go and see them. We noticed amongst the coming sorts some fine purples; some with light centres, giving the appearance of a stripe down the middle of each segment; and many with fine rich spotting. Some of these will doubtless in due time be introduced to the public as trade plants, others will be used merely for breeding purposes, as starting points for the acquirement of new gains. Considering the care with which all the seed sown is fertilised, the percentage of really fine flowers obtained is not very encouraging; and then as it takes long to work up anything like a stock of a new sort, it is no wonder that good novelties are somewhat tardy in making their appearance.

We cannot refrain from mentioning what is believed to be the finest standard Rhododendron in the world, a noble stem bearing a magnificent head. It is a grafted plant of the variety called Scipio, a deep rose-coloured flower with conspicuous dark spots. This is one of the best of all varieties for standards, as it clothes itself so completely with bold handsome foliage, and is also very prolific of flowers. This specimen is worth at least fifty guineas. Old standard plants which have become thin, or any of the sparse-foliaged sorts, might be beneficially grafted with this variety, which on a healthy stem would in this way soon form a vigorous and well-furnished head.

The soil and situation at Knap Hill appear to suit Lilium auratum perfectly, and immense numbers are grown, both from seeds and scales, the result being the production of much more vigorous and healthy bulbs than those which have had to travel from Japan.

We have only space to add that the Cupressus Lawsoniana erecta viridis, the merits of which we were amongst the first to point out (and which, by the way, we are surprised to see relegated to the supplement in the new edition of Gordon's *Pinetum*), improves, if that be possible, on longer acquaintance—the reason, no doubt, being that it is only after the plant has gained some size that its remarkably refined style of beauty is fully brought out. The young nursery stock, such as we sometimes meet with second-hand under pot culture, though pretty and spruce enough, is wanting in character, and therefore ineffective; but when the plants get to 4 or 5 feet high their elegant outline and slender tapered shapeliness begin to tell upon the eye, and from that size upwards every succeeding year adds new beauties. It is undoubtedly the very choicest and most exquisitely beautiful of all hardy evergreens—green as a Leek, hardy as a Yew, and surpassing in refinement of habit and elegance of growth every other conical-habited evergreen at present known in our gardens. *T. M.*

BOILERS AT MANCHESTER.

The most noticeable features among the several boilers shown were what may be termed coal-saving contrivances. Small stoves or boilers, such as Watson's Masterpiece and Ezerd's gas-pipe or boiler, aimed at securing this object by the placing the whole heating surface within the house to be heated. Practical difficulties might arise on attempting to do this with large heating apparatus, though it does seem a tremendous waste of coal and caloric to thrust our heat worker wholly outside of the houses to be warmed. It ought to be an easy task for mechanical genius to expose so much boiler surface as would be consistent with the safety of the plants, and also so to arrange the stoking and fire arrangements as to keep all smoke and gases out of the air of the plant-houses. Now, notwithstanding we have just passed through a coal famine, more heat is lost in thousands of stoke-holes than would heat many a whole range of glass. In order to utilise this waste heat we must either partially expose our boilers into the houses to be heated, or enclose the furnace in a sort of Polmaise chamber, in which the dry air may be vaporised and then admitted within the glasshouses.

Most of the boilers shown at Manchester seemed the indirect products of the coal famine. Hardly one of them but had some special contrivance to get a double supply of caloric out of the fuel before the products of combustion were discharged into free space. For instance, Mr. John, of Manchester, exhibited a useful-looking saddle boiler, with check-back and water fire-bars. There is a very general impression abroad in favour of saddle boilers. There can be no doubt they heat well, and just as little that saddle boilers of the ordinary kind are wasteful of fuel. Of course the check-end and the water-bars under the fire absorb more heat, and a gentleman who had used this boiler for some time assured us that he was afraid to put much fire on, for fear of excess of heat—a comfortable condition to be in during the last severe and protracted winter. Mr. Mees' patent duplex action heating apparatus is another coal saver that can be applied to any existing boiler without much labour or expense. It may be described as a series of wrought-iron hot-water pipes, let into a water-box at each end. This forms the base, front, and back of any furnace. A saddle, tubular, or any kind of boiler may be set over it, thus obtaining a compound or duplex action. The bars and ends may also be used alone, and form a simple and efficient boiler. In that case, however, there ought to be at least two sets of water-pipes. Mr. Mees exhibited his duplex contrivance under a saddle boiler, and there cannot be a question that the bars and ends would absorb much heat that would otherwise be lost.

A practical detail or two in reference to these boilers was also worthy of notice. The pipes forming the base of the furnace could either be corked in the usual way at front and back or screwed, and the front part of the water-box is made to come off, so that a pipe might be easily replaced if an accident happened, and any sediment removed from the bottom pipes. To facilitate this the water-bars are set with a rake to the front instead of level, as usual; and this position was held to quicken the circulation, as well as to facilitate the removal of sediment.

Mr. Peake, of Altringham, carried the principle of coal saving still further. Not content with using check-plates and water furnace-bars, in the same way as Mr. Mees, he thrusts another set of hollow water-bars into the crown of his saddle boiler, just leaving room for the fire to play freely through among them before it hits the arch of the saddle. The upper series of bars is well placed for heat, as the strength of the fire invariably flies upwards, and spends its chief energy on the crown of the boiler. It is impossible to doubt, on looking carefully into Mr. Peake's boiler, almost half full of iron hollow water-tubes, that these additions must perforce utilise much of the heat that would otherwise be wasted. The heat from all these different sources unites in the crown of the boiler, where the currents meet, and speed on in one stream into the flow-pipe. It might be advisable to have them made entirely separate and independent by means of a few extra connections and stopcocks, so that if a fire-bar gave way or a joint sprung a leak, the boiler itself might still be safely worked, and a tubular bar or common furnace-bar put in on an emergency by means of Mr. Mees' removable front plate.

There were several other boilers displayed, all exhibiting coal-saving expedients, and proving that the lesson, which has been hammered at by the Press for years, has now been taken to heart in good earnest by inventors—viz., that it is cheaper far to buy iron in almost any quantity once than coal every year. The idea of accumulating heating force by the vertical multiplication of boilers one within or on the top of another, which was the chief feature of Cannell's boiler, is now being generally adopted. The majority of boilers shown at Manchester might have been justly labelled ingenious iron traps to catch and to hold caloric until its heat gets exhausted in the circulating water. Hence we saw plate above plate, water-pipes for furnace bars, water-jackets for back or front of furnaces, and water-pipes for the flames to play through before they spent their last force and exhausted their heating power on the boiler proper which enclosed all these supernumerary sources of heat.

We are yet very far from getting the amount of heat we ought to obtain from the quantity of fuel consumed. Our very dissatisfaction, intensified by the coal famine, is the best sign and surest precursor of improvement. The boilers shown at the great Whitsuntide exhibition are attempts at satisfying the just and legitimate demands of horticulturists for cheaper heat. Heat, as one of the most potent factors of production, is always the heaviest tax on cheap production. We cannot do without it, and as the demand for luxuries increase—and it is increasing rapidly—yet more and more heat will be needed to meet and satisfy that demand. Boiler makers are all endeavouring to save coal at rates varying from 20 to 50 per cent. And the Scientific Industrial Society's Exhibition that opened on the same day as the flower show has also its fuel-saving contrivances of various sorts. Dr. Anderson in his eloquent opening lecture on tools, thus speaks of force and fuel:—"We know nothing of force itself only by its effects. The force of our factories, locomotives, steamships, comes from the sun; but the knowledge brings us no nearer to an answer to the great question, What is force? But we have this force at our disposal, and our simple duty is to turn it to the best account. The one man that has done most for the economy of force and fuel in our day is Dr. Joule of Manchester. The effect due to the discovery of Dr. Joule's equivalent of heat and working, both now and in the future, are incalculable. For one thing, it has removed our self-sufficiency and made us dissatisfied with the amount of work done by our steam-engines with a given quantity of fuel. This is a healthy condition to be in. The 10 lb. of fuel per horse-power per hour which pleased our fathers, is already reduced in some steam-engines to 2 lb.; still we are dissatisfied, and thousands of earnest seekers, scattered over all civilised countries, are at this moment trying to lift the corner of their veils to discover one other of Nature's secrets, so as to enable another pound to be saved, and it is more than probable that before the year 1975 comes round the fuel required for steam-engines will be reckoned by ounces." We want also a Dr. Joule in the placing and setting of a new boiler that will save something like four-fifths of the fuel in horticultural furnaces. Hot-water heating is all very well, but our modes of getting the heat out of the fire into the water, and utilising the whole of the heat by linking it to our only object in consuming the fuel, the work of heating our glass-houses, are still most defective and unsatisfactory. Too much fuel is consumed for the equivalent of work rendered, and the sooner horticultural engineers turn their whole energies to the matter of getting more heat from the coal the better for their own interest and the future prosperity of horticulture. Dissatisfaction merges into impotency unless it becomes the pioneer of improvement. We gladly welcome all that has been done, and the much more attempted, but our cry is yet for cheaper horticultural heat. *D. T. Fish.*

THE ROYAL HORTICULTURAL SOCIETY.

There are few who have ever been in any way connected with this Society, or who take an interest in its welfare, but must feel deeply grieved that the direction of its affairs should have fallen into the hands of individuals who are either so ignorant, or so oblivions of the interests of the Society, as to give utterance to such words as are reported to have fallen from the President and Treasurer at the meeting held on May 25. Nothing less than sheer ignorance of the relative position that the Society holds to horticulture at the present time, or a disposition to wreck the ship they are incapable of steering, could have induced any member of the Council to have indulged in such an unwarrantable attack upon gentlemen who allow their plants to be exhibited at the Society's shows, and the gardeners who show them, as was then made. Time was when the Society might be said to be independent of either exhibitions or those who make them, but it is not so now. It may by some be a matter for regret that the Society's sphere of usefulness in the advancement and promotion of horticulture has, by force of circumstances, over which it could have no control, become much narrower than it was at one time. By the introduction and distribution of new plants it in past years filled a most important mission; private enterprise has supplanted it here, and in

this, as in all things of a similar nature, will outstrip the action of any corporate body, no matter how great its resources may be. Chiswick, with its present limited area, as an experimental garden, cannot possibly be much more than the name, especially when its talented and energetic superintendent is cramped in every way for means; moreover at the present day every well-appointed private establishment in the country is more or less an experimental garden, the results of which are far more conclusive for its own immediate locality than anything of a similar nature, however well carried out, in a distant place, can possibly be. Hence, so far as the promotion of practical horticulture is concerned, the Society has little scope except through the influence of its exhibitions, especially those it holds in the provinces. At all events, except to those who live sufficiently near the garden at Kensington to use it as an airing-ground, the Society has little to offer to its Fellows in return for their subscriptions but the shows; and I have never met with a Fellow, residing in a distant part of the country, but who expressed himself satisfied with these, and looked upon them as a legitimate return for his money, so long as they really were what they ought to be.

It might have been supposed that the Council collectively would, ere this, have learnt that it is the gentlemen who permit their plants to be shown who virtually make these exhibitions, yet the President and Treasurer take advantage of the office they hold to flagrantly misrepresent and grossly insult the whole body. From a lengthened and intimate acquaintance with the gentlemen and their gardeners who for many years have been, and are now the principal exhibitors, I am in a position to state positively that the insulting statements made by the President are not true. Men who can grow plants up to the high point of excellence required for exhibition at the present day, are comparatively few, and command high wages. I speak advisedly when I say that the gentlemen whose plants take the principal prizes pay very much higher wages to their gardeners than they would have occasion to do did they not grow such plants. There are none who disinterestedly contribute so much towards the support of the principal horticultural societies throughout the country as the gentlemen who, at considerable risk to plants of great value, allow these to be seen by the public at the exhibitions. By a certain class of people an ungenerous construction may be put upon exhibiting as being simply a means of gratifying a feeling of pride in taking honours. This might in some cases apply to beginners, but the time comes when the highest round in the ladder is reached, when there is no more to conquer, no higher honours to be gained; and yet it is no uncommon thing even after this point is attained for gentlemen to allow their plants regularly to appear at the principal shows. Take, for instance, the splendid collections of Orchids, stove and greenhouse plants, Heaths, and Pelargoniums shown by Mr. Wilkins' gardener, of Leyton. These, at the present time, are regularly first at the London shows—for the simple reason that there are none produced that can successfully compete with them, consequently were they absent the exhibitions would be so much the worse; yet their owner is the gentleman whom the Treasurer, in his extreme courtesy, speaks of as "a man named Wilkins," complaining that he had addressed to the Council an "ungentlemanly letter," but the Treasurer forgot to inform the meeting that this letter from Mr. Wilkins was in answer to one received by him from the Council, and also refused to substantiate his assertions by reading the letter to the meeting. Possibly it might have disclosed something more than would have been convenient. Mr. Wilkins is one of a number of gentlemen who for years have regularly supported the Society's shows by their contributions of first-class plants. Is it likely, I would ask, that they will continue to help a society, the principal representatives of which scatter broadcast such imputations?

The gardeners also come in for a full share of invective. Let us look into the actual position they hold as exhibitors of their employer's productions. They are spoken of in a way that implies their being under an obligation to the Society for the prizes they have so dearly earned, and accused by the President of pressing the Council in an indecent manner. Have those who thus speak any idea of the expense the gardeners are put to in exhibiting collections of large plants? Mr. Ward, one of those who is thus accused of thus pressing for his prize money, had to pay for vans, horses and men, at the Society's June show at Kensington last year, no less than £15, although residing at a comparatively short distance from London. Exhibitors coming from a greater distance, necessarily, must be under heavier expenses. When in the capacity of a gentleman's gardener myself, living in North Cheshire, I was for years in the habit of exhibiting once in the season at the Royal Horticultural or other of the London shows. On these occasions my expenses were never less than £25 or over, which was a clear sacrifice on my part of a very considerable sum, as each time I came to London it prevented my exhibiting somewhere else near home, where the expenses would not have been more than half as much, and in most cases the prizes much larger. For a number of years back there have been many more important shows than the leading exhibitors could attend. I believe I was the first to moot through the horticultural press the advisability of the Society holding yearly exhibitions in the provinces. I exhibited largely at each place the Society visited on every occasion (except when the show was held at Manchester, and consequently near), doing so at a direct sacrifice, through the cause above named.

I simply mention these matters for the information of those who may happen to be under the impression that the prize money gardeners win is all clear gain, and also to make it distinctly understood that the councils and committees of the various societies are quite as much obliged to those who exhibit at their shows as the exhibitors are to them for the prizes they offer. This is a fact that the authorities connected with the different metropolitan societies would appear never to have been able to realise, hence their decadence. The promoters of the leading provincial societies fully understand it, and to acting thereon may in a great measure be attributed their success—meeting exhibitors in the most liberal manner, in addition to offering handsome prizes. To illustrate this I may mention one—the Bishop Auckland—second to none for the successful position it holds; this society, besides offering liberal prizes, pays the carriage of plants coming from distant places. Gardeners who exhibit plants grown up to the highest cultural standard receive many more applications from the committees of the principal provincial societies to show their plants than they are able to comply with.

Ten years ago the Lindley Medal was instituted. It is looked upon as the highest award that can be made to cultural skill, and as such is undoubtedly esteemed accordingly. It is now over nine years since the first was awarded, others from time to time since, up to the last, which has now been due over two years. Not one of these medals has yet reached the should-be recipients. Of course the present Council is not to blame for this, albeit the flourish of trumpets they made a short time ago has as yet come to nothing. Seven out of the nine to whom the medals have been awarded were gardeners in private places, and belong to the class whom the Treasurer designates in such gentlemanly terms as "rabid prizemen!" Although such a length of time has elapsed since many of these medals have been awarded scarce a murmur has been raised at the delay, not by any means through a feeling of indifference about them. Speaking for myself, I would much rather have the Lindley Medal that has been awarded to me than a far greater value in money, and I have reason for saying that I have no doubt the same feeling actuates others who are in the same position. If it is true that "all things come to those who wait," there is yet hope. But still there is a limit to the patience of even those who are blessed with that virtue in the highest degree. *T. Baines.*

Master and Gardener.—With other exhibitors I was much interested in the result of the special general meeting of the Royal Horticultural Society—hoping against hope that somehow something would arise out of the meeting that would place the old Society once more upon a firm foundation, whereon we could all work together for the furtherance of the art for which the Society has been established. However, our expectations have been once more doomed to disappointment. Probably this will always be so until the Council are advised to consult the leading horticulturists as well as the general body of Fellows when they are in any difficulty. About five or six years ago, when it was thought desirable to amend the schedule, all the exhibitors were summoned to a meeting convened by the Council by circular; and His Grace the Duke of Buccleuch and Queensberry did not think it derogatory to his dignity to preside over that meeting, supported by the late lamented Bishop of Winchester. I was present as an exhibitor, and had an opportunity of stating my views on the matter with other gardeners. Major-General Scott, the late Honorary Secretary, was also present, and everything was arranged to our entire satisfaction. Now if a meeting of this kind had been arranged at the time the Council determined to make the 50 per cent. reduction on the schedule of this year, the exhibitors to a man would have supported them in whatever arrangement it was thought desirable to adopt. Unfortunately the men who are now in power prefer sledge-hammer argument to any system of conciliation. This was fully proved in the unwarrantable attack made by Lord Bury and the Treasurer of the Society on gardeners and their employers. Now it is entirely the fault of the Council that the Fellows have to bear the humiliation of being dragged into the County Court; and I wish to state here that I do not approve of the action taken by exhibitors. Although one of the largest creditors amongst them, and however much I disapprove of the way the Council have managed their business this year, I have too much respect for the honour of the Society ever to be prevailed upon to take action against them. Another reason—fortunately I am not one of "those men" who receive part of their wages out of the prize funds. My kind employer pays large sums of money annually to support the exhibitions, and never has inquired how or when I receive the prizes; he was kind enough to say, when I thought it my duty to ask who was to receive them, "You, of course;" and that is all that has ever passed between us about them. Then as to wages, an employer might say, "My gardener is making a good thing out of his prizes; it will not be necessary for me to raise his wages, as I would have done if he had not been competing." This could hardly be said to be paying the gardener out of the prize-money, but it would amount to the same thing. It has not been so with me; my employer naturally supposed that, as his gardener was able to carry off a very large proportion of first prizes, he must be a good gardener and worthy of encouragement, and my wages have been much increased in consequence. I would rather, much rather, have refrained from entering into the subject of personal relations between master and gardener, but if there is any impropriety in doing so the blame rests with Lord Bury in the first place; and his lordship either ought to say who are the men who pay their gardeners partly out of the prize-money, or, if he cannot do this, make ample apology for the expressions he has used. The stigma at present lies at the door of all of us. I am personally acquainted with nearly all the exhibitors, have had intimate relations with the most prominent of them for years, and never yet heard any gardener say that part of his wages was paid out of his prize-money. If reckless, unproved statements continue to be made at meetings by members of the Council, and bitter feelings are thereby engendered, the reconstruction of the Society on a satisfactory basis will be impossible. *J. Douglas, gr. to Francis Whitbourn, Esq., Loxford Hall, Ilford, E.*

BRITISH GARDENERS.—XIX.

ALEXANDER CRAMB.

"I was born in 1810, in the parish of Scone, about four miles from Perth," writes Mr. Cramb, "and educated at the parish school. I was apprenticed in the gardens of Lord Gray, at Kinfauns Castle, then under the superintendence of Mr. Robertson. The principal ambition among gardeners at that period was not plant cultivation as we now find it, but rather to bring together the greatest number of genera and species. Kinfauns was then famous for its extensive collection of herbaceous and alpine plants, among which I spent every spare minute, preparing a *hortus siccus*, a much more difficult task then than now. Botanical books were both scarce and dear. We had no *Gardeners' Chronicle* to consult or reply to questions. The decoration of the flower garden was then in its infancy; Grape and Pine-apple culture was, in the majority of cases, in a sorry condition; had any gardener produced such specimens of either as we now see, the county would have risen *en masse* and presented him with an annuity.

"At the expiration of my apprenticeship I went as journeyman into the gardens of the Earl of Kinnoul, at Dupplin Castle, under Mr. Shillinglaw, an excellent gardener and British botanist. Here my love of British plants was increased, and it has clung to me through life. Owing to the Castle being burnt to the ground I remained here only ten months, as the hands were reduced to two men. Next I moved on to Edinburgh, and found employment in one of the nurseries, at wages insufficient to pay for food and lodging. Still I do not regret the many hardships I suffered, as I gained considerable knowledge of nursery routine, which I have found very useful.

"My next appointment was in the gardens at Tarbert House, now the property of the Duchess of Sutherland, under Mr. Henderson. There was little or nothing to be learned here, so after a term of eighteen months I started for London. One thing I may notice, which is rather unusual in that northern county—the Fig and Apricot ripen thoroughly on the open wall of the kitchen-garden.

"My first place in England was in Essex, where I remained a year; and then went as foreman in the garden of Lord Portman, under Mr. Rogers, an excellent Grape and Pine grower. After remaining three years I returned to London, and then to Scotland, owing to domestic matters. Subsequently I found employment in the nursery of the late Mr. Cunningham, at Comely Bank, near Edinburgh, then famous for new plants, and fortunately was placed in the houses, where I secured a knowledge of propagation, in which at this time Mr. Cunningham had few equals. Heaths were struck by thousands by a very simple and unpretentious plan. I may hereafter describe the system, if thought to be useful, [Please do.] Here I remained for eighteen months, and left to lay out a villa garden in the neighbour-

hood of Edinburgh. The entire space was devoted to pleasure-ground and plant-houses. During the winter months I attended the evening classes at the School of Arts—chemistry, natural philosophy, and architectural drawing—and have ever found the information I gained of essential service. Our lectures were in every sense practical, each fact being proved by direct experiment. For instance, we were told that boiling steam and boiling water are, according to the test of our ordinary thermometers, exactly of the same temperature—212°; but that this is incorrect, as boiling steam is very many degrees in advance, containing what is frequently called latent caloric (insensible or hidden heat), as may be clearly proved by converting the vapour into a fluid by introducing the steam through a tube into a body of cold water. Another experiment I may mention is possibly more beneficial to gardeners, and clearly shows us that we should never trench or dig into the ground frozen earth or snow. In proof of which a piece of ice was placed at the bottom of a glass tube and covered to a considerable depth with hot water. Here it remained for a very long time before being dissolved, as heat descends slowly. But reverse the experiment and the ice quickly disappears.

"Dr. Lindley's *Theory of Horticulture*, which was published at this time, raised horticulture almost to an exact science, providing us with a knowledge of the natural action of plant life and its requirements, and so demolishing that huge monster—empiricism.

"I remained at Comely Bank five years, and after a short space went as gardener to H. G. G. Ludlow, Esq., at Heywood House in Wiltshire. I found the garden in a sad condition, the fruiting Pine plants without a live root, and the foliage from top to bottom covered with white scale. Any remedial measure would have been useless. The young stock was nearly as bad, but easier managed, owing to its small size. It was evident they must undergo a cleansing process, and for this purpose I made a liquid of soft soap and turpentine, and thickened by soot; I had each plant dipped singly in the solution, keeping up a continuous temperature of 150°, which proved effectual, as not a scale was seen afterwards. All the heating material was cleaned out, and the pits white-washed in case of infection. The Vines were not a whit better; the young growths were not stronger than a good-sized Oat-straw, and they had scarcely any roots, so I had no alternative but removal, remaking the borders, and planting a young stock. The Peach trees on the open wall were sadly out of order; very few fruit had been produced for many years past. And how could they be productive?—the border was of a heavy clay without drainage, so that the yearly produce was strong watery wood, less or more destroyed during winter. During the last week in September I had them carefully removed and planted on a prepared border, and merely fastened to the wall. So soon as the buds began to push in spring, the gross wood was removed or cut back to a couple of eyes to fill up vacancies. This plan had the effect of bringing the trees into a sound and fruitful condition. Every other department, as time would permit, received its full share of attention; and even now I have to thank Mr. Ludlow for his kind and unvarying support.

"On leaving Heywood, after a residence of over nine years, I entered the service of Earl Ducie, who had a new kitchen garden in progress. The majority of the fruit houses had been built. The additions since that time consist of three Melon-houses, two Fig-houses, a greenhouse, an Orchid-house, and an intermediate house, principally for Ferns; as well as several ranges of pits. Latterly 100 feet of an Apricot wall has been cased with glass, as a mere protection against spring frosts, which has the effect of securing heavy crops yearly. The Vine borders had been made and planted, but in no instance were the crops satisfactory; I fought on with them for years without the least amendment, the Muscat of Alexandria offering the most resistance. As a last resource I had the Vines lifted, and made a change from calcareous soil to that of the new red sandstone, and ever since they have expressed their gratitude. When planting the fruit trees in the kitchen garden I have invariably grouped every kind by itself, which in several instances is a convenient arrangement, enabling me to protect in the smallest compass against spring frosts, wasps, and birds.

"The greater part of our walls are built a foot deep upon a dry foundation, which keeps them warmer by preventing the ascent of moisture by capillary attraction. No Apples are grown in the kitchen garden; the whole of the borders by the walk sides, with the exception of a few Plums, are occupied with dwarf trained Pears worked upon the Pear stock. Here, as elsewhere, every fruit is correctly named, the names being impressed on lead by steel types.

"Our collection contains over fifty varieties, and the selection has been made with much care. The entire kitchen garden was, in the first instance, trenched 30 inches deep—a refuge for the roots of both vegetables and trees during the late dry summer. Just on the outside, 3 acres of ground have been set apart as an Apple orchard. This is of a variable texture, the soil of one part is light and brashy, and the other a heavy marly clay, and well drained. On the former the trees are subject to canker, particularly the Ribston Pippin, whereas on the latter it is quite free, and yearly bears heavy crops of excellent quality. We cultivate about seventy kinds, which give an abundant supply so long as Apples are useful. As a late dessert fruit, none equals Sturmer Pippin, which is juicy and crisp to the last.

"In every instance our fruit trees are dwarf-trained, as the blossoms and fruit are afforded more protection, and more particularly on high situations. A few years ago we had an immigration of the American bug, which at one time threatened to do us considerable damage. We have, however, by perseverance and the use of paraffin oil, been able to kill the major part. It is sometimes said that this oil is injurious to the tree, but it is really not so. I suspect this pest came from some of the neighbouring farm orchards.

"For more than eleven years I have regularly devoted one evening weekly for the instruction of my

young men who chose to attend, taking up such subjects as were likely to benefit them hereafter. With some this was a pleasant task, and with others it proved a continued struggle to fix their attention. In the case of the majority the sight of a book, particularly if requiring the exercise of any mental effort, was about as palatable as a dose of bitter aloes.

"The flower garden, arranged purely in the geometric style, is situated on the south side of the Court, bounded by terrace walls, and overlooking the lake. The pleasure-ground is extensive, and planted with choice trees and shrubs, both deciduous and evergreen, which in the course of time will produce a striking feature throughout the place. Tortworth possesses an extensive collection of Coniferæ, but no attempt has been made to form a pinetum; the different species have been planted on a variety of soils and situations, to prove which is best adapted to their requirements. Some kinds, indeed the majority, dislike the limestone, while none refuse the red sandstone; the Wellingtonia treats the greater part with indifference."

ROTHAMSTED.

The name of this estate has become, as it were, a household word with agriculturists and men of science all the world over. Its reputation is modern, and wholly due to the ability, zeal, and munificence of the present proprietor, J. B. Lawes, Esq. Though, as our engraving shows, the mansion is a large and pictural example of Elizabethan architecture; though its contents comprise much which forms the admiration of connoisseurs; though it stands in a park with many noble trees—Sycamores, Limes, Beeches, &c.—yet it is little known for any of these things. It has somehow almost entirely escaped the notice of the compilers of county histories and guide books. This is certainly somewhat surprising, as among a hundred that would appreciate the charm of this fine mansion and its surroundings, there would probably be not more than one who could appreciate at anything like their value the extensive series of experimental researches which have made Rothamsted famous.

It appears that we have to thank Philip of Spain and his sanguinary lieutenants, not only for this picturesque mansion, but also for the experiments to which we have just alluded. The connection is remote certainly, but the contrast between the narrow-minded tyranny and oppression of the Spanish monarch and the free spirit of inquiry and liberality evinced by the present proprietor of Rothamsted is such as to invite comment. In any case, the fact is noteworthy that the ancestors of Mr. Lawes fled from Ghent for conscience sake during the prosecutions of the Protestants in the reign of our Elizabeth; that they settled at Rothamsted, and that to one of them is due the erection of the present mansion. Whatever historic associations may pertain to this Hertfordshire manor, they are, however, entirely eclipsed by the researches which have made Lawes and Gilbert names of renown throughout the civilised world. We have, therefore, thought that it would be of interest to a large number of our readers to see the representation of this classic place. Our illustrations tell their own tale; there (fig. 153) is the old gabled mansion with its finely-kept sward in front, a pictural bit of architecture, to describe which would demand the pen of a Dickens, and there, hard by (fig. 152), is a glorious row of Limes, whose arching branches rooting in the soil, and then uprising in a dense tangle of young shoots, form leafy corridors, the charm of which is best appreciated on a hot and sunny summer day when the air is heavy with the perfume of the blossoms.

Part of the park is fenced off for the purposes of the experiments on permanent pasture land, some three or four-and-twenty plots being divided off, and to each a different combination of manures is applied, two being left as test-plots unmanured. The results of these experiments, carried on now for nearly a quarter of century, and most fully and carefully noted, are very extraordinary.

Not only is the general character of the herbage as to vigour, colour, date of ripening, &c., materially modified, but the composition of the plot is entirely altered. In the unmanured plots there are, for instance, a large number of plants of different species, but no one markedly predominating over the others. On the several manured plots the case is widely different. Some species are, as it were, banished, others encouraged, according to the description of the manures employed; and thus it happens that in the plots to which ammoniacal manures are added the herbage consists almost entirely of grasses, sometimes of particular species of grasses, to the exclusion of others, while in those plots to which a purely mineral manure is added Clovers and other leguminous plants prevail. We cannot now enter more fully into this matter. It must suffice to say that the difference in the vegetation of the several plots here indicated is very conspicuous to the eye in spring and early summer, owing to the bands of different colours which the plots present. One plot will be covered with a yellow sheet of Buttercup blossoms, while its neighbour scarcely has one. Another plot will be white with flowers of Anthriscus, while the next plot has not a single plant of this species; and so on. It will be seen that these experiments are interesting, not only to the farmer, but to the gardener who has the management of lawns; while every fruit grower who appreciates how much the quantity and quality of his crop are affected by different manures may derive suggestions without end from an attentive survey of those experimental plots. We cannot now do more than allude to similar experiments on the farm-land on the growth of the various cereals, of Beans, Turnips, Beetroot, Clover, &c. We shall probably take another opportunity of alluding to these matters, and to the opposite tendencies shown by certain orders, such as grasses and leguminous plants, and sometimes even between two species of the same genus. In the meantime we may say that no one can form an idea of the magnitude and infinite detail of these experiments who does not visit Rothamsted for himself. This visit, owing to the liberality of Mr. Lawes, is not a difficult matter—more difficult is it to grasp the scope of experiments made on such a scale and under such varied circumstances.

A laboratory, presented by the farmers of England as some acknowledgment of Mr. Lawes' services to agriculture, stands on the verge of the estate, and the museum attached to it is filled with the evidences and proofs resulting from the experiments in question. Not to speak of the elaborate experiments on the feeding of animals, and confining ourselves merely to certain prominent matters interesting alike to horticulturists and agriculturists, we may briefly

Fig. 152.—The Lime Walk at Rothamsted.

indicate some of the more remarkable researches which have been carried out here by Mr. Lawes and Dr. Gilbert. First, we may mention, the *coup de grâce* given to the mineral theory of Liebig, who, contrary to the practice of all cultivators, maintained that, provided the mineral ingredients in the soil were sufficient and available, no organic manure further than that contained naturally in the soil was necessary. The proofs that plants do not absorb free nitrogen from the atmosphere were gained here. Here, too, were made the series of experiments on the evaporation of water from the surface of leaves which constitutes one of the most valuable contributions to vegetable physiology and practical horticulture. These researches—we shall surprise some of our readers, who look upon horticultural societies as merely associations for the promotion of flower-shows — are contained in the *Journal of the Royal Horticultural Society*. The experiments with the various manures have necessitated thousands of analyses, the results of which are all duly recorded and classified, and the products kept for future examination and comparison. In addition to all this there are the experiments and investigations on the amount of rainfall which penetrates to different depths of soil under various conditions. But the mere enumeration of what has been accomplished and what is still being done at Rothamsted would occupy more space than we can now afford. We must not, however, omit to mention Mr. Lawes' splendid munificence in providing for the future continuance of the laboratory, and of the experiments we have alluded to. Nor has he been unmindful of the welfare of the labourers on the estate. For them allotment gardens are provided and a working man's club, managed by the men themselves, and which proves an admirable boon to the men, by supplying them with all the comforts and recreation they could get in a public-house, without the risk of excess and demoralisation, which is so serious an evil in the latter case. In any other country than England, Mr. Lawes' splendid services to his country would have received some national acknowledgment. The Royal Society, as the fountain of scientific honour, has been more mindful of its obligations to Messrs. Lawes and Gilbert, but, to the wonder of foreign scientific men and agriculturists, successive Ministries come and go, and no national acknowledgment of the greatest services hitherto rendered to agriculture by British men of science has yet been made.

Notices of Books.

Pruning, Grafting, and Budding Fruit Trees. By D. T. Fish. (*Country* Office, 32, Wellington Street, W.C.)

This is a small shilling *brochure* of some fifty-two pages. The author is well known as one of our best practical gardeners, is a ready writer, and consequently well able to impart a deal of useful information on such subjects as this. We cannot say that the result is quite equal to our expectation. A plain practical manual on pruning fruit trees, &c., would be desirable; but the one now before us can lay little claim to such a title. The part devoted to pruning and training is chiefly eulogistic of the author's pet theory about "root pruning," which we take almost entire exception to. "Modern pruners," our author tells us, "merely take fruit trees gently in hand by the roots and lead them into fertile ways. The top cannot be cut into fertility, but the roots can be led with ease and certainty in that direction." To this we would remark that for the production of fruit, simply root-pruning is scarcely ever necessary, and is never resorted to by great fruit growers. They let root and branch both grow, and reap abundant crops. Where trees are trained to some particular form and restricted to certain limits, it is sometimes necessary to resort to root-pruning as a last resource, but to do it habitually, as our author recommends, is absolute folly.

The chapter on grafting is illustrated with a great many, we will not say impossible, but very fanciful methods of performing this simple operation, and, strange to say, the most common and simple, whip or slice grafting, is not shown at all, or not in the manner usually practised. Moreover, our author is not very clear about the performance of the operation when he speaks about selecting scions and stocks of about the same diameter, so that the same parts of the scion and stock should be brought together. "To place the scion in the centre of the cut portion of the stock would be, in cases of diversity of diameter between the two, to invite failure." We say, not so; the diameter of the stock is of no consequence: the author should have here explained that the union only takes place along the edges of the inner bark, so that, having the scion prepared, all that is required, whatever the diameter of the stock may be, is to lay bare a corresponding space of wood on the stock and the inner bark of the one will fit that of the other. All those hackneyed expressions of "bark to bark, wood to wood, cambium to cambium," are confusing and at the same time erroneous and misleading. It should ever be remembered that no union ever takes place between the wood or the bark. Whilst finding these general faults with this little work, we would add there are many good passages in it that may repay its perusal.

—— We have received a copy of Mr. Serjeant Cox's inaugural address to the Psychological Society of Great Britain (Longmans), a society established to investigate the most tremendous problems that can be conceived of by human intelligence, and most of which, according to the general belief of mankind, are not only unknown but unknowable. This, however, should not prevent honest reverent scientific inquiry, which is sure to be beneficial in some way even if it fall far short of its aim. To show the nature of the questions the Psychological Society seeks to study the President boldly sets out by answering the question, What is Matter? by saying it is a collection of molecules (themselves composed of atoms in definite combination). Our senses can only take cognisance of molecular matter, but this is only an infinitesimal part of the universe, which it is not within our power to conceive of. Similarly and in alliterative style Mr. Serjeant Cox defines a man to be "All that our senses can perceive is a marvellous mechanism of molecular structure, admirably adapted for existence upon a world also structured of molecules. This mechanism is subject to all the forces that control matter. But it is subject also to certain other forces that appear specially to control organic matter." It is with these "other forces" that psychology has to deal. We suspect that in taking up this ground the psychologists will embroil themselves with the theologians, and for the prevention of acrimonious dispute it would be well to map out the territory each should occupy. This, however, is not our business. It must suffice for us to state that in the opinion of the psychologists the science of mind can be based on as many facts and phenomena, and therefore on as secure a basis, as any of the physical sciences. Elsewhere in the essay before us we have some other definitions, such as "science is proof;" proof "is the best evidence the nature of the subject will permit." "Facts, to be used as the basis of science," must have their verity established by evidence, which, if not always amounting to positive demonstration, shall be such proof as the unbiased judgment may reasonably accept. But in all cases the evidence must be the best evidence procurable that the nature of the case will permit. A fact is anything, or any state or condition of anything the existence of which can be proved by evidence. Absolute truth being unattainable, we must content ourselves with such a measure of relative truth as we can, with our present organisation of mind and body, take practical cognisance of. All this is reasonable enough. The real difficulty lies with the varying corporeal and mental endowments of different men. The evidence of a fact may in itself be good enough, but the power of receiving and appreciating that evidence, and still more of reasoning correctly from it, may be, and, as we have daily illustrations, are often feeble in the extreme, even among educated persons. The Psychological Society will do good service if it can in any degree amend this state of things.

—— Dr. Pfeiffer's elaborate *Nomenclator Botanicus* is now completed (Williams & Norgate). It forms two very thick 8vo volumes, containing the names of the genera, tribes, and orders of plants as published up to 1858. The name, reference to authorities, dates, synonyms, and frequently the derivation of all the genera of flowering and flowerless plants are given in these bulky volumes, which are indispensable in a reference library. We even notice in some cases that evident errors of transcription, which are so common in the case of garden plants, are included—*e.g.*, Swanalloia, Hort., which is Juanulloa of Ruiz and Pavon.

Home Correspondence.

Early Peas.—Although the winter has been long and the season rather a late one, Peas are now making up for lost time. Of the sorts we shall pull in rotation, according to present appearances, the first on the list is Laxton's Alpha, dwarf and well podded, with from three to five Peas in each pod, and will be fit to gather by the end of the week. Easte's Kentish Invicta follows next, if indeed it be not equally early, and is rather a stronger grower, containing about the same number of Peas in its pods; and close upon the two previous sorts are Laxton's Prolific, somewhat similar to Sangster's No. 1, but a little longer to all appearance in the pod. Next, as to quantity of pods, is Dickson's First and Best, and Sangster's No. 1; a little later is Laxton's Popular and Laxton's Dr. Hogg—a wonderful early sort with nine Peas in a pod, and rather a taller growing variety than any of the above. Laxton's Supplanter and Fillbasket are just coming into flower—both hardy looking sorts of the Maclean "ilk." Maclean's Best of All is barely showing flower; it was sown at the same time and upon the same north border, and, although strong and vigorous, will be a fortnight, if not three weeks, behind the others. Around Worksop, a great Pea-pulling district, the Peas in the fields are looking well and are white with bloom. When I lived at Worksop Manor, and had sown my first batch of Peas in December or January, and with all the shelter and "codling" of a south border, the field growers would pull their first dish quite as soon as I could, although six weeks later in sowing; one thing in their favour being that they had a larger field to go over. *J. Miller, Clumber.*

—— I gathered this day (May 24) a good dish of Peas from Suttons' Ringleader and Laxton's Alpha, sown November 9, on a south border—the latter quite as forward as Ringleader. *R. Thain, Wortley Park, Winchester, Hants.*

The Accounts of the Royal Horticultural Society.—While the pecuniary position of the Royal Horticultural Society is before the Fellows, will you allow me to draw their attention to the manner in which the accounts of the Society have been issued for the last two years, and also to point out a "slight" error of some £500 in the balance. I find it almost impossible to get a word in edgeways at the meetings, so must ask you to kindly find me space in your columns. In the first place, the statement of accounts for 1873 was never audited, or certainly was never signed, by the auditors of the Society, as required by bye-law 121, they having been previously appointed in conformity with bye-law 99; and secondly, those for 1873 are only signed by one of them—Mr. Liggins. Did the other two gentlemen object? If so, I think we ought to know why. Mr. Liggins used some very hard words in reference to the manner in which the late Council kept their accounts—"scandalous and disgraceful" were, I think, some of the minor phrases used in reference to them; let us see whether he has been absolutely immaculate in those which he certainly has authorised. I must begin with the account for 1873. On the creditor side I find the following figures:—Balance of provincial show account at bankers, £268 19*s.* 8*d.*; less owing to Royal Horticultural Society for hire of tents, £200; leaving £68 19*s.* 8*d.*, which, added to the amount loaned to the Society, makes £1868 19*s.* 8*d.* Now, I must explain that after the Society's show at Birmingham, the Society took the canvas that had been used at it at a valuation, in part payment of the balance of profits accruing from that show, and consequently the canvas stands to the credit of the provincial show account, and every time it is used that account should be credited with the hire of it; so that at Bath, instead of deducting this £200, it ought to have been added to the balance, which would then stand at £2268 19*s.* 8*d.* Now, let us follow this account into the balance-sheet for 1874. In the 1873 account it has £1868 19*s.* 8*d.* to its credit. In the 1874 account it has increased to £1900. May I inquire how? There was no provincial show that year, and if the amount could be altered at all, a certain sum ought to have been charged for deterioration of the canvas; but this is nothing compared to the next item. Finding, "from information that they had received," that a mistake had been made in the previous year, the gentlemen who make up the account try to put it right—but how? By again deducting the £200 from the unfortunate balance, and thus reducing it to £1700, when it ought really to appear as above—namely, £2268 19*s.* 8*d.*; and yet, after all this, the accounts are balanced. If this is explainable, I for one shall feel much obliged to Mr. Liggins if he will give the Fellows of the Society what seems to me to be a very necessary explanation. *W. Marshall.*—P.S. In your report of the last meeting of the Society I see Mr. Kellock tells Mr. W. A. Lindsay that he really knows nothing about the gardeners and the loss of their prize money; but on referring to his (Mr. L.'s) speech, I am of opinion that he does perfectly, and beg, after a number of years' experience amongst exhibitors, to bear him out in what he says entirely. The gardeners are really out of pocket until their prize money is paid; and, considering the shows would be nothing without the plants, I really think the prize money ought to be paid within a month at the latest; and I must also express my surprise that a gentleman in Mr. Kellock's position does not know more of the subject.

Brome and Wheat.—Mr. W. Marshall (p. 599) expresses disappointment at not hearing further from me. I was on the point of replying, but desisted—first, because I had promised a distinguished botanical friend, who thought the matter getting too personal, and would be of no benefit to science, to let it drop; and secondly, to be candid, because I thought Mr. Marshall's letter indicated the "attorney for the prosecution," rather than the spirit of judicial fairness, with which only I have time to discuss. In spite of my own protest, Mr. M. insists on other meaning to my language, and when the words were so plain that they could not possibly be misconstrued, he can find no better explanation than that I "must have asked the reference of the specimen to the microscopical committee in a spirit of bravado" (I quote from memory). I think no American would enter on a scientific discussion on such terms as these; and, if it was expected of me under such circumstances, I beg pardon. With due respect, I would suggest that Mr. Marshall's present letter does not indicate a very earnest desire for information. In one of my first letters I gave the references to Professor Goode's paper, and even took the trouble to find out where in England the paper could be seen, and named these places; yet it is evident from the references in this letter that he has not taken the trouble to read it, as they do no justice to Professor Goode's facts, which I am sure any unbiassed person would regard, as I said in my first letter, as furnishing "overwhelming evidence." Though from these circumstances I have little expectation that Mr. Marshall will read the paper after I have referred him to it, not to seem wanting in courtesy on my part, I beg to say that the report of the chairman of the microscopical section of the Academy of Natural Sciences of Philadelphia, Dr. J. Gibbons Hunt, to which committee—"in bravado," I am told—I asked to have it referred, is given in full at p. 163 of the volume of *Proceedings* for 1874. The whole trick is very ably and lucidly detailed, and I am sorry that I have not a copy to send you. The volume is, however, in all the leading scientific libraries in England. *Thomas Meehan, Philadelphia, U.S., May* 18.

—— Referring to the *Gardeners' Chronicle* of May 8, at the beginning of p. 599, I beg to resent, as a groundless, and therefore offensive assumption, the remark of Mr. Marshall, that in the "trick" played upon Mr. Meehan and others "so many scientific Americans were taken in, and for so long a period." Apart from Mr. Meehan, who may speak for himself, I would ask Mr. Marshall how he knows that a single scientific American was taken in, even for an hour? I know of none. *A. Gray, Botanic Garden, Cambridge, Mass., May* 20.

Spring-Blooming Phloxes.—I am making a small collection of these pretty hardy plants, but am a little bothered in getting the correct names of some of them. I can make no mistake about P. verna, as it is an old acquaintance, and makes a beautiful mass of rosy red colour in the spring garden. Phlox divaricata resembles P. verna in habit and foliage, but the flowers are rather looser, and in colour are pale blue; indeed the trusses of bloom much resemble those of Plumbago capensis. Phlox Nelsoni, sometimes called nivalis, is well known by its pure white

masses of flowers and small pointed foliage. Of the same species is Phlox frondosa, pale rosy pink, and I am in doubt whether this variety is, or is not, the same as setacea, which it at least closely resembles. Phlox subulata oculata only differs from frondosa in having flowers that are rather deeper in colour and with a darker eye. P. setacea violacea, as growing at Kew, would be more correctly named setacea rubra, as the flowers are of a deep rich colour. Lastly, I have one of the same species that has flowers in colour very pale blue. Would that be setacea violacea? *Alex. Dean, Bedfont.*

Late Frosts.—How about the effects of frosts? With the common kinds of shrubs here the autumn and winter frosts made great havoc. The shrubs generally, a short time ago, presented a most miserable appearance, but now, after a visit from our late "friend Frost," they look wretched, the young growth being completely shrivelled up. The downcast look of the cottagers tells too plainly the destruction done to Potatos, Beans, and every other tender thing above ground, as also some of the orchard crops. As it is our lot to be situated on the lovely banks of the River Dove, "which wends its way from the enchanting spot, Dove Dale," we expect a late frost; but this year it seems later still, leaving a blight on the eager expectations of the inhabitants of this locality. *A. Bradshaw, Calwich Abbey Gardens, June 1.*

Transmutation of Grain.—This idea of transmutation would appear to spring up in the agricultural mind somewhat periodically, or at intervals of a few years, in much the same way as vast crops of certain weeds, such as Charlock or wild Mustard, occasionally develope themselves upon cultivated land, while the cause of their unexpected and undesired reappearance is unknown. A good many years ago, it might be about the year 1863 or 1864, Barley was sold in the various markets of this neighbourhood for seed at a very high price under the name of "Oat-Barley," and was reported to be an improved variety, and to have been raised from Oats. Very considerable interest was taken in the matter about this time, and without having any decided opinion upon the subject I gave the thing what I considered a fair trial, although upon a very small scale. I procured about half a pint of good white Oats, which appeared at first sight to be tolerably clean, but on close inspection a few grains of Wheat, Barley, and Rye, were discovered in the sample; so all were scattered upon a table, and some two or three hundred grains of Oats picked out individually. These were then sown upon a piece of land which had long been used as nursery ground, the sowing taking place during the month of April. This land had not for a very long time, if ever, had the benefit of stable-yard manure, or borne a grain crop of any kind—so there was no likelihood of its containing vital seeds of any of the cultivated cereals. The seeds sown soon germinated, and in accordance with the prescribed formula I cut the plants down three or four times during the summer, and, the land being light and dry, and the spot sheltered, they all, or nearly all survived the ensuing winter without having had any protection or covering of any kind. During the following season the plants came into ear, and the result was that every one of them proved to be Oats. This experiment, with its result, I think I communicated to the *Gardeners' Chronicle* at the time. I have no doubt whatever of your correspondent of last week (p. 694) obtaining Wheat from his experiment, and distributing the produce of the same as a distinct and improved variety—and this, too, in good faith with the public, for such it might really be, as I believe that most of the improved varieties of cereals in cultivation have been obtained by selection. But it appears pretty clear that the Oats had much less to do with this result than the clean Wheat straw with which they were covered up during the winter, which, by excluding air and engendering damp, would be sure to prove fatal to them; while the cleanest of Wheat or other straw is seldom so very clean as not to retain at least a small percentage of grains, some of which might very naturally, by aid of their gravity alone, find their way to the surface of the soil where the unfortunate Oat plants were being smothered, might establish themselves there, and thus become the progenitors of the celebrated Oat-Wheat, which your correspondent says "has been sent to all parts of England for seed, and has always given satisfaction." *P. Grieve, Culford, Bury St. Edmunds.*

Bedding Pansies.—All lovers of spring flowers will rejoice to hear that the comparative merits of our bedding Pansies and Violas are to be tested at the Chiswick Gardens this year. I hope the committee will make their report public as early as possible, to enable gardeners and others interested to add their experiences to the common stock, and thus some reliable information generally applicable may be obtained. I paid a visit to Mr. T. S. Ware last week, and was delighted with his beautiful display of these very useful gems. It is Mr. Ware's aim to produce good individual flowers, as well as a profuse flowering habit. A new variety, named by him Cœrulean, is an illustration of this. It is as floriferous as Blue King or Blue Bedder, while the individual flower is as great an improvement upon each of the foregoing as they were upon the earlier and now well-nigh forgotten varieties. Cloth of Gold (Ware) and Cloth of Gold (Dean) are now so well known that it seems superfluous to refer to them; but seeing them side by side, my verdict is decidedly in favour of the former. The deep blotch in the centre, at the base of each petal, makes the rich golden hue more effective and brilliant than is the case with Mr. Dean's variety, which is only pencilled. Could Mr. Dean succeed in eliminating the dark pencilling his would be a splendid variety, as the habit is all that could be wished. By the way, what a pity it is that our nurserymen will adopt the same names for their productions; it causes no end of confusion and trouble. The foregoing is a case in point. Viola lutea Grievei, sulphur, shaded with clear yellow, is a very acceptable addition, where masses of bloom are required; viewed, however, as a florist's flower, it is simply nowhere. Buttercup (Ware), golden-yellow, with large deep purple blotch, is a desirable acquisition. The flower is very large, and of good form and substance; the only defect appears to be the compact habit of the plant. If, however, it is planted closely, as at Tottenham, the effect is very beautiful. I saw no better purple than the old Cliveden variety. White varieties were only indifferently represented, and appearing quite up to the general standard. *S. B. D.*

Fruit Prospects and the Plague of Wasps.—Have any of the numerous correspondents of the *Gardeners' Chronicle* noticed a greater number of these pests than usual this spring? I never remember to have done so, for from the end of February until May I have killed over two dozen, and others on the place have slain an equal number, and still they come. One afternoon this week I saw half a dozen in a fruit-house where I had a lot of ripe Strawberries, for which I suppose they had come: only two of them was I able to place *hors de combat*, the rest making good their escape through the ventilators. I attribute the presence of so many to the rich aroma rising from the Strawberries, which they scent from afar. Strawberries are not the only attraction, for they were here before they were ripe. The next inducement is two bee-houses that we have in the garden, and around which there is often some of the robbers hovering. There seems to be an enormous crop of fruit set almost everywhere in this locality, Apricots, Peaches and Nectarines are very good and quite as forward on the south wall as in the orchard house. In the open orchard we have a good set of Apples, Pears, Plums and Cherries, and of bush fruit I never remember to have seen the trees so loaded; but what will it avail if we are to have a swarm of these pests in the autumn at every turn?—for we all know what short work they make with a Jargonelle or a Marie Louise Pear—their two especial favourites. Last year I saw large fruits of each attacked and demolished to nothing but the shell in two hours. *Joseph Murdoch, The Gardens, Green Heyes, Warwick.*

Fruit Prospects.—The charming weather we have been having during May has brought on all kinds of vegetation at a rapid rate. Trees that showed but slight signs of returning vitality a few weeks back are now clothed with foliage that has not received a single check in its development. The respective tints are of the richest and most delicate description, and it is seldom one sees them in such splendid array as they are at the present moment, as it is only in seasons like the present that such results can be produced. All kinds of flowering trees or shrubs are, or have been, laden with a profusion of bloom, and the thinning of fruit will be a serious item in the labour account, as most of it appears to be setting. Apple orchards were, perhaps, never more gay than at present, and with such ample foliage to protect and shelter the bloom, there is at this late season little or no danger to be apprehended from frost; while the maggot, often so destructive during a period of slow growth, will stand little chance of committing his usual depredations. Peaches and Nectarines have not been in such a satisfactory state for many years past, as they have set abundant crops, and are making healthy, quick growth that keeps well a-head of green-fly. As to blistered leaves, I do not think it would be possible to find one showing the slightest tendency that way. Sudden transitions of temperature are sure to produce this by acting on the tender tissues, but this year they have fortunately escaped any great variations that way. The frosts in April affected the young wood of Apricots, and cut off a good deal of the bloom where the spurs were long and projected far from the wall, but even with this the "set" was so good that at least two-thirds of the fruit will have to be thinned off. Pears on the Quince have been laden with bloom, most of which has set, and thinning will be a work of some labour. Those on the Pear stock have been rather thin, except Passe Colmar, which has been very full. Cherries and Plums have set full crops, and the former have nearly got safely through the stoning period—a time when a low temperature often proves fatal. Altogether the fruit prospects are most cheering, as with the season so advanced, danger from frost is scarcely to be apprehended. *J. Sheppard.*

The Fruit Manual.—As I had previously published the *Orchardist*, a somewhat similar work, containing three times more matter than the *Manual* does, I could not help looking at the tabular statement in your review of this book of the number of sorts said to be described in this new fourth edition without surprise. I procured a copy of the work and counted the sorts described, and I now send you a tabular statement of the numbers of each kind which I find actually described, with a column added of the number described in the *Orchardist*. I do not think that any one has worked harder or done more to advance practical pomology in this country. My collection of Apples now comprises 1500 sorts, my Pears number 2200 sorts, and other kinds of fruit in proportion, gathered from all quarters of the earth where such fruits are grown. The kinds, being largely distributed, will remain a legacy to the country long after I am no more, and I shall be satisfied that in my calling I have done my country some good. The *Orchardist*, if it ever sees another edition, will contain authentic descriptions, made by myself, of every kind grown by me, and not from single specimens, but from a dozen of a sort, laid on the table before me, so that all their characteristics can be seen; this is the only true way to describe fruits, and not from single or adventitious specimens, such as are often exhibited, but which do not give a true notion of the general orchard crop. Several of these overgrown sorts of Apples are described in the *Manual*, such as Annie Elizabeth, Dumelow's Seedling, both generally medium sized; Galloway Pippin, Grand Duke Constantine: this is always medium to small, and the author has mistaken Grand Richard for it. With me the first grows small, the second large: see the two sorts as figured and described by M. Leroy in the *Dictionary of Pomology*, pp. 335 and 336. But to the main purport of this letter—the tabular statement. Before giving it, let me ask the reviewer whether he considered all the synonyms equal to true sorts? If so, his table is right; but I should think it strange if any one offered me the Brown Beurré Pear under its thirty different names as thirty distinct sorts, or the Belle Angevine with its twenty synonyms as twenty distinct varieties. *J. Scott, Merriott, Somerset, May 24.* [We have not space to include Mr. Scott's table in full, it must suffice to say that he claims that 1568 more varieties are described in the *Orchardist* than in the fourth edition of the *Manual*. EDS.]

Strawberry Culture in Pots.—The all-sufficient remedy for a good supply of water to Strawberries in pots is a simple wooden trough-shelf. During my fifty years' practice as a gardener, I have invariably found the trough-shelf the best, and in the end quite as cheap as sods or saucers. The wooden shelves for Strawberries or early French Beans, if converted into shallow water troughs by bradding on the sides strips of half-inch board, to hold water three-quarters of an inch deep, will be found to answer the purpose. A half-inch hole and plug, or tap, will be very useful to draw off stagnant water; besides there will be a great saving of labour: the "careless chap" whose duty it is to water them will not have occasion to surface-water very often, for he merely stands at one end and pours in sufficient water to fill the trough from end to end. Wooden trough-shelves I have had in use for eight years, and they require no repairs excepting an occasional coat of paint. *W. P.*

Natural History.

QUEEN WASPS are certainly more abundant this year than they have been for many seasons. Mr. Kneller, in the *Gardeners' Chronicle* of May 29, speaks of their now frequenting the Cotoneasters which are in bloom. They certainly do so; and though I have watched them carefully on the plants, I have noticed that they rarely touch the blossoms, appearing to be more attracted by some gumminess on the bark. I have taken two dozen in a couple of hours off this shrub. The best plan to catch them is with an ordinary butterfly net, and about an hour before sunset. They then appear to be half-stupid, and rarely fly more than a few yards, settling again, so that if you miss them the first time you get another chance. Ivy or Laurel screens, walls with a westerly aspect, or Scotch Firs, if not too high, are sure places to find queen wasps any evening when the sun is shining. Whether it is a fact or not that for each killed a nest of 50,000 is prevented, it is certainly as well to get rid of as many as possible. The incentive to boys of a penny, or even a halfpenny, for every queen brought in before the end of May will produce many dozens. If your readers doubt this, let them try it next spring. *J. M., Southgate.*

HORTICULTURAL EXHIBITIONS, 1875.

June.

16.—Royal Botanic Society, Regent's Park. Summer Exhibition. Sec., W. Sowerby.
16.—Glasgow and West of Scotland Horticultural Society. Midsummer Exhibition. Sec., F. G. Dougall, 167, Canning Street, Glasgow.
16.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees.
17 and 18.—Lee and Blackheath Horticultural Society's Exhibition. Sec., C. Helmer, 5, Boones Road, Lee.
18.—Scottish Pansy Society's Exhibition at Edinburgh. Sec., W. M. Welsh, 1, Waterloo Place, Edinburgh.
18.—Exeter Rose Show. Hon. Sec., T. W. Gray, Exeter.
22 and 23.—The Kingston and Surbiton Royal Horticultural Society's Eleventh Exhibition, at Norbiton. Sec., J. Kirk, 2, East Villas, East Road, Richmond Road, Kingston-on-Thames.
23.—Fareham and South Hants Horticultural Society's Show. Sec., Harry Smith, Fareham.
24.—Royal Horticultural Society of Ireland. Great Summer Exhibition. Sec., A. Balfe, 28, Westland Row, Dublin.
24.—Bristol, Clifton, and West of England Rose and Strawberry Show at Clifton.
24 and 25.—Great Rose Show at the Alexandra Palace. Manager, A. McKenzie.
26.—Crystal Palace Rose Show. Sec., F. W. Wilson.
30.—Royal Botanic Society, Regent's Park. Exhibition of Fruit and Cut Flowers. Sec., W. Sowerby.
30.—Wisbeach Rose Show and Horticultural Exhibition. Hon. Sec., Charles Parker, Wisbeach.

July.

1 and 2.—Spalding Horticultural Society's Exhibition. Hon. Sec., George F. Barrell.
1, 2, 3, and 5.—Horticultural Exhibition at the Lower Grounds, Aston, Birmingham.
2.—The Tunbridge Wells Horticultural Society's Exhibition. Sec., E. F. Loof, The Parade.
2.—Thirty-second Anniversary Festival of the Gardeners' Royal Benevolent Institution.
3.—Southgate Horticultural and Cottage Gardeners' Society's Exhibition. Hon. Sec., J. Mills, Esq., Southgate, N.
3.—West Kent Horticultural Society's Exhibition in Camden Park, Chislehurst. Hon. Sec., H. Nevill, Esq.
7.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees. Cut Rose Show.
7 and 8.—Grantham and South Lincolnshire Horticultural Society's Exhibition at Grantham. Sec., Thomas Lyne, Jun., Grantham.
8.—Frome Rose Show. Sec., A. R. Baily, Frome.
8 and 9.—Manchester Botanical and Horticultural Society. Special Evening Fête and Exhibition of Roses, Floral Decorations, &c. Manager, Bruce Findlay.
8, 9, and 10.—Nottingham and Midland Counties' Grand Rose Show and Horticultural Exhibition, at the Arboretum, Nottingham. Sec., Alfred Kirk, Municipal Offices.
9.—Oxford Rose Show.

THE

Gardeners' Chronicle.

SATURDAY, JUNE 5, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

Monday,	June 7	Meeting of the Entomological Society of London.
Tuesday,	June 8	Sale of Minerals, Fossils, Shells, &c., at Stevens' Rooms.
Wednesday,	June 9	Leeds Horticultural Society's Annual Show (till 11th). Unreserved Sale of Plants at Haslesden House, near Willesden, by Protheroe & Morris.
Thursday,	June 10	South Essex Floricultural Society's Show at Leyton. Sale of Orchids, at Stevens' Rooms.
Friday,	June 11	Rose Show at Lyons (till 13th). Sale of Established and Imported Orchids, at Stevens' Rooms.

THE time at which we are obliged to go to press prevents us from giving in the present number a report of the proceedings at the adjourned meeting of the ROYAL HORTICULTURAL SOCIETY on Friday afternoon; indeed, our publication must necessarily be made a few hours prior to that meeting. We are not, therefore, in a position to comment to any useful purpose on what should be done on that occasion. We may, however, say that the intemperate language of the President and Treasurer has brought us a pile of correspondence greater than we can publish, and that while all our correspondents are justly indignant at the insulting language used by the officials alluded to, some are disposed to rejoice at it as promoting the downfall of a Society which they look upon as effete and mischievous to horticulture. These gentlemen advocate the entire withdrawal of the exhibitors and of the horticulturists from the Society, and propose to leave the local Fellows in their glory at Kensington. It appears to us that those who advocate that view are not fully aware of the manner in which the horticultural part of the Society is inextricably entangled with Her Majesty's Commissioners, with life Fellows, debenture holders, and local Fellows. Cut the Gordian knot and be free, say some; and then start a new Society. Well, where is the knife that will cut such a knot? The process recommended by our correspondents would only sever a few strands. In other words, though individual Fellows might terminate their existence as Fellows, the Society could not be so brought to an end. That would still exist. It is almost impracticable to kill a chartered Society outright, especially when there are so many Life Fellows who might object to their privileges being destroyed at a swoop. Bad as things are, and advantageous as in many respects an entirely new start would be, we do not think it would be practicable. We must not desert the old ship; we must make the best of a bad bargain, from which there is no possibility of ridding ourselves.

A new Society, even if it were called into existence, would in all probability be a mere flower-show Society, and the higher functions, even now at least partially carried on by the Society, would be unfulfilled.

As we have said so often, there is relatively no difficulty in getting up a flower-show. The proceedings last Wednesday confirm our remarks. At first sight it would have seemed as if the insulting tone of the President and Treasurer a few days before must have prevented any one from exhibiting, and that no show would have been held worth the name; and if it had been so the South Kensington party would have rather rejoiced than not. Fortunately for the Society, however, Mr. BULL was tied by previous engagements, and, thanks to him and one or two others, one of the most interesting exhibitions we have seen for a long while was held.

We cannot at the time of writing venture to predict what will happen at the ensuing meeting; but if it results in the entire elimination of the local Fellow element from the Council we should heartily rejoice. The horticulturists on the Council have been placed in an unfortunate position: they have necessarily had to bear the brunt of attacks intended, not for them, but for others with whom they are associated, and with whom the necessities of their position compelled them to act. Great thanks are due to those gentlemen for what they have done, and we would fain hope they will find their reward in an accession of strength and influence. It is quite possible that the horticulturists may be altogether ousted, and the South Kensingtonians largely reinforced by Sir ALFRED SLADE and his friends. The cup would then surely be full. But these remarks may be rendered meaningless by the events of the meeting, which we await with no little anxiety.

—— A PUBLIC MEETING to consider the position and prospects of the ROYAL HORTICULTURAL SOCIETY will be held at the Charing Cross Hotel on Wednesday, June 16. The chair will be taken at 4 o'clock precisely by S. H. GODSON, Esq. This meeting is convened by the Lindley Club, which, of course, will bear the attendant expenses, and regulate the order of procedure. The object is to have an open discussion on the state of the Royal Horticultural Society, and the possibility of restoring it to a respectable position. After the meeting the members of the Lindley Club will dine together, and will be glad of the company of horticulturists who may wish to join them.

—— In the herbaceous ground at Kew there is now in bloom the pretty herbaceous SAPONARIA OCYMOIDES MAJOR. It has a close, creeping habit of growth, and the flowers resemble those of the Vinca, but are much smaller, and are borne freely at the extremity of the shoots; these are in colour pale pink. The plant is evidently well adapted for pot culture, or for rockwork. One of the gems of the gardens just now is the Silene maritima flore-pleno. It has a close dwarf creeping habit, Dianthus-like foliage, and large double flowers, pure white in colour, and as big over as a penny piece, that are borne singly on slim, wiry stalks. It is a true herbaceous plant. Near the latter is Silene maritima var. rosea, a single form, with pale rose cup-shaped flowers; it is, however, much less effective than the double kind. There is a large collection of Aquilegias in flower, but the finest variety, A. cœrulea alba, is growing on the rockwork. The bed of Aquilegias evidently needs re-naming, as a dark blue is named Aquilegia glandulosa alba; a reddish peach kind, A. Whitmanniana alba; and A. blanda azurea alba is the purest white in the whole bed.

—— The annual exhibition of the WEST KENT HORTICULTURAL SOCIETY will be held on Saturday, July 3, in Camden Park, Chislehurst.

—— One of the most beautiful trees of the West Indies is CALLIANDRA SAMAN — a leguminous tree, often known as Inga Saman. It grows to a height of about 60 feet, and not only bears its flowers in great profusion, but also ripens its fruit in enormous quantities, producing large crops of Beans, which are very nutritious as cattle food, and of which cattle are very fond; indeed, in Trinidad they are said to form the principal sustenance of the cattle during the dry months. The timber also is very useful. So much is the tree valued in the West Indies that it has been introduced into the East in the hope of its proving as valuable there. Many other species of Inga, as I. vera, I. spectabilis, &c., are worthy of more general cultivation, not only for the ornamental appearance of the trees themselves, but also on account of the sweet pulp which is contained in the pods and surrounds the seeds, and is constantly eaten as food in the West Indies and South America.

—— Large quantities of CHICORY, it is stated, are annually imported into New Zealand for uses similar to those to which we put the root. The cultivation of the plant to supply the home consumption is strongly advocated in the colony, as is also that of the Beet-root for the purpose of sugar making. The soils of the plains, especially around Otago, are said to be eminently suited for its culture, experience having shown that the roots grown there are most abundant in saccharine matter.

—— The report made to Lord DERBY on THE TIMBER OF HONDURAS by Mr. J. F. DEBROT, Vice-Consul at Omoa and Puerto Cortés, confirms statements as to the value of the woods which have hitherto been regarded with some suspicion. The Vice-Consul gives a long list of woods produced in the country, most of which are, as the shareholders of the Inter-Oceanic Railway will be glad to hear, admirably adapted for railway sleepers. The dye-wood fustic is described as nearly imperishable, as superior to Oak, and a substitute for Teak in ship-building, and especially valuable for the knees of ships. There is a tree from the bark of which exudes the gum called dragon's blood, and Pitch Pine grows in great abundance. The majority of the forests are owned by the Government, though large tracts of land belong to private persons. The extent of timber-producing lands is estimated at about 5000 square miles, including a tract on the Atlantic coast extending 50 miles towards the interior, and about 500 square miles on the Pacific coast. On the Atlantic coast, where the principal forests are, the rainy season lasts from nine to ten months, while elsewhere it is only six months in duration. In this thinly-populated country, with a rich and virgin soil, the life of the planter is a struggle against the encroaching vegetation, cleared patches in the forests sending forth spontaneously a new growth of trees, and the quantity of timber which might be cut in a year, not only without permanent injury, but with benefit to the forests, which in many parts are impenetrable, would be from 20,000,000 to 30,000,000 superficial feet. The annual quantity actually cut is from 7,000,000 to 8,000,000 feet, of which all but 1,000,000 feet are exported. In the last ten years 45,000,000 superficial feet more or less have been shipped, at a value of about £700,000; and of this quantity one-fifteenth went to the United States and the Continent, the rest to Great Britain. The woods exported comprised about 37,000,000 feet of Mahogany, 5,000,000 Cedar, 1,000,000 fustic, 1,000,000 Brazilwood, 500,000 rosewood, and 500,000 other woods. Exact statements cannot, however, be obtained, "as the continued revolutions and changes of Government prevent the compilation." After this it is not surprising to learn from Mr. DEBROT that the capital employed in cutting and exporting timber is very small in comparison with the capacity of production. There are no Acts of the native Legislature on the subject of the forests.

—— In some notes on BRAZILIAN DRUGS in a recent number of the *Pharmaceutical Journal*, a root is mentioned as being used, in the form of infusion, extract, and powder, in chronic hepatitis, dyspepsia, &c. This root is known by the name of Bútua; its botanical origin, however, is not proved, but Mr. HOLMES, the author of the paper in question, states it to be almost identical in appearance and taste to the true Pareira Brava root, which Mr. HANBURY has shown to be derived from Chondodendron tomentosum, R. et P. The most remarkable thing connected with this root is, that in a manuscript list

accompanying the specimens which were sent to the Museum of the Pharmacentical Society, occurs the following passage:—"This root has a basic salt which unites with sulphuric acid, is white, &c., almost like that of Cinchona. It is exported to Europe in great quantities to adulterate quinine." On this point we have the authority of Mr. J. Moss, F.C.S., who has examined the salt, that he proves it to be sulphate of quinidine. This matter is one of interest, which some of our readers may be able to throw more light upon.

—— An interesting feature in the Old Nurseries, Cheshunt, is a trial of HYBRID PERPETUAL ROSES AS PILLAR PLANTS, and it may be of some service if we mention which sorts Messrs. PAUL & SON have proved to do the best. Judged by its beautiful pyramidal habit of growth, the best of all pillar Roses is Madame de Trotter, but it has the disadvantage of not continuing to flower very late in the autumn. Maréchal Vaillant is quite in the front rank, fine in form, and a mass of buds. Next comes Madame Victor Verdier. Cheshunt Hybrid, only planted two years, has made a fine growth, and is very free-flowering, while at the same time it has grand foliage; Climbing Victor Verdier is very fine, flowering from the very bottom; Madame Thérèse Levet is rather a slow grower, but fine when once established; Monsieur Boncenne is a fine old dark Rose, and splendid habit; Madame Clémence Joigneaux has very fine foliage, and a capital style of growth; Coup de Hebe, Anna Alexieff, and Glory of Waltham, are amongst the best. For the same purpose, Paul Verdier, a Hybrid China, and Noisette La Biche have excellent characters; while for covering arches, nothing in Mr. GEORGE PAUL'S experience beats the old Félicité Perpetual. As regards the selection of Roses for covering pillars we may mention, as a useful hint, that according to Mr. GEORGE PAUL'S experience, all Roses which by their style of growth the best adapt themselves to pot culture always make the best pillar Roses.

—— Some of our common BRITISH PLANTS are appearing in Covent Garden this year in unusual force for employment in bouquets. The elegant grasses, Melica nutans and Milium effusum, have been prominent; and the Woodruff, and even the Oxeye Daisy, appear to have found favour in the eyes of the bouquetists. The latter is indeed a strikingly handsome plant, and, were it not so common, would be generally admired. We also noticed a large bunch of the crimson heads of the brilliant Trifolium incarnatum. What may be termed the Orchid swindle was in great force somewhat earlier in the season—roots of Orchis mascula being conspicuously labelled Bee, Spider, Butterfly, or Fly Orchis. The worst feature of this is that the vendors are clearly cognisant of the deception they are practising.

—— The sixth annual exhibition of the WAKEFIELD HORTICULTURAL SOCIETY will be held in the Grammar School grounds, Wakefield, on Saturday, August 28.

—— The planting of some of the LONDON CHURCHYARDS is a comparatively recent improvement of some importance. Those of St. Sepulchre and St. Andrew in Holborn, especially the former, are quite gay this year with spring flowers, and the space in front of St. Mary-le-Strand is occupied by some Rhododendrons in nice bloom, and a good thick Ivy border, which seems doing very well, as well as by other shrubs and plants. After the handsome frontage of some of the Paris churches—such, for example, at that of La Trinité, such ornamentation seems but small, yet it is a step in the right direction, and if the heavy railings which surround St. Mary's could be removed, the effect would be very good. We noticed the other day that the turf in front of the British Museum is composed in great measure of the Swine's Cress (Senebiera Coronopus).

—— In the Cheshunt Nurseries may be seen a small group of small Conifers, which, on account of their neat habit and slow growth, are recommended by Messrs. PAUL & SON as the most suitable subjects for planting on graves. Most nurserymen have now and then to answer such questions as "What can you recommend me to plant on a grave?" and we think it a happy idea of the Messrs. PAUL to get together a group of GRAVE PLANTS, consisting for the most part of Retinosporas, such as R. plumosa alba, R. obtusa nana aurea, R. plumosa argentea, R. leptocladon, R. obtusa gracilis, and the true R. pisifera aurea, which has brighter golden variegation than the form generally cultivated under that name; Thuja occidentalis recurva nana, Cupressus Lawsoniana nana, and C. Lawsoniana alba spica nana. C. Lawsoniana lutea will also be of value for the same purpose, if it does not prove to be too quick a grower. Thuja pygmæa is highly desirable on account of its very dwarf habit and pretty form of growth. Perhaps some of our readers can suggest appropriate additions to this list.

—— Messrs. PAUL & SON have acquired a large collection of the so-called HARDY BAMBOOS, principally from Algiers, and we are glad to state that they all stood out through the past winter, at the Cheshunt Nursery, without being the least injured, and are now making capital growth.

—— The *Horticultural Calendar* for March, published by LANG & CO., of Melbourne, relates the hardships occasionally suffered by INFERIOR GARDENERS, or men with no right to the title at all, seeking and gaining positions which their attainments and professional position do not warrant:—

"In order, however, that employers might be assisted in their choice, and in order that gardeners might occupy their true positions, we would respectfully point out that the gardeners have a remedy in their own hands, and if they want to be in a better position they must help themselves. 'Who would be free himself must strike the blow.' Let them institute a Board of Examination, composed of two or three recognised leaders of the profession—men of whose integrity, impartiality, and skill there is no doubt. It is a vital point that the right men should be on this Board, or the whole scheme would be of no avail. No forward, blowing, presumptuous knaves should be allowed to force themselves into the Board, but educated gardeners, of sagacity and experience and honesty, should be sought out and placed there. To this Board of Examination let all gardeners submit themselves as to their professional education and their professional skill alone. It is not a matter of moral character that is to be here determined, it is simply a matter of professional skill or ability. Let there be four classes, and when a gardener applies for examination let him say in which class he wishes to be placed; let him furnish the Board with the necessary information, such as where he served his apprenticeship, where he was journeyman, where he was head gardener, &c. It will be found that there are men amongst us who have held positions in noblemen's gardens in Europe, who are acquainted with gardening in all its highest details, such as the cultivation of the Grape and Pine-apple and tropical fruits in hothouses, who have had charge of conservatories, and are thorough plantsmen, and who can design and lay off extensive grounds; let these men get first-class certificates. Then, there are many most excellent gardeners who have not had opportunities of growing Grapes, Pine-apples, or tropical fruits, or of designing plans for grounds, but who, nevertheless, can carry out designs on the ground according to plans, who are thoroughly acquainted with the cultivation of all

FIG. 153.—ROTHAMSTED, THE RESIDENCE OF J. B. LAWES, ESQ. (SEE P. 720.)

outdoor fruit trees, who understand how to grow in the best manner all sorts of outdoor vegetables, who are well acquainted with the details of the flower garden, and can cultivate greenhouse plants. Let these good men get second-class certificates. There are also many gardeners who have not had so much experience as the last class, who have hitherto been journeymen merely, who have a general knowledge of kitchen-gardening and flower-gardening, but who would not pretend to be men of thorough experience and skill. Let these men apply for and obtain third-class certificates, and when their knowledge and experience extends, let them apply for admission into the ranks of the higher class. Next let it be the aim of the Board to establish a fourth class of good useful men—men who would be able to dig, rake, hoe, and sow seeds, who could groom horses, or milk cows, or clip the wings of hens; men who pretend to nothing more, and to whom a certificate from the Board would be of service, and let it be the duty of the Board to exclude from this class men who have no experience and no intelligence."

—— We have been requested to publish the following communication relating to the statement made by the President of the Royal Horticultural Society at the meeting on May 25:—"As the solicitor for the gardeners who commenced actions and obtained judgments against the Royal Horticultural Society I beg to deny the statement of Lord Bury that the actions were brought by the masters of the gardeners in their names. I was solely instructed by the gardeners, and I have paid the amounts recovered to them; and I have not, directly or indirectly, had any communication with their employers. *S. J. Robinson.*" [With reference to this communication we may state that a rumour, which we believe to be well founded, is prevalent to the effect that by the private munificence of one of the Councillors of the Society these claims have been settled. Such a sacrifice on the part of a member of Council should not be expected. Eds.]

—— The following plants are now in flower in Mr. J. T. Peacock's rich collection at Sudbury House, Hammersmith:—

Cereus pectinifera	Mammillaria polygona
,, Horneri	,, villifera
,, speciosissimus	,, megacantha
,, Mallissoni	,, hystrix
,, leptopus	,, mutabilis
,, flagelliformis	,, Fischeri
Echinopsis Schelhaussii	,, centrispina
,, oxygona	,, pyrocephala
,, amœna	Phyllocactus, many sorts
,, Zuccariniana	Echinocactus multiflorus
Mammillaria polyedra	,, Wanderayii
,, recurva	,, Kochii
,, centracirrha	,, bicolor
,, glochidiata	,, myriostigma
,, Wildiana	,, mamillosus
,, sphærocephala	Gasterias, many species
,, uberimamma	Aloe nobilis.

—— The inaugural dinner of the newly-established Horticultural Club took place at the Club-house, 3, Adelphi Terrace, Strand, on Wednesday evening last, Mr. John Lee presiding, in the absence of the Hon. and Rev. J. T. Boscawen, who was unfortunately prevented from attending till late in the evening. The dinner was well attended by a thoroughly representative body of horticulturists, amateur and professional. We are informed that the prospects of the Club are very satisfactory, and it certainly seems likely to form a very suitable and central meeting place for horticulturists. It may be well to remark, as a different impression prevails, that the Club, as a Club, has no politics, horticultural or general. It is intended solely to afford a meeting place for horticulturists, with the usual conveniences of a London club, at a very moderate rate.

Forestry.

At this season of the year there is generally greater danger of woods, plantations, and forests being destroyed by fire than at any other, and there is scarcely any rural calamity, apart from the sacrifice of human lives and the destruction of dwellings so deeply to be deplored as that of a fine young, or indeed any plantation being devoured by fire. Any one who has beheld the disagreeable spectacle of a recently burnt plantation—the bare scorched surface of the ground, the charred skeletons, trunks, and limbs, and the red, brown, and half-devoured branches and leaves, can testify to the sad and depressing feelings produced thereby, not to speak of the loss to the landscape, loss of shelter, and money loss, &c. It is often with a feeling of mingled delight and fear that I look upon some splendid woodland, knowing that a spark from a passing railway engine or lucifer match carelessly thrown down may in one brief hour lay all the leafy honours in one grim mass of ruins.

The maxim, "Prevention is better than cure," is strikingly applicable here, hence every precaution should be used to prevent fires occurring; and as many of them originate through neglect and carelessness strict attention and caution well-directed might prevent them. The most common ways by which woods are set on fire are by sparks from railway engines, throwing down burning lucifer matches, persons lighting fires at peat mosses for boiling water, &c., and children at play making miniature fires in imitation of what is done at home.

In order, therefore, to prevent such fires occurring by these or any other ways every available means should be employed. Teachers in schools should instruct their pupils in regard to the dangers of fire-raising. Parents and guardians should be faithful in pointing out the risks and dangers attending it. Employers, and especially foresters, should on all fit and proper occasions seek to impress upon those under them the absolute necessity of exercising care and caution in the use of pipes in smoking, &c. In spite, however, of all due precautions fires will occasionally take place, and when they do so every prompt effort should be made to extinguish them. On most well-regulated estates cottages are erected on specially chosen sites, where a proper view can be commanded of the surrounding district and woodlands, in which cottages workmen employed on the estate reside. The watchmen in the cottages make it their special duty to look out in all dangerous seasons before going to bed, and also during the night as occasion requires.

A private arrangement should always be made between the forester and his men, and all others specially interested in the estate, both as to how communication is to be made amongst them, and what action is to be taken to extinguish the fire. Unless these are clear and well defined, so that each may know his place and authority, time may be lost, and thereby a wood be burnt, which otherwise might be saved.

One way of lessening the evils attending a burning wood or forest, is to prevent the fire from spreading, which is usually done by means of long bushy switches, the best of which are young Birch trees, or long branches, used like flails in the threshing out of grain.

Trenches are sometimes dug where a sufficient staff of hands is at command; clearances by cutting down the taller growths and baring with the hands the lower surface growths, such as grass, Ferns, and Heath, &c.

The most effectual, and frequently the only practical way of arresting the progress of the flames of a furiously burning wood, is to advance a considerable distance ahead of the fire and take advantage of the nearest roadway, footpath, ditch, water-run, dyke, or other breakage or opening through the wood. Draw a match, ignite a tuft of heath, or grass, &c., and run along that side next to the advancing flames. Care must be taken on lighting that the fire does not cross to the opposite side, otherwise the evil would be increased rather than cured. The newly lighted part burns on towards the advancing fire, slowly no doubt as it is burning against the wind, and when the two advancing fires meet, like hostile armies in the battlefield, death is the speedy result.

A fire newly lighted burns with much less force than it afterwards does when the air becomes heated, after which I have heard it rush and roar like a mighty torrent, the flames leaping from tree to tree in maddened, wild, but terrific grandeur.

Every forester, and those who act with him in case of fire, should know thoroughly every part of the ground—roads, ditches, drains, fences, swamps, ravines, &c., so as to be able to go to any part, whether by night or day, and do what under the circumstances is considered best. After a fire has occurred, it should be diligently watched, even after the external appearances of fire have disappeared, and no attempt should be made to cover up and smother the burning embers, but, on the contrary, every part suspected of concealing a single spark should be dug out and watered. In some cases, when peaty soils occur, or old tree roots exist, the extinguishing process is both tedious and expensive, but it must not on these considerations be given up, especially with the prospect, or at least hope before us that a copious shower of rain will terminate the ills. *C. Y. Michie, Cullen.*

BURRS.

Most of our readers must be familiar with the enormous "burrs" which are so common on Elms, and which are found also on other trees. They consist of a huge swelling of the woody tissue, and an enormous increase in the number of buds. These buds lengthen into shoots, and thus produce a most singular appearance. The exciting cause of these formations is not known in most cases, but it is very probable that it is connected with insect agency.

In the specimen which we figure (fig. 154) a chaffinch had built its nest amid the branches. We suppose Mr. Miles, who kindly forwarded us the burr, has rather more birds than he wants, else we could have wished he had left the nest undisturbed. Nay, we are not sure, with a view of preventing the disfigurement of his trees, it would not have been the best policy to have preserved the birds.

Reports of Societies.

Royal Horticultural: *June* 2. — W. Burnley Hume, Esq., in the chair. The Rev. M. J. Berkeley announced the awards made by the Fruit and Floral Committees, and called attention to the more interesting subjects brought under notice, and amongst them some fruit of what was called the Improved Orleans Plum, and which was well recommended for pot culture. A nice dish of Peaches had also been received, but without a name, and it was very difficult to say what it may be in the absence of shoots or any information as to the size of the flowers. The same observation applies equally to Plums as to Peaches. It is necessary to see the young shoots and leaves, and more especially of Peaches, where the flowers vary so much in different varieties, and where the presence or absence of glands in the leaves is of so much importance. The Fern-leaved Parsley shown by Messrs. James Carter & Co. would, he thought, be most useful as a bedding plant, as well as for garnishing purposes. Mr. Webb, the chairman of the Fruit Committee, had brought some young Pears destroyed by the grub of some dipterous insect, but in the absence of an eminent entomologist from the meeting of the Scientific Committee they had not been able to determine what it was. Mr. Berkeley also brought up himself specimens of Apple-shoots destroyed by an oidium, and which could only be cured by the application of sulphur, as in the case of the well-known Vine mildew. Another subject he might mention at the same time was that a caterpillar sometimes joins the petals together like a sort of cupola, about the time when they ought to drop off, and the crop would certainly be destroyed if such flowers were not picked off as soon as they are found. He (Mr. Berkeley) had had an opportunity of quietly going over the gardens at Chiswick on the previous day, and he had never seen them in a more flourishing condition. They were now doing with the Onions what they had last year done with the Potatos. The crop of fruit on everything outside was unprecedentedly heavy; the orchard-house had a good and regular set; the same was experienced with the oblique cordon Peaches in the glass wall, and at the present time the trial of bedding Pansies and Violas was most interesting.

Scientific Committee.—Dr. J. D. Hooker, C.B., Pres. R.S., in the chair.

"Albino" Leaves of Tilfairia pedata.—The Rev. M. J. Berkeley, alluded to some specimens sent to a previous meeting by Dr. Moore of Glasnevin, and which, in addition to other changes, had some small white spots on them which Mr. Berkeley stated were caused by a species of Depazea. Mr. Berkeley had also found a common mould, Cladosporium herbarum, on the leaves, but this was a consequence not a cause.

Galls on Yews caused by Tetranychus Taxi.—Professor Thiselton Dyer mentioned, with regard to Mr. Murray's communication on Tetranychus Taxi, printed in the *Gardeners' Chronicle*, May 22, p. 659, that his acaroid did not, as far as he had observed, attack the ordinary buds, but only those containing the female flowers. They appeared to feed on the ovule and the adjacent scales, while the external scales became brown and withered. He had also found the same mites on a large ♀ Yew at Kew, and as this also bore the curious so-called "galls" alluded to by Dr. Masters, he thought it not impossible that these replaced the female flowers which had been destroyed. Properly speaking, they were not galls, although they might be regarded as shoots abbreviated in their growth by the action of the acarus, but only tufts of leaves in which a spiral instead of the usual distichous arrangement obtained. The question was whether these tufts had anything to do with Mr. Müller's galls? He might venture to correct Mr. Murray with regard to the minute transverse striæ. In the examples he had met with, these striæ were quite as evident as in the Currant bud mite.

Dr. Masters inquired if it were an ascertained fact that the female plant was alone affected, and stated that after all the arrangement of the leaves was not essentially altered. The normal arrangement is spiral, and it is only by torsion of the leaf or of its stalk that the leaves appear to be all in one plane, in the case of the Yew. In the so-called galls the leaves are not twisted, but each developes in the same plane as that in which it originated.

Leaf Galls of Sycamore, Pear, &c.—Mr. Berkeley showed specimens of galls on Sycamore leaves, and on the variety called Leopoldi. These galls were produced by a four-legged acarus of the genus Volvulifex. In the case of the Pears the galls were produced by a very minute acarus, but another species (Tylodromus sp.) was also found on the same leaves, and occasionally entered the cavity made by the first.

Hypoxylon ostraceum.—Mr. Berkeley showed specimens of this, which has been supposed to be a fungus, and was figured by Bulliardi, t. 444, fig. 3, as such. It had been referred by Fries to Lophium mytilinum, but was really, as Sowerby was aware, the cocoon of a midge. Mr. Berkeley has forwarded to Professor

Westwood two similar cocoons, one found on a fungus, Lactarius deliciosus, and of which he had seen the perfect insect, and the other on dead decorticated wood. Professor Westwood is understood to be preparing a memoir on the three.

Oidium on Apple Blossom.—Mr. Berkeley showed specimens in which the petals and other parts were distorted by the presence of a white mould (Oidium).

Apetalous Lychnis.—Mr. Berkeley also showed flowers of the common Lychnis diurna in which the petals were abortive.

Grub in Pears.—The same gentleman showed Pears destroyed by the larva of a dipterous fly.

Fruiting of Hibiscus rosa sinensis.—Professor Dyer showed fruits of this species obtained by artificial fertilisation by Mr. W. Gorrie, The Gardens, Mauldslie Castle, Carluke. This is the more interesting as in India and China the plant is not known to produce ripe fruit, and is always propagated by cuttings. In Barbados, on the other hand, in the garden of General Munro, the plant produces its capsules.

On the Packing of Living Plants for Transport.—Mr. Murray read the following paper on this subject :—

"I have hesitated whether to make my present communication to the Floral Committee, or to this committee. The members of the Floral Committee are undoubtedly better qualified to pronounce upon its practical merits than we are, but whether wisely or not, they seem to prefer to deal with results rather than processes, and as these generally depend upon some scientific principle, it is perhaps quite in rule that they should be taken up by this committee. I have been led to bring the subject under your consideration by finding that the mode of packing for transport adopted in Japan is quite different from ours, and as it is successful, it appears to me desirable that we should examine it with the view of ascertaining whether it embodies any hint that may be adopted with advantage by ourselves. I am not at all challenging the excellence of our present practice. All that I say is, that if it can be improved we should try to do it. I have seen a bundle of plants a fortnight on the way arrive not much the worse, but I have also seen them arrive utterly destroyed, and I presume all nurserymen must be familiar with reclamations from their customers for injury sustained by these packages not being delivered in time. Now if by any new plan we could make them keep for twice as long uninjured I imagine it would be a great boon to these gentlemen. This is what the Japanese do, and their process is to shake the earth entirely from the roots of the plants, and then to envelope them carefully in a kind of stuff seemingly a mixture of dust, saw-dust, fibres, and *débris*, of which I exhibit a portion, and which keeps the roots from injury and from the air during the transit.

"The way in which I happen to know about it is this: I have a brother in San Francisco who, as perhaps some of the committee know, is something of a horticulturist. Last season he imported some young living plants of certain species of forest trees from Japan. They arrived in perfect health, packed in the material I have just shown. Struck by the success of the plan, he immediately repacked a portion of the envoy in it and despatched it to my sister in Edinburgh. When they reached her most of them were unmistakably dead, but some two or three still showed signs of life, and it is only now, some months subsequently, that she has given up all hope of bringing them through. They also are dead. Now the committee will remember that the distance from Yokohama to San Francisco is 5573 miles, which, at the rate of 300 miles a day, is about equal to twenty days. The breadth of the Atlantic between New York and Liverpool is only 3080 miles, and including the transit across the continent from St. Francisco takes twenty-three days. The plants thus kept well for twenty days, and if they had remained unpacked there seems no reason to doubt that they might have done so for some days longer. Nurserymen will be able to say how far the degree of success here indicated is worth pursuing and experimenting upon. Our business, I apprehend, is rather to look at the physiological principles required for success, and say which plan seems best to accord with them. The Japanese and European cultivators will both start from the same point, viz., shaking the earth from the roots. This, undoubtedly, is sound. There is nothing equal to earth for growing plants in, nothing worse for transporting them in. I do not speak of transplanting with a ball of earth or in earth still attached to the roots. The object of that is to prevent disturbance, breakage and exposure, and where plants can be transported to their destined place of growth so protected, whether with a bound up ball of earth, or in a flower-pot, no one would propose to improve upon it by shaking off the earth, but where they are to travel not so protected and for such a distance or time that the earth will dry up and crumble and break away, it can serve no purpose but to injure the more delicate parts of the roots by rubbing against them.

"It is in the next stage that the difference between the Japanese and European packing takes place. The European ties the roots up tightly, puts moss about them (often moistened with water), and then wraps them up carefully with matting. The Japanese handles the roots more gently, fills up the interstices with his padding, and then covers them with matting. I do not know for certain whether he moistens his padding at starting or not—I believe not. There is no appearance of it ever having been wet—no adhesion—no portions sticking together, and I apprehend that the more correct and better plan in all cases, except where we can calculate on the plants arriving before the moisture has evaporated, is to give no moisture. Moisture about the roots is not an absolute requisite for the survival of plants. In dry summers we have plants living with the earth about their roots as dry as a bone for a foot down. It is the exposure to the air that does the mischief—not the want of water. Every cultivator knows that a plant left with its roots bare will sustain more damage in a couple of hours than another with them covered will in a week. The great secret of successful transmission of plants with the roots out of the earth is the exclusion of air from them, and in my judgment the Japanese plan does this more effectually than our European practice, besides injuring the rootlets less."

In the discussion which followed, Dr. Hooker stated that nothing was so objectionable as packing plants both loosely and moistly. Mr. Smee stated that he was in the habit of sending plants packed dry but firmly in India-rubber bags. Dr. Masters spoke favourably on the plan of packing firmly with dry sphagnum, where the size of the plants permitted.

Coccus on Trichopilia.—Mr. Murray showed specimens of an undescribed coccus on the leaves of a Trichopilia, on which further remarks will be made on another occasion.

Larch Disease.—Referring to this subject, brought before the committee by Mr. Murray at a recent meeting, Professor Dyer called attention to a paper of Dr. Moritz Wilkomm, entitled "Der Rinderkrebs der Larchenkrankheit" (the bark-canker of the Larch disease). Dr. Wilkomm refers the disease to a fungus which preys on the young layers of wood, and which he calls a species of Corticium, but Mr. Berkeley stated it to be Peziza pulchella.

Dr. Hooker stated that Larix Griffithii was entirely killed by it.

FIG. 154.—BURR ON ELM.

Mr. Murray believed the disease was due to climatal changes rather than to the fungus, which he considered to be a consequence, not a cause.

Rev. M. J. Berkeley considered there were two diseases—one the "pump disease," the other which originated when the roots arrived at a hard "pan" which they could not penetrate. Mr. Berkeley had only seen the fungus in the latter class of cases.

Mr. Murray thought they were not two separate diseases, but merely stages of one.

GREAT SUMMER SHOW.—It was not to be expected, after the extraordinary remarks upon gardeners and their employers which fell from the President and Treasurer at the late special general meeting, that the large tent usually called into requisition at the June show would be wanted on this occasion, but we were not quite prepared for so excellent a display as Mr. Barron was enabled to place before the Fellows in the arcades, thanks to his own exertions in the matter, and especially to the liberality of Mr. Bull, whose prizes for new plants brought out a splendid competition, and who himself had a glorious innings in the matter of prize-winning, besides having the honour of showing perhaps as good a dozen new plants as were ever staged, and which will be found more fully alluded to below. A word of praise is also due to Mr. Barron for the admirable manner in which the show was arranged. There is no place more difficult to deal with artistically than these arcades, yet by the judicious grouping of the fine-foliaged plants, of which there was a decided preponderance, and by the regular dispersion amongst them of the groups of flowering plants at his command, he certainly extracted more beauty out of the situation than we have been in the habit of seeing.

Fine-foliaged plants were very well represented, not by the large plants we usually see, but by young and fresh examples of the more recent introductions. Mr. Wills had the best six amongst nurserymen—a very effective group. Mr. Bull had a dozen fine young specimens in the open class, including the very distinct Acanthorrhiza Warscewiczii, Verschaffeltia splendida, Geonoma pumila, Oncosperma Van Houtteanum, Dæmonorops palembanicus, Cocos Weddelliana, &c. The best couple of Beaucarneas were contributed by Mr. Croucher, gr. to J. T. Peacock, Esq., and the same exhibitor also came in 1st for six distinct Yuccas, with fine specimens of Y. Mooreana, Eylesii, aloifolia variegata filifera, aloifolia quadricolor, &c. Mr. Bull and Mr. Wills each contributed very pretty groups in the class for twenty fine-foliaged plants, and the prizes went in the order we have given above. Croton Veitchii, Pandanus Veitchii, Paullinia thalictrifolia on a flat wire trellis, Geonoma Seemanni, Cycas imperialis, Croton Weismanni, Dæmonorops cinnamomeus, and Aralia Veitchii were superbly shown by Mr. Bull; while the smaller examples of various Dracænas, Cycads, Pandanads, Dieffenbachias, and Palms, &c., from Mr. Wills, were most creditable. A group of twelve Palms from Mr. J. W. Wimsett, King's Road, Chelsea, and which took the 1st prize, were also very effective—not large, but very handsome. For six Cycads Mr. Bull came in 1st, with a particularly fine group, including plants of Encephalartos majesticus, Cycas revoluta, Macrozamia spiralis, with grand trunks, and handsome specimens of Encephalartos Brownii and E. villosus. Handsome specimens of Dasylirion longifolium glaucum and D. acrotrichum, shown by Mr. Croucher, gr. to J. T. Peacock, Esq., were the best in their class. The class for Dracænas and Cordylines was an uncommonly good one, the competition being very strong between Mr. Bull and Mr. Wills. The former was 1st with very fine, well-coloured and very fresh specimens of Baptistii, Regina, Mooreana, Shepherdii, Rex, triumphans, Chelsoni, Fraseri, and Goldieana, the latter being over 2 feet high, and a very striking object, so distinct is its foliage and variegation. In Mr. Wills' 2d prize collection the most noticeable were Knurkiana, Youngii, Shepherdi, amabilis, Mooreana, Regina, and Macleayi—a nice specimen of a plant difficult to grow.

In the Davis Competition the 1st prize went to the only exhibitor, Mr. W. Kemp, gr. to the Duke of Northumberland, Albury Park, Guildford, who had very nicely flowered half specimens of Aphelexis macrantha purpurea, Darwinia tulipifera, Boronia serrulata, Acrophyllum venosum, Erica Cavendishiana with wonderfully bright flowers; Clerodendron Balfourianum, &c.

In the amateurs' class for six greenhouse Azaleas, Mr. Batty, gr. to R. Thornton, Esq., Sydenham Hill, came in 1st with large and generally well-flowered examples, the best being of Burlingtoni and Iveryana. The premier award in the nurserymen's class for eight went to Messrs. Ivery & Son, Dorking, for a showy group; and the same firm also took another 1st prize with a capital group of fifteen.

There was no competition in the amateurs' classes for nine and twelve Orchids, Mr. Douglas, gr. to F. Whitbourn, Esq., Loxford Hall, being the only exhibitor in both cases, and 1st prizes were awarded to him. The North American Cypripedium spectabilis was nicely shown with four flowers; Masdevallia Harryana had six very finely-coloured flowers; Cattleya Warneri, Lælia purpurata, Dendrobium Farmeri, D. Bensonæ, and Oncidium phymatochilum, &c., were represented by nicely-flowered plants.

Hardy Ferns were remarkably well shown by Messrs. Ivery & Son and Mr. R. Parker, the former gaining the first position with an exceedingly well grown lot, including Lastrea Filix-mas cristata Iveryana, L. Filix-mas grandiceps, L. Filix-mas Bollandiæ, Athyrium Filix-fœmina Fieldiæ, A. Filix-fœmina corymbiferum, &c. Mr. Parker had Adiantum pedatum, A. Capillus-Veneris, Scolopendrium vulgare crispum, Athyrium Filix-fœmina Moorei, Lastrea Filix-mas paleacea cristata, &c., in very fine condition.

There was only one group of six Lilies, and to these, which came from Mr. Bull, the 1st prize was voted: the forms represented were auratum, pyrenaicum, davuricum erectum, Szovitzianum, "tigrinum" splendens, and bulbiferum umbellatum, and all were nicely flowered. In herbaceous plants Mr. Parker was again to the fore, with grand plants of various Pæonies, Pyrethrums, Thalictrum rubrum, Lupins, Iberis, Spiræas, &c. The 2d prize went to Mr. R. Dean, Ealing, with a neat group, including the bedding Pansy Othello and Viola Mulberry, Sedum lydium, Scilla peruviana alba, Campanula garganica, Polemonium cœruleum, &c. Mr. Dean also showed cut spikes of the Giant White Brompton Stock, deliciously scented like the Clove.

For twelve new plants (Orchids excluded) Mr. Bull was 1st, with a magnificent group, which included grand specimens of Aralia Veitchii, 5 feet

high, Croton majesticum, 3 feet high and the same through, finely coloured; Anthurium crystallinum, with capital foliage; Kentia Moorei, very fine; Dracæna Hendersoni, Phyllotænium Lindeni, a Caladium-like plant, with very boldly marked white venation—a specimen 4 feet over; Croton imperiale, Pritchardia grandis, a grand Palm; Dracæna Goldieana, Pleocnemia Leuzeana, Dracæna Baptistii, and Croton spirale, a remarkably good specimen of a deep bronze colour. The best group of new plants probably ever staged. Mr. B. S. Williams was 2d, with Alsophila australis Williamsii, Cyathea Burkei, both very fine specimens; Zamia Lindeni, Dracæna amabilis, D. Shepherdii, D. Fraseri, Croton majesticum, Metroxylon filare, &c. Mr. Bull was also 1st for a new Orchid in flower and not in commerce, with Odontoglossum Roezlii album, and also for six new plants (Orchids excluded), with Blandfordia princeps, Pritchardia grandis, Dracæna Goldieana, Lomaria dobroydensis, Croton picturatum, and Dracæna canescens; and also for one new plant in flower, with Blandfordia princeps. The 1st prize for six Crotons also went to Mr. Bull, who had charming specimens of majesticum, spirale, undulatum, particularly fine; volutum, Weismanni, and Youngii.

A silver medal was voted to Mr. John Wills for a large and effective group of Dracænas; to Mr. John Laing for a large and attractive group of foliage and flowering plants; to Mr. B. S. Williams for a beautiful group of stove and greenhouse plants; and a gold medal to Mr. John Wills for perhaps the largest and most tastefully arranged group of miscellaneous plants ever staged. A grand lot of plants.

Mr. Bull's Prizes for New Plants. — Mr. Bull had the pleasure of seeing a splendid competition for his liberal prizes; and it says much for his enterprise and perseverance that such a grand lot of new plants should have been introduced by him within three years. The 1st prize amongst nurserymen in the class for twelve new plants sent out since the commencement of 1872—the competition being confined to those who have never won one of these prizes before—went to Mr. H. Wright, Lee, Kent; Mr. W. E. Dixon, Norwood Nursery, Beverley, being 2d; and Mr. Cypher, Queen's Road, Cheltenham, 3d. Mr. Wright's group was composed of finely-grown examples of Dieffenbachia nobilis, Dracæna Baptistii, D. Shepherdii, D. splendens, D. imperialis, and D. Fraseri, Alocasia illustris, Gymnogramma decomposita, Plectocoma Andersoni, Croton majesticum, Dæmonorops palembanicus, Maranta Makoyana. In the corresponding class for amateurs the 1st prize was well won by Mr. G. Legg, gr. to S. Ralli, Esq., Thornton Road, Clapham Park, who had a fine specimen of Dipladenia Brearleyana, nicely flowered, large plants of Dieffenbachia nobilis, Dracæna Shepherdii and D. Baptistii, Pleocnemia Leuzeana, Aralia Guilfoylei, Alpinia vittata, Croton volutum, C. spirale and C. majesticum, &c. Mr. J. Coomber, gr. to Lieut.-Col. Wilkinson, Fitzroy Park, Highgate, was 2d, with a capital lot; and Mr. E. Pilgrim, Fern Lawn, Pitville Crescent, Cheltenham, was 3d. In the class devoted to amateurs, without any restrictions as to previous competitions, the premier award was easily won by Mr. Croucher, gr. to J. T. Peacock, Esq., who had noble specimens of Dæmonorops periacantha, Guilielma utilis, Dæmonorops palembanicus, and Dracæna metallica; also nice specimens of Aralia Guilfoylei, Maranta Makoyana, Macrozamia elegantissima, Dracæna ornata, Nidularium spectabile, and Kentia canterburyana. Mr. G. Legg was again a prize-winner in this class, taking 2d honours, with Mr. E. Pilgrim 3d. In the corresponding class for nurserymen the competition lay between Messrs. J. & R. Thynne, Great Western Nursery, Glasgow, and Mr. Wimsett, the prizes being awarded in the order named. Macrozamia plumosa, M. spiralis eburnea, Dæmonorops palembanicus, Encephalartos villosus ampliatus, and Dracæna Shepherdii were very finely shown in Messrs. Thynne's group. Mr. Wimsett had the largest mass of Maranta Makoyana we have every seen, while many of the plants named above were neatly done here.

Fruit.—The display of fruit for the season was very good indeed, especially the Black Grapes and Strawberries. The finest dish of Black Hamburghs, a nicely finished lot, came from Mr. Douglas, gr. to F. Whitbourn, Esq., who was followed by Mr. G. Brush, gr. to Lady Hume Campbell, High Grove, Pinner, and Mr. Bannerman, gr. to Lord Bagot; colour and size of berry were good points in most of these. Mr. Harrison, gr. to Lord Derby, Knowsley, Mr. Bones, gr. to D. McIntosh, Esq., and Mr. J. Lane, gr. to General Fytche, also competed—Mr. Harrison's bunches and berries being particularly fine for the time, but not so well finished as some of the others. The best Muscats of Alexandria came from Mr. Bones, gr. to D. McIntosh, Esq., Havering Park, Mr. Douglas, Loxford Hall, and Mr. Stephenson, gr. to F. C. Barker, Esq., Leigh House, Essex, but they were all wanting in colour, though in other respects good; Mr. Douglas was 1st, with three bunches of Buckland Sweetwater, and in another class for White Grapes with the Canon Hall Muscat, fine in the berry. In the same class Mr. Bannerman, gr. to Lord Bagot, was 1st with first-rate Foster's Seedling; Mr. Earley, the Gardens, Valentines, was 1st with three fine bunches of Red Frontignan; Mr. G. T. Miles, gr. to Lord Carrington, had the 1st prize for two Smooth Cayenne Pines; and a bronze medal was voted to Mr. Harris, gr. to Mrs. J. H. Vivian, Singleton, Swansea, for a very handsome fruit of the same variety. In the class for any other variety Mr. A. Grant, gr. to J. B. Glegg, Esq., Withington Hall, Chelford, was 1st with a handsome Black Prince, Mr. Miles being 2d with a fine Charlotte Rothschild. Read's Hybrid was the best scarlet-fleshed Melon, and Colston Bassett the best of the green-fleshed section—fine fruits of both varieties being shown by Mr. Gilbert, gr. to the Marquis of Exeter, Burghley Park, Stamford. Mr. Miles was 1st for Peaches, with Stirling Castle; for Nectarines, with Elruge; for Cherries, with Elton and Black Circassian; and for Figs, with Brown Ischia and White Marseilles, all being of good quality. President, Sir Joseph Paxton, Sir Charles Napier, and British Queen Strawberries, were also well shown, the chief winners of prizes being Mr. Douglas and Mr. J. Pottle, gr. to Sir R. Wallace, Ludbourne Hall, Suffolk. In the miscellaneous class a bronze medal was voted to Mr. Mills for a splendid dish of the large red Tomato, and some very fine Chilies.

Messrs. Sutton & Sons' Prizes.—The competition for these prizes was very limited. The best six dishes of Peas, and a remarkably fine lot, came from Mr. W. G. Pragnell, gr. to D. W. Digby, Esq., Sherborne Castle, Dorset, who staged half a peck of nicely-filled pods of each of the following sorts:—William the First, Suttons' Ringleader, Maclean's Little Gem, First Crop (blue), Suttons' new early dwarf wrinked Pea, Bijou, &c. In the same class the only other exhibitor was Mr. Brown, gr., Fawley Court, Henley-on-Thames, who was disqualified, on account of his dish of Peas of the stipulated variety, Bijou, not being of that variety. There was only one exhibitor in the class for four sorts each of Melons and Cucumbers—Mr. J. Read, the Gardens, Arley Hall, Northwich, to whom the 1st prize—a gold medal and three guineas—was awarded. His Cucumbers consisted of Suttons' Duke of Connaught, Marquis of Lorne, Tender and True, and Rollisson's Telegraph; and the Melons staged were Read's Hybrid, Golden Perfection, Suttons' Royal Horticultural Society's Prize, and Suttons' Hero of Bath. None of these were cut, so that judgment of their quality must go by default.

Messrs. Carter & Co.'s Prizes.—Messrs. Carter & Co. likewise offered prizes for six dishes of Peas, to include Carter's extra early Premium Gem, Maclean's Blue Peter, Carter's First Crop, and Carter's White Gem; but the competition was confined to the same exhibitors as in Messrs. Suttons' class, and the 1st prize again went to Mr. Pragnell, who had, in addition to the stipulated varieties, Laxton's Unique and William the First, all of very fine quality. Mr. Brown was 2d.

Floral Committee.—R. B. Postans, Esq., in the chair. A First-class Certificate was awarded to Messrs. Cripps & Son, Tunbridge Wells, for Clematis Lord Nevill, mauve-lilac, with a purple bar, the sepals possessing remarkable substance, but lacking the refined finish which is so great a characteristic in the Messrs. Jackman's most recent novelties; a Second-class Certificate was also voted to the same firm for Clematis Lady Alice Nevill, a scented rosy lilac flower, with mauve bar, and fairly good form. The Messrs. Cripps also exhibited small plants of Quercus striata, an Elm-like shrubby-habited plant with golden venation, not very bright at present but will no doubt come more decided in colour as they become older; and Catægus filicifolia, a very pretty form with the leaves cut in a similar manner to the pinnæ of Adiantum farleyense. The leaves as shown were of a pale green colour, but in its natural colour, as we saw it a few days ago in Messrs. Paul & Son's nursery at Cheshunt, it is a charming plant. Mr. John Webster, gr. to the Duke of Richmond, Gordon Castle, sent a boxful of cut blooms of choice seedling hybrid Aquilegias; and from G. F. Wilson, Esq., Heatherbank, Weybridge Heath, came a flowering plant of Lilium Hansoni, which is the same as the L. maculatum syn. avenaceum of the *Botanical Magazine*, tab. 6126. According to the rules of priority the plant must now be known as L. Hansoni, as it seems that Mr. Max Leichtlin had it under that name before Mr. Wilson's plant—which was bought, unnamed, in 1871—flowered, and was named by Dr. Hooker last year. A Second-class Certificate was awarded to it. Mr. Wilson also showed flowers of L. Thunbergianum splendens, of a fine rich orange colour, and large form. Messrs. Kelway & Son, Langport, showed some nice Pyrethrums; and Mr. Bull had a First-class Certificate for Oncidium curtum, a distinct and pretty species, with broadish bronzy petals and sepals, and a broad, smooth, yellow lip, edged with chocolate, and somewhat fringed. A similar award was also made to Mr. B. S. Williams for Polystichum lepidocaulon, figured and described in our columns at p. 202. From the Tweedside Vineyard Mr. Thomson sent a remarkably fine cut spike of Vanda suavis with nineteen flowers. A Second-class certificate was voted to Mr. Bull for Pelargonium Prince of Wales, a useful decorative variety of a rich vermilion-red colour with a pale centre and frilled edges. From Messrs. Veitch & Sons came Cypripedium selligerum, a hybrid between C. lævigatum and C. barbatum, partaking in a modified degree of the character of both parents, and a fine lot of cut blooms of hardy bulbous plants, the greater proportion being pretty forms of Ixias. The thanks of the committee was accorded.

Fruit Committee. — Henry Webb, Esq., in the chair. Mr. James Batters, gr. to Willis Fleming, Esq., Chilworth Manor, Romsey, sent a Smooth Cayenne Pine of handsome proportions, and weighing 5¼ lb weight, which deservedly gained a Cultural Commendation, being a most creditable production for the time of year. J. J. Watts, Esq., Whistley Farm, Devizes, sent specimens of his Improved Orleans Plum, which is said to adapt itself admirably to pot culture, and which also gained a Cultural Commendation. Mr. J. Booth, gr., Osmaston Manor, Derby, had examples of Wright's Favourite and Osmaston Manor Hybrid Melons, both being pale or white-fleshed, and either not ripe or the flavour not fully developed. Messrs. James Carter & Co. showed admirable examples of their new Fern-leaved Parsley—the most curled of all curled Parsley, and a decided acquisition for garnishing. Some good Peaches, not named, came from Mr. Gardiner, gr. to E. P. Shirley, Esq., Lower Eatington Park; and Mr. Cox, Redleaf, contributed a fine specimen of Polyporus squamosus.

Crystal Palace: *May* 29.—This exhibition proved to be a very good one, and an improvement on several of its predecessors. In the matter of arrangement there was also a noticeable change for the better, due to the sagacity and taste of Mr. F. W. Wilson, the Master of the Ceremonies, while one of the most striking features in the Palace was a large group of Palms, Tree Ferns, and other fine-foliaged plants, tastefully grouped opposite to the Handel Orchestra by the Palace Company's garden superintendent, Mr. Thomson, under whose management the plants in the interior of the Palace have been greatly improved by judicious thinning. Stove and greenhouse plants, and especially Azaleas, were contributed in considerable numbers. The Orchids were not quite so good altogether as we have seen them, while the pot Roses were very fine, and the show Pelargoniums, as a class, were much better than usual. The class for groups of stove and greenhouse plants arranged for effect led to a spirited competition, the groups from Mr. John Wills, Onslow Crescent, and Mr. Warren, gr. to A. Mongredien, Esq., Forest Hill, being so good that equal 1st prizes had to be awarded.

Many of the fine specimens of stove and greenhouse plants had already done duty at Regent's Park on the previous Wednesday, but they came out here wonderfully fresh again. The leading class was for twelve, confined to nurserymen, and Messrs. Jackson & Son, Kingston, came in 1st, followed by Mr. B. S. Williams, Holloway, and Mr. E. Morse, of Epsom. Azaleas petuniæfolia and Roi Leopold were very fine in Messrs. Jackson's collection, and Mr. Williams had Allamanda grandiflora, Clerodendron Balfourianum, Dipladenia amabilis, Medinilla magnifica, Azalea Criterion, &c., all well represented. The amateurs' class for nine was a very good one, Mr. Ward coming in 1st, and equal 2d prizes awarded to Mr. B. Peed, gr. to Mrs. Tredwell, St. John's Lodge, Lower Norwood, and Mr. W. Chapman, gr. to J. Spode, Esq., Hawkesyard Park. Mr. Ward's plants were in fine condition, but as we have mentioned them before, we must pass on to an important addition to Mr. Chapman's group of a splendidly flowered Ixora, Prince of Orange. Mr. Peed had Franciscea calycina and F. confertiflora, very finely flowered, also well-flowered specimens of Eriostemon pulchellus, Clerodendron Balfourianum, and Erica Cavendishiana, &c. Mr. B. S. Williams was the only exhibitor of twelve fine-foliaged plants, and deservedly obtained the 1st prize, while in the amateurs' class for six the chief award went to Mr. Legg, gr. to S. Ralli, Esq., Thornton Road, Clapham Park, with the same group he had at Regent's Park. Mr. W. Chapman was 2d, and Mr. W. Child 3d.

In the class for nine Dracænas there was only one exhibitor—Mr. John Wills, and the 1st prize was awarded to him. The group consisted of very fine examples of Mooreana, Shepherdii, Youngii, Baptistii, amabilis, Weismanni, regina, excelsa, and Denisoniana, all well coloured.

The 1st prize for nine Orchids went to Mr. J. Ward,

who had, amongst others, nicely-flowered plants of Odontoglossum Pescatorei, O. crispum, Oncidium sarcodes, Cattleya Mossiæ superba, Dendrobium thyrsiflorum, &c. Mr. Walter Gray, gr. to H. Smithies, Esq., Spring Grove, Lawrie Park, Sydenham, took the 2d prize with a group consisting of nicely-flowered examples of Dendrobium Devonianum, Cattleya Mossiæ grandiflora, Dendrobium Dalhousieanum, Odontoglossum crispum, Cattleya labiata, &c. The 1st prize for six also went to Mr. Ward, Mr. Child being 2d, and Mr. G. Budd, gr., Heathfield, Sydenham Hill, 3d. Mr. B. S. Williams had a fine group in the nurserymen's class, and came in a good 1st, with Messrs. Jackson & Son 2d, and Mr. Morse 3d.

There were only two classes for Heaths, and Mr. Ward and Messrs. Jackson & Son were the winners of the highest prizes, Mr. Morse being 2d to the last named amongst nurserymen, and Mr. B. Peed 2d amongst amateurs. The four classes for Azaleas brought out a considerable number of plants, and some of them very good ones. Mr. Ratty, gr. to R. Thornton, Esq., The Hoo, Sydenham, took the 1st prizes for six and for twenty, with a capital lot, in the latter class especially, the plants averaging from 3 to 4 feet over, and well flowered. Mr. Turner was 2d for twenty, with a neat collection. For the six, Mr. James Child was 2d, and Mr. G. Roach, gr. to C. Dorman, Esq., Lawrie Park, Sydenham, and Mr. G. Wheeler, equal 3d. In the nurserymen's class for nine, the 1st prize went to Mr. B. S. Williams, who had some large specimens, well bloomed, and was the only exhibitor.

The show Pelargoniums made a fine display. In the amateurs' class for nine in 8-inch pots Mr. J. Ward and Mr. J. James contributed similar groups to those staged at Regent's Park, and were respectively 1st and 2d. Mr. Turner and Messrs. Dobson & Sons were the competitors in the corresponding class for nurserymen, and the awards went in the order named. Mr. Turner had very nicely flowered specimens of Example, Claribel, Pompey, Blue Bell, &c., and all were noticeable for the richness of their colours. The same exhibitors also met again, and with the same result, in the class for six fancy varieties—Mr. Turner's examples being of Mrs. A. Wigan, Acme, Helen Beck, Madame Sainton-Dolby, Neatness, and Brightness. Only one group of Clematis was staged, and to this, which came from Messrs. G. Jackman & Sons, the 1st prize was awarded. The original plant of Alba Magna had eighteen grand flowers upon it—a striking object.

Roses in pots were very well shown, and we are glad to say especially well, by the amateurs. Mr. Ellam Ellis, gr. to J. Galsworthy, Esq., Coombe Warren, Kingston Hill, had the best grown lot of Roses we have seen for some time from an amateur, and well won the 1st prize in the class for six. Mr. J. Moorman, gr. to the Misses Christy, Coombe Bank, Kingston-on-Thames, came in 2d. Mr. Turner had the 1st prize for twenty in 8-inch pots, showing a capital lot; but was beaten by Messrs. Paul & Son in the class for nine, in which both firms were strongly represented.

In the class for new and rare plants, whether in bloom or not, Mr. B. S. Williams was 1st with a fine group, including his fine Alsophila australis Williamsii, Ficus Parcellii, over 4 feet high and in fruit; Aralia Veitchii, 3 feet high, a fine plant; a beautiful piece of Adiantum gracillimum, Croton majesticum, fine in leaf and colour; Croton Weismanni, also fine in colour; Dipladenia Brearleyana, &c. Mr. J. H. Ley, Croydon, was 2d.

New plants were also largely shown in groups by Mr. Wills and Mr. B. S. Williams, and the latter gentleman gained First-class Certificates for Phegopteris Dianæ, Athyrium Filix-fœmina Jacksoni, Geonoma gracilis, Tillandsia musaica, Zamia Lindeni, Acalypha marginata, Polystichum lepidocaulon, Dracæna Fraseri, D. hybrida, Pleocnemia Leuzeana, Alsophila Williamsi, Metroxylon filare, Dipladenia Brearleyana, and Vanda Kimbata. The same award was also made to E. B. Foster, Esq., Clewer Manor, Windsor, for seedling Pelargoniums, Grace, Prince Rupert, and Malcolm; to Mr. C. Turner, Slough, for fancy Pelargoniums, Countess of Dudley, Duchess of Edinburgh, and Mrs. Robert Baker, and for forcing Pink, Derby Day; and to Messrs. George Jackman & Sons, Woking, for Clematis alba magna and Mrs. Hope.

Table plants were a nice feature in the show, and there was a spirited competition. The winner of the 1st was Mr. F. Lambert, gr. to H. W. Segelcke, Esq., Herne Hill, who had four small Palms, Dracæna gracilis and Adiantum gracillimum, and all the pots were nicely grown over with moss. Equal 2d prizes were awarded to Mr. John Wills and Mr. Hudson, Champion Hill, S.E., the former having nice little examples of Terminalia elegans, Cocos Weddelliana, Aralia Veitchii, Croton Weismanni, Pandanus Veitchii and Nepenthes Sedeni; while the latter had, amongst others, Jacaranda mimosæfolia, two nice Palms, &c. Mr. G. Wheeler was 3d.

Amongst the contributions to the miscellaneous class were a particularly effective group of herbaceous plants, in pots, from Mr. R. Parker, together with cut blooms of twenty-four varieties of Iris germanica and Pyrethrums. Noticeable amongst the former were Lilium monadelphum, Lychnis viscaria rubra flore-pleno, very pretty, and the yellow Cypripedium spectabile. Collections of herbaceous Calceolarias, attractive by the size of their individual blooms and the brightness of their colours, came from Mr. C. Satchell, gr. to J. W. Amsden, Esq., Lawrie Park, Messrs. Dobson & Sons, and Mr. Waters, gr. to A. Mongredien, Esq., the latter having too great a preponderance of dark-coloured flowers. Mr. Smith, market gardener, Isleworth, showed a white variegated fancy Pelargonium, named Alice, with white flowers and a large bright rose blotch. Messrs. Jackson & Son, Kingston, sent a nice group of finely-flowered plants of Saxifraga pyramidalis, under the name of S. nepalense. Fine cut blooms of Devoniensis Roses came from Mr. C. Taylor, Headington, Oxford, and two boxes of fine blooms of Maréchal Niel came from Mr. D. Chapman, Broad Street, Oxford. A dozen very well grown plants of the pyramidal bouquet Mignonette, and specimens of the richly coloured Coleus, Duchess of Edinburgh, came from Messrs. James Carter & Co.; and Mr. John Laing, Stanstead Park, Forest Hill, contributed a collection of choice foliage and flowering plants.

Royal National Tulip Society: *May 29.*—The annual exhibition of this Society took place at the Botanic Gardens, Old Trafford, Manchester, on the above date, the Council of the Manchester Horticultural Society having extended to this the same liberal encouragement it gave to the National Auricula Society a few weeks since. The competition was mainly confined to the northern and midland growers, the flowers of the southern growers having been quite past at this date. It was thought, owing to the prevalence of cold nights and hot days that the show of Tulips would have been small and the flowers indifferent, but the fates were propitious, and it is doubtful whether a finer exhibition was ever held by the Society, both as to the number and quality of the flowers. In the opinion of some of the leading cultivators the quality of the flowers had never before been exceeded, while the number of exhibitors was in every way assuring.

The Champion Silver Cup for the best stand of twelve dissimilar Tulips, two feathered and two flamed in each class, was awarded to Mr. William Whittaker, Manchester, who had a remarkably fine stand, the flowers generally being of the most refined quality. Hepworth's feathered byblœmen Bessie, Hardy's flamed byblœmen Talisman, feathered bizarre Masterpiece, and a seedling feathered rose, were especially fine. The 2d prize was awarded to the Rev. F. D. Horner, Kirkby Malzeard, Ripon, who had a very fine stand of flowers, but smaller in size than the preceding stand, owing to the backwardness of the season in the Yorkshire district; and the day being cold, they did not open freely. His most striking flowers were feathered byblœmen Bessie, flamed byblœmen Mrs. Cooper, feathered roses Modesty and Heroine, and flamed roses Kate Connor and Triomphe Royale. Mr. Thomas Mellor, Ashton, was 3d, with a stand of flowers which were shown in excellent character; and Mr. Joshua Hagae, Stockport, 4th. When it is stated that eleven stands of flowers competed in this class, furnished by growers residing in the northern and midland districts, it will at once be seen that there is no diminution of the interest felt in this gorgeous flower. The best stand of six dissimilar Tulips, one feathered and one flamed, in each class, was also furnished by Mr. W. Whittaker, who had Bessie, Talisman, Sir Joseph Paxton, Masterpiece, Nancy Gibson, and Sarah Headly. Mr. Thomas Haynes, Derby, was 2d with Duke of Edinburgh, Heroine, Talisman, Triomphe Royale, Mrs. Pickerill, and Sir Joseph Paxton; 2d, the Rev. F. D. Horner; 3d, Mr. Samuel Barlow, Chadderton, Manchester. The best stand in a similarly expressed class, the competition confined to half-guinea subscribers only, was staged by Mr. H. Housley, who had good examples of Talisman, Sir Joseph Paxton, Mabel, Aglaia, Violet Aimable, and one unnamed; 2d, Mr. William Lee, jun., with Madame de St. Arnaud, Heroine, Duchess of Sutherland, Adonis, Dr. Hardy, and Demosthenes; 3d, Mr. Samuel Smedley; 4th, Mr. Daniel Wooley. The best stand of three feathered Tulips came from Mr. Thomas Mellor, who had Lord Lilford, Angelina, and Rachel; the 2d best from the Rev. F. D. Horner, who staged Friar Tuck, Heroine, and John Sanderson; 3d, Mr. W. Lea; 4th, Mr. C. Forman. The best three flamed Tulips came from Mr. Thomas Haynes, Derby, and consisted of Dr. Hardy, Duchess of Sutherland, and Triomphe Royale; 2d, Mr. William Whittaker, with Sir Joseph Paxton, Maid of Orleans, and Aglaia; 3d, Mr. W. Lea; 4th, Mr. Thomas Mellor. The best two Tulips, one feathered and one flamed, in each class, were furnished by Mr. Whittaker, having Masterpiece and Dr. Hardy; 2d, Mr. C. Forman, with Mary Plackitt and Sir John Franklin; 3d, Mr. T. Mellor; 4th, Mr. John Turner. The best flamed Rose was Aglaia, shown by Mr. H. Housley; Mr. Mellor was 2d and 3d, with Mabel and Catherine Gordon; Mr. Lea 4th, with Lady O. Sparrow; and then followed, in the order of merit, Mr. Alseton, Ada, Mr. Talford, Triumph Improved, Queen of England, and Madame de St. Arnaud. The best feathered bizarre was Masterpiece, shown by Mr. W. Lea; 2d, Mr. Whittaker, with Richard Yates; 3d, the Rev. F. D. Horner, with John Sanderson, and 4th with Demosthenes; and then followed Sulphurea, John Ratcliffe, Sir J. Paxton, Sovereign, seedling, and Garibaldi. The leading flamed bizare Tulip was Sir Joseph Paxton, shown by Mr. T. Hagae; 2d and 3d Mr. W. Lea, with Dr. Hardy and seedling; and 4th Mr. Hagae, with Lord Stanley, Prince of Wales, Ajax, Ganymede, Sulphurea, and the seedlings were also placed. Heroine, staged by the Rev. F. D. Horner, was the best feathered rose, and the same exhibitor was 2d with Modesty; 3d, Mr. Whittaker, with Sister to Rachael; and 4th, the Rev. F. D. Horner, with Mr. Lomax. Then followed Fanny Gibson, Lady Wilton, Angelina, Mr. Lea, &c. The best feathered byblœmen was Adonis, from Mr. Lea; 2d, Mr. Whittaker, with Mr. Pickerill; 3d, Mr. J. Morris, with Queen of the North; 4th, Mr. Whittaker, with Violet, Aimable; followed by Talisman, seedling, First-rate, Majestic, seedling, and Adonis. The best flamed byblœmen was Nimbus, shown by Mr. Samuel Barlow; 2d, Mr. Wiseman, with Duchess of Sutherland; 3d, Mr. Barber, with Talisman; 4th, Mr. Whittaker, with Bacchus; and then followed Thalia, Lord Denman, Alexander Haynes, Adonis, Queen of May, and seedling.

The premier feathered Tulip selected from the whole of the show was Bessie, in the stand of Mr. William Whittaker; and the best flamed Tulip, Sir Joseph Paxton, shown by Mr. H. Housley.

Breeders were finely shown, especially by Mr. Thomas Mellor, who had the best six, two of each class, and the best three, one of each class. In the first case his flowers were—Lady Grosvenor, Alice Grey, Annie McGregor, Sir Joseph Paxton, Norval, and one unnamed. The three best were Annie McGregor, Ariosto, and Norval; the best bizarre breeder, Atlantic; the best rose, Annie McGregor; and the best byblœmen, Northern Light—were all staged by Mr. Mellor; and the premier breeder was Mr. Mellor's Sir Joseph Paxton.

A look through the winning stands gave the following as the best flowers among the feathered bizarres:—Masterpiece, Demosthenes, Duke of Edinburgh, Sir Joseph Paxton, Sovereign, or Charles X., Richard Yates, and Commander. Flamed bizarres:—Sir J. Paxton, Dr. Hardy, and Ajax. Feathered byblœmens:—Bessie, Mrs. Cooper, Jemima Forman, Adonis, and Mrs. Plackitt. Flamed byblœmens:—Talisman, Duchess of Sutherland, Nimbus, and Bacchus. Feathered roses:—Heroine, Modesty, Mr. Lomax, Charmer, Little Annie, Aglaia, Industry, and Whittaker's seedling. Flamed roses:—Aglaia, Triomphe Royale, Kate Connor, Annie McGregor, and Madame de St. Arnaud. The best bizarre breeders were Sir Joseph Paxton, Dr. Hardy, Richard Yates, Dr. Dalton, and William Wilson. Among the byblœmens:—Talisman, Hardy's seedling, and William Bentley. The best rose breeders were Annie McGregor, Lady Grosvenor, Hepworth's seedling, and Mabel.

The following First-class Certificates of Merit were awarded to new varieties of Tulips:—Dr. Hardy's Nimbus, Mr. Samuel Barlow's Mrs. Cooper and Little Annie, Mr. C. Forman's Jemima Forman, Mr. W. Whittaker's seedling rose, Mr. Thomas Haynes' Duke of Edinburgh, and Mr. C. Forman's Mrs. Plackitt.

After the prizes were awarded the members and friends dined together, and held a meeting of subscribers, at which it was resolved to hold the exhibition for 1876 at Manchester—probably at the Botanic Garden, Old Trafford, Mr. Barlow to act as hon. secretary and treasurer. Thanks were given to the Council of the Manchester Horticultural Society for the liberal encouragement it has given to Tulip cultivators, and to the secretary and curator, Mr. Bruce Findlay, for his valuable assistance. The sum of £45 was subscribed in the room towards a prize fund for next year.

Reading Horticultural: *May 29.*—The first of the two summer exhibitions of this Society was held on the above date, and proved an exceedingly good one, weather and all accessories being of a very satisfactory character. The prosperity which has attended the Society for the past year enabled the committee to augment some of their leading classes, and this resulted in some new exhibitors coming to the fore, which fact materially assisted the value and attractiveness of the show. The tent, which, as has been before stated, represents a miniature Regent's Park ground-plan, owing to its winding walks and turf banks, had a very bright and attractive appearance, owing to the presence of various flowering plants,

such as Azaleas, Pelargoniums, Ericas, Calceolarias, Roses, &c., which were effectively distributed over the tent.

The premier group of twelve stove and greenhouse plants came from Mr. W. Mearing, gr. to W. Whiteley, Esq., Guildford, and were nice, even, well-grown and flowered plants. Among them were the charming Adenandra speciosa, Ixora Lobbii, Bougainvillea glabra, Epacris Eclipse, Clerodendron Balfourianum, C. Thompsoni, Polygala cordata, Chorozema varia nana, Darwinia tulipifera, Stephanotis floribunda, &c. Mr. W. Pepper, gr. to Mr. Marsland, Erleigh, came 2d, his best examples being Ericas ventricosa superba and alba, Franciscea calycina, nicely-flowered; Aphelexis macrantha rosea, Clerodendron Balfourianum, Allamanda Schottii, and Rhynchospermum jasminoides. Mr. E. Tudgey, gr. to J. Williams, Esq., Worcester, was 3d. The best group of six greenhouse plants came from Mr. J. C. Higgs, gr. to Mrs. Crawshay, Caversham Park; well-grown specimens, but comprising nothing worthy of special notice.

Mr. Higgs is well-known in the Reading district as an able cultivator of stove and greenhouse Ferns, and the fine group of twelve set up on this occasion did him great credit, and they were much in advance of anything in competition with them. The subjects were Cyathea medullaris, C. dealbata, Gleichenia semi-vestita, Phlebodium sporodocarpum, Cibotium regale, Dicksonia antarctica, Platycerium alcicorne, Cyrtomium falcatum, Lomaria gibba, and Adiantum cardiochlæna. A much smaller, but even and well-grown group, staged by Mr. W. Pepper, was awarded the 2d prize, and included a good Adiantum farleyense, Blechnum corcovadense, Gymnogramma tartarea, Lomaria gibba, &c. The best group of British Ferns also came from Mr. Higgs, all distinct and well-grown; and a good group from Mr. Geo. Pile, gr. to J. Wheble, Esq., was placed 2d. As good a group of six Lycopodiums as one could well wish to see was staged by Mr. W. Mearing, and awarded the 1st prize; they were all cone-shaped, and remarkably well furnished, as healthy and luxuriant in appearance as could be desired. The group consisted of Selaginella Martensii, S. Martensii variegata, S. flexuosa, S. apus, a remarkable example; S. atroviridis, and S. involvens. A nice collection from Mr. J. Hawes, gr. to Mrs. Rhodes, Henley, was placed 2d, and this included S. caulescens, S. robusta, S. Martensii variegata, and S. stolonifera.

Equally fine in development was Mr. Higgs' group of ten foliaged and ornamental-leaved plants, some of them being of grand proportions, and especially was the trio of Alsophila Cooperi, Theophrasta imperialis, and Alocasia Lowii, all of which were superbly grown. The following with the foregoing made up the group:—Maranta Veitchii, M. zebrina, Araucaria excelsa, Latania borbonica, Pandanus utilis, Croton variegatum, and C. pictum. Mr. H. Elliott, gr. to J. T. Hibbert, Esq., Braywick, Maidenhead, was 2d, with Duranta Baumgartii variegata—a somewhat striking plant, where the leaves are nicely margined with gold; Alocasia macrorhiza variegata, Cyanophyllum spectandum, Croton angustifolium, C. variegatum, Dracæna australis, &c. Mr. W. Mearing and Mr. W. Pepper received equal 3d prizes for very creditable groups.

Flowering plants were made up of Azaleas, Pelargoniums, large flowering and fancy, both nicely done; Roses in pots, Calceolarias, Gloxinias, &c.; Fuchsias were noteworthy for their size and the admirable manner in which they were flowered.

Cut flowers were represented by collections of bouquets, but which ought to be substituted by bunches of stove and greenhouse and hardy flowers; some capital Roses, shown by Mr. J. Tranton, Henley-on-Thames, an amateur cultivator of some note in the district; bouquets, vases of wild flowers, &c., all materially assisting the show from a decorative point of view; but we missed the fine stands of Maréchal Niel Roses Mr. R. Webb, of Calcot, has been in the habit of exhibiting at the May shows.

Fruit and vegetables were well shown, but somewhat restricted in point of numbers, as might reasonably be expected at this season of the year. Some capital Black Hamburgh and Buckland Sweetwater Grapes, from Mr. Tegg, gr. to J. Walter, Esq., M.P., Bearwood, Wokingham, obtained the 1st prize in each class; as also did the Peaches and Nectarines, the latter very fine, from the same exhibitor. Capital Sir Charles Napier Strawberries, to which the 1st prize was awarded, came from Mr. Ashby, gr. to Mr. Fanning, Whitchurch. Cucumbers were well represented, the best brace being Lockie's Masterpiece, a very handsome white-spined variety, 18 inches in length, and perfect in point of quality; this came from Mr. T. Lockie, gr. to Lord O. Fitzgerald, Oakley Court, Windsor. The next best was Tender and True, from Mr. Geo. Brown. Very good kidney and round Potatos were staged; and in the class for French Beans both Messrs. Higgs and G. Brown staged Canadian Wonder, which appears to be an excellent forcing variety. Capital miscellaneous collections of vegetables were shown by Messrs. G. Brown, W. Webb, and J. Read, the former having everything especially first-rate. *R. D.*

Devon and Exeter Botanical and Horticultural.—This Society held its one hundred and thirty-eighth exhibition on The Northernhay, Exeter, on Friday, May 25. The weather was most unfavourable. The rain descended in heavy showers most of the day, from which the canvas tents were but poor protection.

The display of plants was of a superior description; many of the specimens were really grand, and rarely have so good examples been staged of the Ixoras amboinense, Prince of Orange, and coccinea.

A small but interesting example of Cypripedium niveum was exhibited, and a small pot of Bougainvillea speciosa, well flowered—its deep, rose-coloured bracts giving it the preference over the better known glabra when the secret of inducing it to flower equally freely is got over.

Stove and greenhouse Ferns were numerous and well grown. The collection contained fine examples of Davallia Moorei, Pteris scaberula, Adiantum cultratum. A new and interesting form of Polystichum angulare was shown, but I failed to learn the name of the exhibitor; it was said to have been found wild in the neighbourhood. The whole of the pinnæ were forked, and the top of each frond was terminated with a tuft of small fronds. Herbaceous Calceolarias were well grown, and shown in great numbers, doing credit to the cultivator.

The season was a little too early for the general collection of Roses, but the fine display of Maréchal Niel, Devoniensis, and Souvenir d'un Ami in separate boxfuls was truly grand.

Much of the success of the show was due to the local nurserymen, who competed in a very spirited manner. *J. S. T.*

The Bath and West of England Society's Meeting at Croydon.—The annual exhibition of this Society opened at Waddon, near Croydon, on Monday, and, taking it on the whole, it was the most complete show the Society has ever held. Horses were very fairly represented; there was a good show of Shorthorns; an unprecedented show of the local Sussex breed; and as good a show as ever was seen of the Channel Islands cattle; while, considering the distance from their homes, the Devons and Herefords were very fairly represented. Amongst the sheep, the Southdowns were exhibited in the greatest numbers; Cotswolds and Leicesters were tolerably well represented, while of Shropshires, Oxford Downs, and Hampshire Downs, there was a fairly good show. Mountain sheep, which are generally a characteristic feature at this Society's exhibitions, were represented here only in small numbers. The show of pigs was one of the largest the Society has ever had, the Berkshire classes being especially good. The poultry show also had claims to be considered satisfactory to all concerned, while the display of agricultural implements and machinery was the most perfect that the Society has been favoured with, and no better has been seen in the neighbourhood of the metropolis since 1862, when the Royal Agricultural Society of England pitched its tents at Battersea. The exhibition of fine arts did not strike us as being so good as usual, and the show of Honiton lace was very small, though of splendid quality. Space does not permit us to go into the details of all those departments of the great show; our concern is more for the horticultural department, under the stewardship of the Hon. and Rev. J. T. Boscawen, whose mode of conducting flower-shows has been frequently described. Here, too, we found a slight falling off as compared with the corresponding shows at Dorchester or Plymouth—a fact which is the more surprising, considering the close proximity of the show-ground to a centre of horticultural establishments far greater in extent than either of the localities we have mentioned. We had anticipated a fine show of Orchids, but these and flowering plants generally were not forthcoming in sufficient numbers to relieve the monotony of the many good fine-foliaged plants staged. This relative deficiency may partly be accounted for by misapprehension of the plan on which these shows are conducted, and by statements as to the non-payment of gardeners for their trouble—statements which, we are informed, are wholly untrue. The principal exhibitors and their contributions may be mentioned as follows:—The Rev. A. H. Bridges, Beddington House (gr., Thomas Penfold), had some fine pans of Gymnadenia conopsea, Habenaria chlorantha, Epipactis grandiflora, Aceras anthropophora, Orchis ustulata, and other terrestrial Orchids; a nice lot of Begonias, Caladiums, Ferns, Iris chinensis, exceedingly pretty; large specimens of Dracænas, Dieffenbachias, Tree Ferns, Pandanads, and other fine-foliaged plants, with a charming hanging basket of the pretty Begonia foliosa. Mr. B. S. Williams, Holloway, had a small group of choice new plants, such as Adiantum gracillimum, Aralia Veitchii, Acalypha marginata, Kentia Moorei, and other Palms; and also a group of such Orchids as Cattleyas, Vandas, Lælias, and Dendrobes, together with some large Tree Ferns, Cycads, &c. Messrs. Rollisson & Sons, Tooting, contributed a considerable number of handsome fine-foliage plants, and a magnificent specimen of Todea intermedia, about 3 feet over, and splendidly furnished. Philip Crowley, Esq. (gr., Stephen Strahan), sent a fine lot of plants, especially fine-foliaged, and also many good flowering specimens, conspicuous amongst them being a plant of Erica brunioides, 3 feet through, and superbly flowered, a very good Rhynchospermum jasminoides, &c. The fine-foliaged plants were an especially good lot. Stephenson Clarke, Esq., Croydon Lodge (gr., John King), sent some fine specimens of Chamærops humilis and Fortunei, nice examples of Adiantum farleyense, various Selaginellas, Crotons, &c. Messrs. Paul & Son, Cheshunt, contributed ten very fine Roses in pots; and from Mr. Noble, Bagshot, came three beautiful standard Rhododendrons, a small group of Orchids, a beautiful pan of Nertera depressa, and two grandly flowered examples of Utricularia montana came from Sir William Marriott, Down House, Blandford (gr., James Hill); and a smaller collection came from W. Brymer, Esq., M.P., Ilsington House, Puddletown (gr., J. Salford).

The Villa Garden.

Forecourt Gardening.—This is the season of the year when attention is turned to the embellishment of forecourt gardens, balconies, windows, &c., with a view of having something gay and effective during the summer months. The forecourt garden is a comparatively easy matter, and it simply requires plants adapted to its position and surroundings. In those suburbs of London having open and airy streets the forecourt garden—none very large—should be planted with a few cheerful-looking flowers, something that will be bright and effective, and last as long as possible. On the sunny side, that mostly open to genial southern influences, something a little elaborate may be attempted in the way of pretty foliaged plants, but the position must be open, light, and airy. It is a waste of time to place border foliage plants in low, cold, shaded spots—flowering plants will hardly do there, but foliage plants never.

Really, however, there is not much room for choice of subjects. As a rule the forecourt garden is overshadowed with trees, and there is too much shade for flowers—but even trees are something in a street of houses. Grass will not grow either; and the best thing to be done is to plant some Ivy, for that will do well beneath trees; and if there is a spare space or two plant some of our common Lady and Hart's-tongue Ferns. They will grow where flowering plants will not, and hawkers in the streets are always presenting them for sale; besides, they can be got from other sources with but little trouble. When the surface is furnished with Ivy, and the fronds of Ferns peep out here and there, and the deciduous shrubs and the trees overhead get into green leaf, it is always a pleasant sight in a populated neighbourhood, and a relief to turn the eyes from scorched flagstones to some cheerful green of plant and tree. An occasional sprinkling or syringing keeps the leaves pretty free from deposits of dust, and Nature is assisted thereby.

When there are no trees overhead, and the forecourt garden is open above and around, attempts at decoration can be made with flowering plants. A few Pelagoniums, yellow Calceolarias or Nasturtiums, blue Lobelias, Verbenas, and other ordinary garden plants likely to do well, can be used, with here and there a patch of fragrant Mignonette, Candytuft, Virginian Stock, and a few other hardy annuals. Nice bits of cheerful colouring could be supplied if the planting be properly done. Therein lies three-fourths of the success. It is no use to put plants into old, stiff, worn out town soil; it must be removed, and something good from the nursery substituted for it, and in this the plants should be placed and they will then have a fair chance of successful growth. Frequent sprinklings overhead in dry weather will greatly assist them, and occasional root waterings when such weather lasts for a time and no rain falls.

But, leaving the circumference for the centre, and getting into the heart of city or town, where the fierce stream of its busy life rolls onward incessantly, there can be found many side courts and alleys, lined on either side by houses of somewhat remote construction, or having gardens at the back, where something can be and is done, even though gloom and dirt appear such hostile influences. Let any one take the train from Broad Street station to Dalston Junction, or from Ludgate Hill to the Elephant and Castle, and many such spots come into view. Apparently gardening is done here under great difficulties, but our City flower shows reveal what cheering results follow when a real love for

plants, and the pleasure their companionship imparts, are the motive-powers which occasion so much attention being given to them. There must be heartiness brought to bear on city and town gardening, or it cannot succeed. See—and the illustrations are copious—see what can be done with Sedums, House Leeks, grass, Scarlet Runners, Creeping Jennies, and such like. Very little flower it is true, but fresh, bright, green leaves, cleansed from dirt, watered and tended because unspeakably precious to the cultivator.]

Balcony Garden.—The exposed position of this part of the dwelling is somewhat against gardening attempts, but in a large majority of cases plants die speedily for want of water. Thousands of plants die annually in London for lack of simple attention. On the other, that very much can be done in the way of balcony gardening, let Portman Square, Piccadilly, and many other places testify. What is a more pleasant sight than a Virginian Creeper growing over and about the balcony of a dwelling-house, and its rich tresses hanging down from it in profusion? Vases might be introduced in which a few suitable flowering plants could be placed, with evergreens in tubs. At the present moment there is a house on the east side of Portland Crescent, Euston Road, which forcibly illustrates how charmingly the balcony of a house can be decorated during the summer months. Its elaborateness of arrangement, no doubt, makes it expensive, but it is suited to the means of the resident. But much simpler attempts can be worked out with no less satisfactory results. A wire trellis against the front wall of a house is of great value, and by means of it the wall can be "dressed in living green" and flowers during the summer. Ivy might be used for winter effect, but it would need to be cut out somewhat at stated seasons if other plants were employed. The Virginian Creeper is indispensable, it is so suited to London; but why should not in some cases the fine hardy Clematises be employed in connection with it? Planted in tubs large enough to afford sufficient root-room, and aided by gentle stimulants when properly established, these showy creepers would be striking objects when in flower. The great requirement of balcony gardening is an adequate supply of water, and, unfortunately, the high pressure of fashionable life during the London season causes this indispensable attention to be much neglected, and balcony gardening falls into disrepute through no failing of its own.

Window Gardening.—Let us earnestly plead for mercy for the poor flowers also. Of the many hundred attempts made in the way of window gardening in London how many fail for want of an adequate supply of water. It is pitiable to see charming flowers—possessing almost unrealised capacities for ministering to pure pleasure—dying for lack of that which would keep them in robust health—water, if it were only forthcoming. Of all attempts at window gardening nothing beats the wooden box in which the subjects used are planted in the soil it contains. They stand a much better chance of succeeding in the face of neglect, whereas plants in pots succumb rapidly and completely. A box filled with ordinary bedding plants, affording hues of red, blue, yellow, pink, and white, with some foliage interspersed, and having Ivy-leaved Pelargoniums hanging over the front, seems the best arrangement that can be adopted. The drooping flowers of the Fuchsias are very effective in combination with the others, but it is a mistake to crowd the plants too much.

The areas of fashionable London residences frequently afford reliable indications of the attention given to flowers in the balcony and windows. If the plants found there, on the window-sill, on plant-stands, or suspending from the area railings are well tended, they will be carefully looked after in other parts of the house also. There are many very pleasing illustrations of area gardens to be met with in various parts of London. We could point to a few where the arrangements are worked out with so much taste, and the plants are kept in such excellent health, that the gardener—often a woman—well deserves the Lindley Medal of the Royal Horticultural Society.

Garden Operations.

(For the Ensuing Fortnight.)

PLANT HOUSES.

Plant Stove.—*Poinsettias:* Cuttings of this indispensable winter flowering plant that were put in some time ago will now be rooted, and should be at once potted. Do not at first give them too much root-room. Three or 4-inch pots are large enough to begin with. They are not particular as to soil, succeeding in either peat or loam; but in the latter they are not quite so disposed to grow tall or make such large leaves, as when grown in peat. One-fifth of rotten manure and leaf soil in equal proportions, added to four parts good loam and a little sand, will grow them well. The natural disposition of this plant to get tall and leggy is aggravated by being kept very hot and far from the glass. After the cuttings have got well established in the pots give them a fair amount of air, and place them as near the glass as possible. Cuttings for successional flowering may yet be put in, always in the case of this plant taking them off with a good heel: if deficient of this they do not strike freely. In the southern parts of the kingdom, in warm sheltered situations, the old plants may be planted out in the open ground; so treated they form close compact heads, consisting of a number of shoots that grow strong, and not more than half the length that they attain under glass. Before the plants are thus turned out they must be well hardened, or they will lose the leaves they already possess, which would much injure their appearance afterwards. Successional cuttings of the equally useful *Euphorbia jacquiniæflora* should be potted on as soon as they are well rooted, using similar soil and size of pots to that recommended for the *Poinsettias*. When they have got well hold of the new soil pinch out the points, to induce them to break. The earliest struck plants will by this time have filled their first pots with roots, and should at once be moved into such as they are intended to flower in. They are spare-rooting subjects, and must not have too much root-room; for ordinary purposes 7 or 8-inch pots are large enough; they do not like much water until the roots have fairly taken to the soil. If a few larger specimens are wanted, some of the old plants may be shifted on into 10 or 12-inch pots. These, if well attended to, will make fine decorative subjects for a warm conservatory in the early spring. Keep as near the glass as possible. Where small-sized decorative stove plants are required *Didymocarpus biflorus* is very useful; it can be increased readily from seed. If this is sown now, and the seedlings potted off as soon as large enough, and kept growing through the autumn and winter, by the spring they will make nice plants, and will be found suitable for standing on side stages and in front of larger growing things. It can also be increased by division of the crowns; it does well in sandy peat, to which has been added a little well-rotted leaf-mould. Its most delicate coloured flowers are very useful for cutting. Stove climbers with a vigorous habit of growth, either when trained to the rafters or grown on trellises, should, as soon as they show flowers freely, be well supplied with manure-water. By a timely and regular application of this most things that possess a continuous habit of flowering can be induced to keep on blooming so long as desirable, or there is enough solar or fire-heat to keep them in free growth. Such things as *Allamandas* and *Dipladenias*, that are looked upon by many as summer-flowering plants, will, if liberally fed, continue giving a succession of blooms for more than half the year; and where flowers are in regular demand for the decoration of shallow stands, nothing is more useful than to have a supply of such as the above to fall back upon, their delicate yet brilliant colours giving a character to other things of a more common description; but their use when employed in this way is commensurate with the length of time they will stand. If grown in a dark house at a considerable distance from the glass in a very humid atmosphere they are comparatively worthless, flagging almost as soon as severed from the plant; whereas, if produced under the opposite conditions as to light, with sufficient air, they will last for three or four days. Where the flowers are thus wanted the plants should not be trained on trellises, but on either strings or wires, so near the glass as only just to avoid touching it. *Thunbergia Harrisii* and *T. laurifolia* should be similarly treated, not using too large pots for these free-growing plants, and keeping them at the coolest end of the house. *Clerodendron Balfourianum*, although by many looked upon as only of use as a specimen plant, is a most useful subject for cutting, its delicate bracts associating well with any other flower; but to be of use in this way the flowers should be brought on in a comparatively cool temperature, or the plants gradually inured to a cooler atmosphere before they open. In private establishments, where large quantities of cut flowers are wanted, it is necessary to provide a reasonable amount of variety, and the treatment that many things require to enable them to stand well in a cut state has of late years become a very important matter. With stove plants the greatest possible amount of light, with as much air during the summer season as they will thrive with, will be found the best means of imparting that solidity necessary to enable the blossoms to last long when cut. *T. Baines.*

FRUIT HOUSES.

Melons.—The first batch is just coming in, and the present sunny weather is such as will, under proper treatment, produce a rich flavour. The nights are for the most part, however, very cold, necessitating the use of extra firing. It is the reverse of good practice, either in Melon or Cucumber growing, to permit a wide disparity between the night and day temperatures. See what was said in the last Melon Calendar in regard to flavouring the Melon, also the cracking of the fruits and canker at the collar. Keep plenty of moisture in houses wherein young plants are growing, and gently damp the foliage, the walls, and floors, and close the ventilators about 3.30 P.M. This is recommended for houses which have a southerly aspect; houses facing south-east, or south-west, must be closed earlier and later respectively. Continue to fertilise all female blossoms every day, observing a dry condition of both the roots and atmosphere. Cease to use the knife during the setting period; the finger and thumb should be active, however, nipping out the growing points at one or two joints above fruit. The plants should never be fumigated during the time of setting; take care, therefore, to fumigate previously if the least signs of aphis are manifest. Earth up from time to time those which have set their fruits, and continue to make further sowings to meet the requirements of the individual establishment. Feed liberally those plants which are swelling their fruits in pots and boxes, and take care they do not become dry at the root; ours are watered two or three times a day this weather. If the glass be 21 oz., of second or third quality, very little shading will be necessary; 16 oz. glass (Belgian), however, should be slightly shaded for an hour or two at mid-day. In pits and frames a fair bottom-heat should still be maintained. *Thos. Simpson, Chelmsford.*

Vines.—The thinning of late crops of Grapes should not be delayed a moment after they are ready for this operation, as at this season they swell so rapidly that, if not taken in time, they soon get too large to be thinned quickly or nicely. In a former Calendar it was recommended to discontinue pinching or stopping laterals when the Vines were in flower, but as soon as the fruit is set this should be resumed, and the shoots tied into position. Also cut off all badly placed, small, or deformed bunches, and crop lightly, or according to the vigour and age of the Vines. It is best to err on the side of light cropping and high finish rather than bulk, accompanied by shanking, &c. When watering is necessary let it be done thoroughly, as one good watering is worth a good many surface dribblings. To crops in the process of swelling off, a little guano sprinkled over the surface of the border previous to watering will prove of great service. A mulching of manure of any kind, after a good watering, will help to keep the border moist, and prevent the necessity for a repetition of it for a considerable time. Do not neglect the borders from which the Grapes have been cut, but if at all dry, water and mulch as for Vines in other stages of growth, and keep the foliage clean and healthy to the last that it may aid in the proper development of the fruiting buds for another season. In houses where the Grapes are ripe, keep the Vines free from lateral growths, the atmosphere cool and airy, and as dry as is consistent with the maintenance of the health of the foliage. Pot Vines should have the leading shoots pinched when about 8 feet long, and the laterals and sublaterals stopped at one point as produced. This applies more especially to those intended for fruiting next season; those intended for planting only are better to have the laterals left longer, or indeed not pinched at all if the Vines are intended to be cut back to three or four eyes at planting time. *W. Wildsmith, Heckfield.*

Figs.—Still continue to follow the directions lately given about the ripening fruit in pots, so that when the first crop is all gathered the trees may be gradually syringed twice a day, and more water given to the roots for the advancement of the second crop. Do not neglect mulching the surface of the pots now that the heat of summer is setting in, and the necessary waterings through the mulchings will carry vigour to the roots. If the second crop is set too thickly on the shoots, thinning will now be required, for the trees should not be over-taxed with too many fruit, so as to have them large and finely flavoured. If some of the trees that were forced the earliest do not show to be in a vigorous state of growth, it will be better for them not to be allowed to ripen a second crop. When their wood is ripened they should be placed in some warm corner in the open air, and kept well mulched and watered, when they will be in excellent condition for forcing early in another year. The later started crops will still want tying in the shoots, and stopping and thinning them where too thickly placed, and when the fruit begins to ripen they must have the same treatment as advised for the early forced Figs, that is, the syringing and supply of water to the roots must be gradually diminished till the crop is gathered. *William Tillery.*

Cucumbers.—Red-spider is wonderfully troublesome this year in our Chelmsford district, so much so that it almost baffles the efforts of our large growers to prevent its becoming master of the situation. I have plenty of opportunity of seeing acres of Cucumbers under glass, and therefore I am not speaking without some experience and authority when I say that Cucumber-houses having a southerly aspect are a *mistake* for summer work. Indeed, there is no necessity for a south aspect even in mid-winter. Let horticultural builders and garden architects take note of this. It is in such an aspect that we suffer most from red-spider, and that because the heat is too

much at mid-summer. Then, again, blinds must be employed, and that, besides being unnatural and detrimental, is a very expensive item where large quantities are grown, as here. I recommend, therefore, that Cucumber-houses, lean-to's, have an easterly aspect, and spans both east and west. There is no necessity to shade in either of these aspects; a very moderate coating of thin whitewash over the middle of the roofs might, however, be desirable in the very hot weather. I have previously pointed to the remedy for the destruction of red-spider. Still employ fires by night, and keep plenty of moisture in houses all day long. Fumigate on the appearance of the first greenfly. Cut over the plants every week, removing all weakly and exhausted growths, and feed liberally with copious doses of weak liquid manure. Earth up the roots from time to time. In pits and frames endeavour to secure straight fruits by means of glass tubes or other appliances. Husband a good heat by closing the lights early, after previously watering both the roots and foliage. Dust flowers of sulphur amongst the foliage as an antidote to mildew and spider. *Thos. Simpson, Chelmsford.*

HARDY FRUIT GARDEN.

The excessive crop of fruit of all kinds this season will necessitate an unusual amount of thinning among the more choice varieties. *Apricots* by this time should have been finished, as the fruit is now of large size. The leading shoots of these where required for filling vacant spaces on the walls should now be tied or nailed in, and the foreright shoots stopped by pinching back to three or four buds, so as to induce the early formation of short-jointed spurs, which are essential for the production of bloom next season. Provided the tree is otherwise well furnished with young and healthy wood, now is the best time for removing any barren or projecting spurs. Grub should now be well looked after; its appearance is soon seen by the folding up of the foliage. When this is observed, lose no time in having the tree carefully picked over, otherwise this pest soon commits serious damage both to foliage and fruit. *Peaches* and *Nectarines* will now require considerable attention. Complete disbudding, if not already done, and thin the fruit as soon as possible. This will in large establishments be a work of some magnitude. Here on a wall 120 yards long, every tree is completely clustered with fruit, and many thousands must be taken off. The trees generally are very healthy; in fact this season, so far, very little blight has made its appearance in any form, but, judging from the sudden alternations of temperature lately prevalent, we may expect to be troubled with it very shortly. Dessert *Cherries* on walls may be treated much as recommended for Apricots. Morellos should have as much young wood laid in as will uniformly furnish bearing wood for next season. Should aphis appear, the best and most effective remedy I have found is to hand-dust the affected shoots with dry soot finely sifted; this may be allowed to remain on for a few days, and can then be washed off with a syringe or hand engine. Some trees here badly affected were so treated last season with the best possible results, the fruit being finer than usual and perfectly clean, while the trees appeared to benefit by the fertilising power of the soot being washed down to the roots. *Strawberries* should now be mulched with straw or other material suitable to keep the fruit clean; we use the longest of the litter brought from the stable-yard. Applied in good time this becomes bleached and clean before the fruit begins to drop. A good soaking of water or liquid manure, if available, should be given to each plant as soon as the fruit is set, the mulching will then keep the roots cool and moist during the process of swelling the fruit. Where very large fruit are required, either for dessert or exhibition, the trusses should be well thinned as soon as the best swelling fruits are discernible, leaving not more than two or three fruit to each truss. These should be tied up to small sticks, so as to get full advantage of light and sun. Such kinds as British Queen, Dr. Hogg, &c., are seldom well-coloured without this attention, while the quality of the fruit amply repays the additional trouble of tying. *W. Cox.*

The Weather.

During the week ending Saturday, May 29, in the vicinity of the metropolis the reading of the barometer at the level of the sea increased from 29.92 inches at the beginning of the week to 30.34 inches by the morning of the 24th, decreased to 29.79 inches by the evening of the 28th, and increased to 29.90 inches by the end of the week. The mean reading for the week was 30.15 inches, being 0.31 inch higher than that of the preceding week.

The highest temperatures of the air at 4 feet above the ground ranged from 70¼° on the 24th to 55¾° on the 29th, the mean weekly value being 63¾°. The lowest temperatures of the air varied between 45½° on the 24th and 51° on the 28th, the mean for the week being 47¾°. The mean daily range of temperature in the week was 16°, the greatest range was 25¼° on the 24th, and the least, 8¾° on the 29th. The mean daily temperatures of the air, and the departures from their respective averages, were as follows:—23d, 54°.7, +0°.4; 24th, 56°.8, +2°.2; 25th, 57°, +2°; 26th, 54°.6, —0°.6; 27th, 51°.4, —3°.9; 28th, 55°; —0°.5; and 29th, 49°.4, —6°.3. The mean temperature for the week was 54°.1, being 1° below the average of sixty years' observations.

The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in sun's rays, were 120° on the 23d, and 124¾° on the 24th, but on the 29th 69° was the highest reading, the sky being nearly overcast throughout. The lowest readings of a thermometer on the grass with its bulb fully exposed to the sky were 33° and 32¾° on the 26th and 27th, but on the 29th 46° was the lowest reading. The mean for the several low readings was 38¾°.

The direction of the wind was mostly from W.S.W. on the 23d and 24th, and N.N.W. afterwards, and its strength brisk.

The weather was fine and bright on the first five days of the week, but overcast, dull, and cold on the last two, especially on Saturday the 29th.

Rain fell on two days to the amount of 0.24 inch.

In England the extreme high day temperatures ranged between 71° at Manchester and Sunderland, and 64° nearly at Liverpool, Newcastle-on-Tyne, and Truro; the general average over the whole country being 67¾°. The extreme low night temperatures varied from 45½° at Blackheath to 38° at Hull, with a general average of 41¼°. The mean of the extreme ranges of temperature in the week was 26¼°, the greatest range being 32° at Sunderland, and the least, 19° at Liverpool.

The mean high temperatures observed by day ranged from 64¾° at Wolverhampton and Sunderland to 57¾° at Liverpool, with an average value of 62¼°. The mean low temperatures observed by night varied between 48¼° at Newcastle-on-Tyne at 43° at Truro, the general average being 45¼°. The mean daily range of temperature in the week was 17°, ranging from 20½° at Sunderland to 9½° at Liverpool. The mean temperature of the air for the week was 52¼°, being 3¾° lower than the value for the corresponding week in 1874; the highest occurred at Blackheath, 54°, and the lowest at Eccles and Truro, 50¾° nearly. Rain fell generally on two, three, or four days in the week at all stations excepting Truro; the various amounts collected ranged from 1 inch at Newcastle-on-Tyne, to three-hundredths of an inch at Truro, which fell on the 28th; the average fall over the country was four-tenths of an inch.

The weather during the week (for the most part) was fine, though cloudy and showery at times.

In Scotland, the highest temperatures of the air ranged from 68½° at Paisley to 58½° at Greenock, with a general average of 63¼°. The lowest temperatures of the air varied from 44½° at Leith to 32° at Dundee, the general average being 40¼°. The mean range of temperature in the week was 23°. The mean temperature of the air for the week was 51¾°, being ⅓° higher than the value of the corresponding week in 1874; the highest was 53½°, at Edinburgh, and the lowest, 50½°, at Aberdeen. Rain fell at Greenock to the amount of one inch and two-tenths, but at Dundee one-tenth of an inch only was measured; the average fall over the whole country was five-tenths of an inch.

At Dublin, the highest temperature was 71°, the lowest 37°, the range 34°; the mean temperature of the air for the week was 53⅓°, and the rainfall was a quarter of an inch.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
For the Week ending Wednesday, June 2, 1875.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 Years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for the Week.	Temperature of the Air. Departure of Mean from Average of 60 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Degree of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
	In.	In.	°	°	°	°	°	°			In.
May 27	30.03	+0.26	59.0	46.0	13.0	51.4	— 3.9	40.8	67	N. NNW	0.00
28	29.68	—0.09	64.2	51.0	13.2	55.0	— 0.5	46.6	71	WNW. N.W.	0.13
29	29.66	—0.12	55.8	47.0	8.8	49.4	— 6.3	47.6	94	NNW. N.	0.11
30	29.75	—0.04	63.2	43.9	19.3	52.1	— 3.9	39.0	62	N. N.N.E.	0.00
31	29.85	+0.05	64.2	41.0	23.2	51.6	— 4.7	42.3	71	E.N.E. N.E.	0.00
June 1	29.96	+0.16	73.3	45.1	28.2	58.3	+ 1.8	47.1	67	E.S.E. E.N.E.	0.00
2	29.93	+0.13	75.5	49.5	26.0	61.0	+ 4.3	46.4	59	E.N.E. N.E.	0.00
Mean	29.84	+0.05	65.0	46.2	18.8	54.1	— 1.9	44.3	70	N.N.E.	sum 0.24

May 27.—A fine bright morning. Overcast and dull in afternoon and evening.
— 28.—Overcast, dull, and showery throughout.
— 29.—Overcast, dull, and cold throughout. Heavy rain in early morning.
— 30.—A fine day.
— 31.—A very fine day.
June 1.—A brilliantly fine cloudless day. Strong wind.
— 2.—A fine bright day. Strong wind throughout.

JAMES GLAISHER.

Answers to Correspondents.

Canon Hall Muscat: *J. A. S.* This is perhaps the worst Grape to set in cultivation. We have seen excellent results follow the thinning out of the embryo flowers, and also from the application of water through a fine syringe when the flowers are fully developed.

Farm Account Books: *A. B.* Write to Mr. Jemmett, Murrell Hill Farm, Binfield, Berks. He publishes a series of such books.

Insects: *Beta.* Your insects are the larvæ of the common Daddy Longlegs. In their present state they are difficult to get rid of, but the remedies given last week against wireworms (p. 700) may be used. If they are very numerous, there will be many which will arrive at the perfect state, and children may be usefully employed in catching them. *I. O. W.*

Kitchen Gardening: *H. G. S.* Get Mr. Earley's *High Class Kitchen Gardening*, just issued by Messrs. Bradbury, Agnew & Co.; and the new edition of Thompson's *Gardener's Assistant*, which will shortly be published.

Names of Plants: *Corres.* Staphylea pinnata.—*J. B. D.* Fraxinus Ornus.—*R. S. H.* Odontoglossum Reichenheimii, an uncommon species.—*J. A. S.* Dianella tasmanica.—*G. E. O.* The little spiked flower is Polygonum Bistorta; the one with a leaf growing out of a leaf is Ruscus Hypoglossum.—*G. W. D.* Crepis taraxacifolia.—*H. Harpur-Crewe.* Berberis aristata, var. floribunda.—*N. B.* It is impossible to name from such specimens; the flowers must be sent with the leaves; then there is some chance of identifying them.—*H. St. C. F.* Mœnchia erecta.—*P. W. J.* Cerastium triviale.—*T. Moore.* Alonsoai ncisæfolia (scarlet flower), Rhus cotinus. Does the wood belong to the shoots with flower buds?—*Victor.* 1, Caltha palustris, double-flower; 2, Lychnis diurna, double flower; 3, Lychnis viscaria; 4, Centaurea montana; 6, Veronica gentianoides.—*W. H.* 1, Dendrobium Devonianum; 2, Eucalyptus globulus; 3, Cyrtomium falcatum; 4, Selaginella pubescens; 5, Lastrea Sieboldii.

Tree Pæony: *Mrs. Smoothy.* One of the fine varieties of Pæonia Moutan; but whether one of Fortune's introductions, or one of the new sorts raised in Belgium, we have no materials for determining.

Vines: *Vignorante.* Your Vines are perfectly smothered with mealy-bug. It will take a lot of time and perseverance in washing to get rid of the pest. The better way would be to cut them right down, and to repaint the house, and clean the whole thoroughly, before they begin to grow.

☞ Foreign Subscribers.—We are requested by the Publisher to desire Foreign Subscribers sending Post Office Orders, and which are to be paid at the post-office, King Street, Covent Garden, London, to be good enough to write to the Publisher, at the office of this paper, 41, Wellington Street, Covent Garden, at the same time.

Communications Received:—E. G.—N. M.—Mrs. C. M.—M. J.—W. E. H.—J. M.—M. T.—A Subscriber.—R. D.—W. B.—J. A. C.—P. B.—J. M.—H. J. & T. L.—E. S. D.—H. N. E. (with thanks).—A. F.

Markets.

COVENT GARDEN, June 3.

A steady trade and very good supply, prices receding slightly. Continental supplies large, comprising Strawberries, Cherries, Apricots, and Plums, with the usual assortment of vegetables. *Thos. Taylor, Wholesale Apple Market.*

Fruit.

	s. d.	s. d.		s. d.	s. d.
Apples, per ½-sieve	3 0	4 0	Oranges, p. 100	8 0	12 0
Apricots, per box	2 6	4 0	— Malta, per doz.	2 0	3 0
Cherries, per box	2 0	4 0	Peaches, per doz.	15 0	24 0
Figs, per doz.	6 0	12 0	Pine-apples, p. lb.	6 0	10 0
Grapes, English, lb.	4 0	10 0	Pomeloes, each	0 6	1 0
— foreign, do.	4 0	..	Shaddocks, each	2 0	3 0
Lemons, per 100	8 0	12 0	Strawberries, per oz.	1 0	2 0
Nuts, Cob, p. lb.	..	..	Walnuts, p. bush.	16 0	..

Vegetables.

	s. d.	s. d.		s. d.	s. d.
Artichokes, Fr., doz.	4 0	..	Leeks, per bunch	0 2	0 4
Asparagus, English, per bundle	5 0	6 0	Lettuces, per doz.	1 6	..
— French, p. bund.	4 0	15 0	Mint, per bundle	0 4	..
Beans, French, p. 100	2 6	..	Mushrooms, per pott.	1 0	2 0
— broad, p. ½-sieve	10 0	..	Onions, young, bun.	0 4	0 6
Beet, per doz.	1 0	2 0	Parsley, per bunch	0 4	..
Cabbages, per doz.	1 0	2 0	Parsnips, p. doz.	0 9	1 0
Carrots, French, do.	1 6	..	Peas, per quart	3 0	..
Cauliflowers, spring, per doz.	16 0	18 0	Radishes, per bunch	0 2	0 4
Celery, per bundle	1 6	2 0	Shallots, per lb.	0 3	..
Cucumbers, each	1 0	2 6	Salsify, per bundle	1 6	..
Endive, per doz.	1 0	2 0	Sprue, French, bund.	1 6	..
Herbs, per bunch	0 2	0 4	Tomatos, per doz.	4 0	..
Horse Radish, p. bun.	3 0	5 0	Turnips, per bundle	1 0	1 6
			— French, p. bund.	1 6	..

Potatos, old:—Regents (early), 80s. to 120s.; best, 160s.; Flukes, 120s. to 130s.; and Victorias, 160s. per ton. New: Lisbons, 16s. to 18s. per cwt.

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Azaleas, p. 12 sprays	o 6-	1 6	Pelargoniums, 12 spr.	o 6-	1 6
Carnations, 12 blooms	1 6-	3 o	— Zonal, do. ..	o 4-	1 o
Cornflower, p. doz. bun.	3 o-	6 o	Paeonies, 12 bun. ..	4 o-	12 o
Deutzia, per bunch ..	o 4-	1 o	Primula, dbl., p. bun.	o 9-	1 6
Eschscholtzia, 12 bun.	3 o-	6 o	Ranunculus, p. bun.	o 4-	1 o
Eucharis, per doz. ..	6 o-	12 o	Roses, indoor, p. doz.	2 o-	6 o
Heliotropes, 12 spr.	o 6-	1 o	— French, Moss	2 o-	4 o
Lily-of-the-Valley, 12			Rose de Mai, doz. bun.	3 o-	9 o
sprays	o 6-	2 6	Spiræa, 12 sprays ..	1 o-	3 o
Mignonette, 12 bun.	4 o-	6 o	Stephanotis, 12 sprays	2 o-	6 o
Myosotis, per bunch	o 4-	o 9	Stocks, 12 bun. ..	6 o-	12 o
Nemophila, 12 bun.	1 6-	3 o	Sweet Peas, 12 bunch.	4 o-	9 o

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Begonias, do. ..	6 o-	12 o	Lobelia, per doz. ..	4 o-	9 o
Bouvardias, do. ..	9 o-	18 o	Mignonette, do. ..	6 o-	9 o
Calceolarias, do. ..	6 o-	18 o	Myrtles .. do.	3 o-	9 o
Cyperus, do.	6 o-	12 o	Pelargoniums, dble.,		
Dracæna terminalis	30 o-	60 o	per doz. ..	6 o-	12 o
— viridis, per doz.	12 o-	24 o	— Scarlet, do. ..	4 o-	9 o
Ficus elastica ..	1 6-	7 6	Petunia, per doz. ..	6 o-	9 o
Fuchsia, per doz. ..	6 o-	18 o	Roses, do. ..	12 o-	60 o
Gardenias, do. ..	12 o-	60 o	Solanums, do. ..	6 o-	18 o
Heaths, in var., doz.	12 o-	30 o	Spiræa, do. ..	12 o-	24 o
Heliotrope, per doz.	6 o-	12 o	Stock, do. ..	6 o-	9 o
Hydrangeas, per doz.	12 o-	24 o			

SEEDS.

LONDON: *June* 3.—Extreme inactivity now characterises our seed market. In Clover seed, as might be expected, there is nothing whatever doing. Trefoils are held with firmness, the impression prevailing that next season's rates will rule high. Favourable accounts come to hand of the new crop of English Trifolium, but it is not thought that much will be saved for seed. Sowing Mustard and Rape seed move off slowly at unchanged currencies: fine samples of either kind do not offer freely. Canary seed appears to have seen its highest: values, under the influence of a slightly increased supply, exhibit a drooping tendency. The same can be said of Hemp seed. An active and remarkable inquiry has continued during the past week for spring Tares, as a result of which extreme prices have been paid. *John Shaw & Sons, Seed Merchants, 37, Mark Lane, E.C.*

CORN.

At Mark Lane on Monday the supply of English Wheat was very small, but there were liberal imports from abroad, and the sales effected in either class were at some reduction from the rates current on Monday last. Barley was very slow of sale, and cheaper when offered. Malt was flat, but choice qualities were not much lower than previously. Oats were less abundant; sound Russian advanced 1*s.* 6*d.* per quarter, while other descriptions were proportionally dearer. Maize was without quotable alteration. Beans and Peas were quiet, on former terms. The flour trade was inactive, and the quotations drooped.—Dulness characterised the trade on Wednesday for Wheat, and factors, in order to effect sales, made an occasional reduction in price. Barley was almost neglected, and very little was done in malt of any description. Oats supported the sales of Monday, and the alterations in the value of Maize, Beans, Peas, or flour were not important.—Average prices of corn for the week ending May 29:—Wheat, 41*s.* 10*d.*; Barley, 38*s.* 8*d.*; Oats, 29*s.* 7*d.* For the corresponding week last year:—Wheat, 62*s.* 2*d.*; Barley, 47*s.* 8*d.*; Oats, 29*s.* 1*d.*

CATTLE.

At the Metropolitan Market on Monday the number of beasts was smaller than on Monday se'nnight. The demand was good, and prices improved for all kinds. There was a good supply of sheep, but trade was dull, and prices scarcely recovered from Thursday's reduction. Trade was very dull for lambs and calves at lower rates. Quotations:—Beasts, 4*s.* to 5*s.* 4*d.*, and 5*s.* 10*d.* to 6*s.* 4*d.*; calves, 4*s.* to 5*s.* 8*d.*; sheep, 5*s.* to 5*s.* 6*d.*, and 6*s.* to 6*s.* 8*d.*; lambs, 6*s.* to 7*s.* 6*d.*; pigs, 4*s.* 4*d.* to 5*s.* 8*d.*—The demand for beasts on Thursday was much less than on that day week; prices consequently gave way, without effecting a clearance. In sheep only a few of the choicest maintained Monday's quotations, and other kinds were lower. The lambs on offer were very inferior, and dull of sale. Calves were plentiful and cheaper. There was scarcely any business done in milch cows.

HAY.

The Whitechapel report is to the effect that though the supply was large there was also a fair amount of activity in the trade, and prices ruled firm. Prime Clover, 100*s.* to 126*s.*; inferior, 85*s.* to 95*s.*; prime meadow hay, 90*s.* to 118*s.*; inferior, 55*s.* to 75*s.*; and straw, 35*s.* to 38*s.* per load.—Cumberland Market quotations:—Superior meadow hay, 126*s.* to 135*s.*; inferior, 95*s.* to 110*s.*; superior Clover, 120*s.* to 130*s.*; inferior, 95*s.* to 105*s.*; and straw, 40*s.* to 44*s.* per load.

POTATOS.

From the Borough and Spitalfields market reports we learn that supplies were in excess of the demand, which remained slow at the quotations subjoined:—Regents, 80*s.* to 110*s.*; Victorias, 110*s.* to 135*s.*; Flukes, 110*s.* to 150*s.*; Rocks, 65*s.* to 75*s.* per ton.—The imports into London last week consisted of 318 boxes, 3413 bags, 6486 sacks from Dunkirk; 9533 bags Antwerp; 3893 packages, 1940 boxes Lisbon; 106 sacks Boulogne, and 1 bag from Rotterdam.

COALS.

The market was dull on Monday, and house coals gave way 1*s.* per ton. On Wednesday there was a further decline of 6*d.* per ton in the same classes.

GARDEN POULTRY NETTING, 25,000 yards, strong, sound, 1½d. per square yard; 500 yards, £2 12s. 6d., or 1¼d. per yard. USED HERRING NET, 550 yards, £2 2s., 1d. per square yard. TIFFANY, 5s. to 7s. 6d. per 20 yards. ARCHANGEL MATS, 21s.; PETERSBURGS, 18s. per dozen.
M. SMITH, 6, Potter Street, Worksop.

TANNED GARDEN NETTING, 1½d. per Square Yard, for Protecting Seed-beds, Peas, Fruit, Strawberries, &c., from Birds, Frost, Blight, &c., and as a Fence for Fowls, in 1, 2, 3, and 4-yards widths. Hexagon, Tiffany, and other Netting, Galvanised Wire Netting, Pea Hurdles, and Seed Protectors, by
C. WRIGHT, 29, Lime Street, E.C., late 376, Strand, W.C.

NETTING for FRUIT TREES, SEED BEDS, RIPE STRAWBERRIES, &c.
TANNED NETTING for protecting the above from Frost, Blight, Birds, &c., 2 yards wide 3d. per yard, or 100 yards, 20s., 4 yards wide, 6d. per yard, or 50 yards, 20s.
NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls, 2 yards wide, 6d. per yard; 4 yards wide, 1s. per yard; ¾-inch mesh, 4 yards wide, 1s. 6d. per yard.
TIFFANY, 6s. 6d. and 7s. 6d. per piece of 20 yards.
EATON and DELLER, 6 & 7, Crooked Lane, London Bridge.

TANNED NETTING, for Protecting Seeds and Fruits from Birds, in all widths, at lowest prices. Wholesale Priced List sent, post-free, on receipt of Trade Card.
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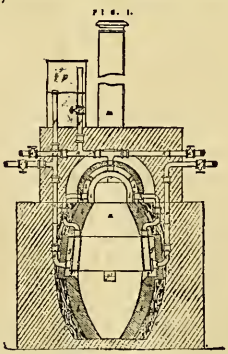

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IN GREAT VARIETY.

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21, WHITEHALL PLACE, LONDON, S.W.

THE "INVINCIBLE"

LAWN MOWER (S. EDWARDS' PATENT).

WINNER OF THE GOLD MEDAL AT THE NATIONAL LAWN MOWER CONTEST, BIRMINGHAM, July 8, 1874.

FIRST PRIZE. GOLD MEDAL.

WINNER OF SEVEN First Prize Medals, FROM Sept. 17, 1873, TO Sept. 24, 1874.

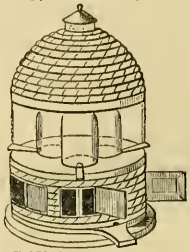
The Wood Rollers can be used either at the Front or at the Back of the Cutters. It will do all that any other Lawn Mower can do, of whatsoever make or description.

6 in.	8 in.	10 in.	12 in.	14 in.	16 in.	18 in.	20 in.
Prices, 25s.	50s.	70s.	£4 10s.	£5 10s.	£6 5s.	£7	£8 10s., Carriage Paid.

SOLE MAKERS:
JOHN CROWLEY & CO., Meadow Hall Ironworks, near SHEFFIELD.

Beehives.—Two Silver Medals awarded to GEO. NEIGHBOUR AND SONS at the Paris Exhibition of 1867. The only English Exhibitors who obtained a Silver Medal for Beehives.

NEIGHBOUR'S IMPROVED COTTAGE BEEHIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, working three bell-glasses, is neatly and strongly made of straw; it has three windows in the lower Hive. This Hive will be found to possess many practical advantages, and is more easy of management than any other Beehive that has been introduced.



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The LIGURIAN or ITALIAN ALP BEE being much in repute, G. N. & SONS supply a Swarm of Bees with genuine Italian Queen, in the Improved Cottage Hive, at £4, Hive included.

An Italian Alp Queen, with full directions for uniting to Black Stocks, 15s. each.

ENGLISH BEES.—Stocks and Swarms may be obtained as heretofore.

THE APIARY. By A. NEIGHBOUR. 5s., postage 4d.

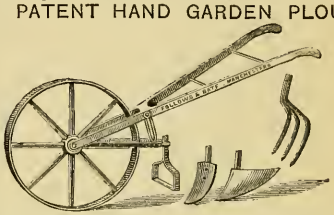
A newly arranged Catalogue of other improved Hives, with Drawings and Prices, sent on receipt of two stamps.

Agents for Straw, Woodbury, and other Hives and Supers, made by James Lee, at his prices.

GEO. NEIGHBOUR AND SONS, 127, High Holborn, W.C., or 149, Regent Street, London, W.

Important to Market Gardeners and Others.

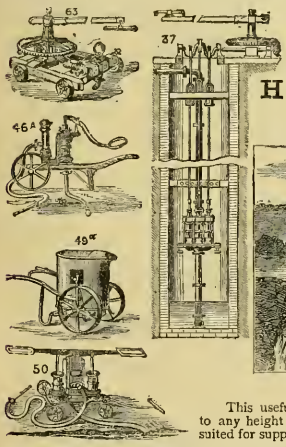
THE PATENT HAND GARDEN PLOUGH.



This effective little implement meets a long-felt want. It consists of one light but strong steel shovel, for marking out rows to plant, or for loosening up the ground after the plants are up. Also a small Steel Plough, to be used for hilling up the rows when desired; and a Cutter for exterminating weeds, and Rake for pulverising the ground. These pieces are made separate, and attached or detached in a moment by means of a simple fastening. Its construction enables the user to push it readily and easily through the ground, stirring the earth, if required, to a depth of six inches. It is exceedingly light, strong, and tasty, and fully adapted to the purposes designed. A large number have been sold, and are giving unqualified satisfaction.

Price, complete, with Shovel, Plough, Weed-Cutter, and Rakes, £2 2s.

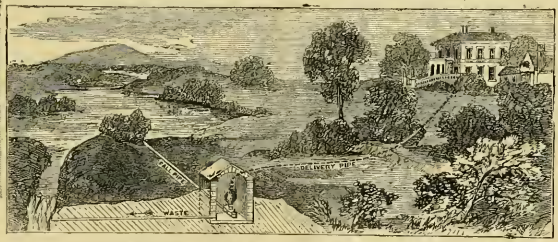
FOLLOWS & BATE, Makers, Dutton Street Works, MANCHESTER.

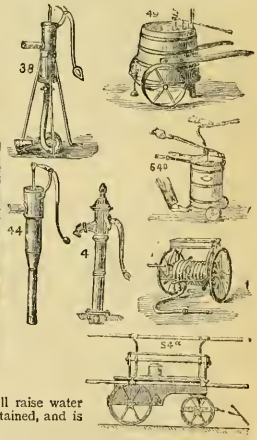


S. OWENS & Co.,

HYDRAULIC ENGINEERS,

WHITEFRIARS STREET, LONDON, E.C.





THE IMPROVED SELF-ACTING HYDRAULIC RAM.

This useful Self-acting Apparatus, which works day and night without needing attention, will raise water to any height or distance, without cost for labour or motive power, where a few feet fall can be obtained, and is suited for supplying Public or Private Establishments, Farm Buildings, Railway Stations, &c.

No. 37. DEEP WELL PUMPS for Horse, Hand, Steam, or other Power.
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No. 4. CAST-IRON GARDEN, YARD, or STABLE PUMPS.
No. 39b. IMPROVED HOSE REELS for Coiling up Long Lengths of Hose for Garden use.

S. OWENS AND CO. Manufacture and Erect every description of Hydraulic and General Engineers' Work for Mansions, Farms, &c., comprising PUMPS, TURBINES, WATER WHEELS, WARMING APPARATUS, BATHS, DRYING CLOSETS, GAS WORKS, Apparatus for LIQUID MANURE distribution. FIRE MAINS, HYDRANTS, HOSE PIPES, &c., &c. *Particulars taken in any part of the Country. Plans and Estimates furnished.*

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THE GARDENERS' CHRONICLE.

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Gardeners, and others, wanting places, 26 words 1*s.* 6*d.*, and 6*d.* for every additional line, or part of a line.

THESE ADVERTISEMENTS MUST BE PRE-PAID.

Advertisements for the current week MUST *reach the Office by Thursday noon.*

P.O.O. to be made payable at the King Street Post Office, W.C. to W. RICHARDS.

OFFICE—41, WELLINGTON STREET, COVENT GARDEN, LONDON, W.C.

WANT PLACES.

Head Gardeners.

JOHN LAING can at present recommend with every confidence several energetic and practical Men, of tested ability and first-rate character. Ladies and Gentlemen in WANT of GARDENERS and BAILIFFS, or GARDENERS for First-rate Establishments or Single-hand situations, can be suited, and have full particulars by applying at Stanstead Park and Rutland Park Nurseries, Forest Hill, London, S.E.

Gardeners and Under Gardeners.

WM. CUTBUSH AND SON beg to state that they have at all times on their Books MEN of VARIOUS QUALIFICATIONS, whose characters will bear the strictest inquiry. Any Gentleman making application would save time by clearly stating the duties to be undertaken, wages offered, &c., so that suitable Men may be selected.—Highgate Nurseries, London, N.

To Gardeners in Want of Situations,
WHOSE CHARACTERS WILL BEAR STRICT INVESTIGATION.

THE PINE-APPLE NURSERY COMPANY devote special attention to this important matter—proper Men to suitable Situations. For a GARDENER, or for a SITUATION, please send full particulars to Mr. JOHN BESTER, the Pine-Apple Nursery Company, Maida Vale, London, W.

B. S. WILLIAMS, having at the present time several very excellent GARDENERS upon his Register, is desirous of placing them in Situations where great experience and trust are required. B. S. W. would at the same time beg to intimate that when a Gardener is applied for that the filling of the situation should be left with him, as that would prevent unnecessary correspondence and delay.—Victoria and Paradise Nurseries, Upper Holloway, London, N.

To Nurserymen.

COMMISSION WANTED.—A Gentleman calling on the principal Nurserymen in the Kingdom is desirous of obtaining a Commission to Sell a genuine Outdoor Nursery Stock. Has a first-rate connection. Good reference and security if required.—HORTICULTURAL AGENT, *Gardeners' Chronicle* Office, W.C.

GARDENER (HEAD), where one or more are kept.—Age 30, single till suited; efficient in all branches of the profession. Highly recommended.—G. S., Post Office, Battle.

GARDENER (HEAD).—Age 31, married; understands the profession in all its branches. Can be highly recommended. Near London preferred.—J. T., 8, Alpha Place, Cranford, Middlesex.

GARDENER (HEAD).—Practically acquainted with Forcing in all its branches, well acquainted with Kitchen and Flower Gardening, and the general Management of a Gentleman's place.—H. NORRIS, 7, Warsill Street, Battersea Park, S.W.

GARDENER (HEAD).—Age 30, married, one child; thoroughly understands the profession in all its branches. Character will bear strictest investigation.—Address, stating particulars, to T. S., Holdenby House, Northampton.

GARDENER (HEAD).—Married; understands Vineries, Greenhouses, Flower and Kitchen Gardening, the Growing of Melons, Cucumbers, Fruit, and Roses; can Bud and Graft. Seven years' excellent character for sobriety, honesty, efficiency, &c.—Address, stating wages and all particulars, to P. W. Hart, Esq., Common Wood House, near Rickmansworth, Herts.

GARDENER (HEAD).—Age 31, married; well experienced in Forcing all kinds of Fruits, Flowers, and Vegetables, and the Management of Flower and Kitchen Gardens, also Stove and Greenhouse Plants. Good references as to character and ability. £5 will be given to any person whose influence will be the means of getting the Advertiser a good situation.—X. Y. Z., 72, Flood Street, King's Road, Chelsea, S.W.

GARDENER (HEAD, WORKING).—Age 29, married, one child; thoroughly understands the profession in all its branches. Good character and recommendations from past and present employers.—G. L., Post Office, Little Sussex Place, Hyde Park Gardens, London, W.

GARDENER (HEAD, WORKING).—Middle-aged, married, no family; Scotch; has had many years' active experience in every branch of the profession. Can undertake the Management of Land if required. Good character.—W. N., 2, Verey's Cottages, Perry Hill, Catford, S.E.

GARDENER (HEAD, WORKING).—Age 28, married; thoroughly understands the Forcing of all kinds of Fruits, Flowers, and Vegetables, also good Flower and Kitchen Gardener. Can have the highest testimonials as regards character from last and previous places.—A. B. C., Post Office, Eridge, near Tunbridge Wells.

GARDENER (HEAD WORKING).—Age 31, married, one child; well experienced in the cultivation of Vines, Peaches, Cucumbers, Melons, Stove and Greenhouse Plants, Flower and Kitchen Gardening, &c. The highest recommendations as to character and ability from present employer.—B. R., Messrs. Cripps & Son, Tunbridge Wells Nurseries, Kent.

GARDENER (SINGLE-HANDED), or where another is kept. Age 40, married, no family; understands Flower and Kitchen Gardening, Greenhouses, &c. Five and a half years' good character.—E. H., Post Office, High Street, Tunbridge Wells.

GARDENER (SINGLE-HANDED, or good SECOND), in a Gentleman's Garden.—Age 25.—State wages, &c., F. W., 209, High Street, Stoke Newington, N.

GARDENER (SINGLE-HANDED).—Age 30, married, no family; understands Vines, Cucumbers, Melons, and Flower and Kitchen Gardening. Eight years' good character.—L. R., Post Office, Leyland, Preston.

GARDENER (SINGLE-HANDED).—Age 23, total abstainer; thoroughly acquainted with the profession in all its branches. Nine years first-class character.—J. L., Post Office, Pinner, Middlesex.

GARDENER (SECOND).—Age 34, married, one child (7½ years); understands Glass well. Lodge or cottage. Good character.—T. R., The Lodge, Bidborough, near Tunbridge Wells, Kent.

FOREMAN, or SECOND, in a good Establishment. Experienced in all kinds of Forcing and Plant Growing.—A. B., 26, Land Street, Croydon, S.

GARDENER (UNDER).—Age 20; has had over six years' experience. Can have good references. State wages given.—F. JONES, Osmaston Manor, Ashbourne, Derby.

To Gardeners.

GARDENER (UNDER).—Single; thoroughly understands the profession. Six years good character.—H. B., Mr. Milnes, Steyning.

GARDENER (UNDER), where he can improve himself.—Age 19; three years' experience.—A. CLARKE, Preston, near Uppingham.

GARDENER (UNDER).—The Advertiser is anxious to recommend a young man who has been for some time in his service, for a situation in some larger Garden, or with a Nurseryman, where he may improve himself, especially in the Management of Hothouses, &c. A southern county preferred.—D. F., Mixbury, Brackley, Northamptonshire.

IMPROVER, in a Nobleman's or Gentleman's garden.—Age 20. Two and a half years' good character from present situation.—J. B., Post Office, Wormley, Herts.

TO NURSERYMEN.—WANTED a situation in a Nursery; understands the Management and Growing of Soft-wooded Plants for Market.—E. S., Mr. Hill, 7, Hardep Street, Herne Hill Road, Camberwell, S.E.

To Nurserymen.

PROPAGATOR (GENERAL), or FOREMAN. Seventeen years' good practical experience in General Propagating, Plant Growing, &c. Good reference.—HORTUS, Post Office, Duke Street, Manchester Square, London, W.

PROPAGATOR and GROWER of Roses, Rhododendrons, Coniferæ, Stove, Greenhouse, and Soft-wooded Plants, &c. Two and a half years' good character.—W. M., The Nurseries, Hailsham.

TO NURSERYMEN.—SECOND (OUTDOOR); understands Propagating Coniferæ, &c. Expert Budder and Grafter. First-class references.—G. H., Nursery, Hailsham.

To Market Gardeners and Fruiterers.

FOREMAN or SALESMAN.—An experienced Man.—C. B., Post Office, Hounslow.

CLERK and SALESMAN.—Married; knows the Nursery and Seed Trades thoroughly. Nearly twelve years' experience. Permanent situation wanted. First-class references. Can be at liberty in beginning of July.—M. W., 5, Lambeth Road, Southwark, S.E.

TO SEEDSMEN and FLORISTS.—Wanted, by a young MAN (age 20), a re-engagement; has been six years in R. Sawyer's Seed and Floricultural Establishment, 431, High Street, Southampton, to whom reference can be made. R. S., being about to close his Shop, services of Advertiser will not be required.—S. S., as above.

SHOPMAN or SECOND.—Experienced; First-class reference.—K. A., Post Office, Brown Street, Manchester.

LAND STEWARD.—Age 48, married, no children; understands practically Farm Work in all its branches, and the General Management of Stock. Would Superintend a Garden, Greenhouse, Hot and Cold Graperies, &c. Good testimonials and references.—E. T., 77, St. John's Wood Terrace, N.W.

DAIRY MANAGER.—Wanted, by a Man and his Wife (no family), a situation to Manage a small Dairy in a Nobleman's or Gentleman's family. Man can Kill Sheep or Pigs. Wife can undertake Dairy and Poultry. Good reference can be given.—C. H., Wakefield Farm, Stoney Stratford, Bucks.

CARPENTER on a Estate.—Experienced in Cottage and Farm Buildings. Twelve years' unexceptionable character from last situation.—A., Meacham, Stationer, Lichfield.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C. Printed by William Richards, at the Office of Messrs. Bradbury, Agnew, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the County of Middlesex, and Published by the said William Richards, at the Office, 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—Saturday, June 5, 1875.
Agent for Manchester—John Heywood. Agents for Scotland—Messrs. J. Menzies & Co., Edinburgh and Glasgow.

THE

GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

No. 76.—Vol. III. { New Series. } SATURDAY, JUNE 12, 1875. { Registered at the General Post Office as a Newspaper. } Price 5d. Post Free, 5½d.

CONTENTS.

SALES BY AUCTION.

Highly Important Sale of 6000 Orchids, collected by M. ROEZL in Mexico.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, June 16, at half-past 12 o'Clock precisely, a consignment of 6000 ORCHIDS collected by M. Roezl in Mexico, nearly all adapted for growing in cool houses and including the beautiful Lælia majalis, Oncidium tigrinum, Odontoglossum Rossii majus, Odontoglossum citrosmum roseum, Oncidium Barkeri, Lælia autumnalis, many of the sorts in large masses and in very excellent condition; 1000 Odontoglossums from Vera Cruz (Orizaba); a consignment of TREE FERNS and an importation of ORCHIDS from Brazil.

On view the morning of Sale, and Catalogues had.

Established Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, June 21, at half-past 12 o'Clock precisely, a SMALL COLLECTION of ESTABLISHED ORCHIDS, including the following rare species:—

Odontoglossum sceptrum	Oncidium Weltoni
Cypripedium Roezlii	Miltonia Regnelli
,, Harrisianum	Utricularia montana
Pescatorea cerina	Saccolabium guttatum
Cattleya Dowiana	,, giganteum
,, Wagneri	Dendrobium Falconeri
,, aurea	Œoeclades guineensis
,, Mendelii	Phalænopsis grandiflora
Odontoglossum Roezlii	,, Schilleriana
Masdevallia Veitchiana	Trichopilia crispa

&c., &c.

On view the morning of Sale, and catalogues had.

New Oncidiums.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, June 21, at half-past 12 o'Clock precisely, an importation from the United States of Columbia of many rare and choice species, including a few plants of an exceedingly beautiful new ONCIDIUM, O. CARDERI, just described by Professor Reichenbach, and now sent to this country for the first time; also a quantity of plants of the new ONCIDIUM ROSTRANS, just described, and now introduced for the first time; the new Golden ODONTOGLOSSUM, O. SPATHACEUM, which magnificent species produces on a single stem upwards of a hundred of its golden-yellow richly spotted flowers; O. NÆVIUM, a large quantity of O. LUTEO-PURPUREUM, O. CRISPUM, ONCIDIUM NUBIGENUM, a few plants of the handsome ODONTOGLOSSUM RAMOSISSIMUM, described by Professor Reichenbach at p. 306 of the *Gardeners' Chronicle* for March 27, 1875; ONCIDIUM ANNULARE, new, and offered for the first time, and various other choice sorts.

On view the morning of Sale, and Catalogues had.

Important Sale of Established East Indian and OTHER ORCHIDS.

MR. J. C. STEVENS begs to announce that he has been favoured with instructions from H. J. Buchan, Esq., in consequence of change of residence, to offer for SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, July 8, at half-past 12 o'Clock precisely, his valuable Collection of EAST INDIAN ORCHIDS, purchased during the last eight years from Messrs. Veitch, Bull, Williams, Rollisson, and others, and also selected from the best private collections at the sales held at these Rooms, comprising fine varieties of Aerides, Saccolabiums, Vandas, Cattleyas, Lælias, Coelogynes, Phalenopsis Lowii, P. Schilleriana, P. grandiflora and P. amabilis, Dendrobium Wardianum, D. thyrsiflorum, D. crassinode, D. devonianum, and various other Dendrobes; Cymbidium eburneum, Anthurium Scherzerianum, Oncidiums, Odontoglossums, Pescatoreas, Dendrochilums, also a number of other Orchids.

On view the morning of Sale, and Catalogues had.

Worcestershire, in the far-famed Vale of Evesham.
PRELIMINARY ADVERTISEMENT.

MESSRS. CHESSHIRE AND GIBSON have received instructions to SELL by AUCTION, in JULY NEXT, in consequence of the death of the Proprietor, unless in the meantime an acceptable offer be made by Private Contract, a very excellent FREEHOLD ESTATE of 240 Acres, known as "Seaford Grange," situated at Peopleton, within 1½ mile of the Pershore Station on the Great Western Railway.

A considerable portion of the above has been laid out as Fruit Gardens, the Trees being of the choicest kinds, now in their prime, the produce finding a ready sale at Liverpool, Manchester and Birmingham, where a very lucrative business was carried on by the late Proprietor.

In addition to a complete set of FARM BUILDINGS, with COTTAGES, there is a very comfortable and desirable RESIDENCE, replete with every convenience, and the portion of the Estate not laid out as Fruit Gardens is occupied as a FARM, and comprises Arable and Pasture of excellent quality.

A Balance-Sheet, showing the profits for the last five years, has been prepared, and may be obtained of the undermentioned Referees.

Further particulars and plans will be issued in due course, in the meantime further information may be obtained of H. G. GOLDINGHAM, Solicitor, or A. BUCK, Estate Agent, both of Worcester; or to the Auctioneers, Messrs. CHESSHIRE and GIBSON, 93, New Street, Birmingham.

Freehold—28 Miles S.W.

TO BE SOLD, a beautiful ESTATE of 240 acres, with elegant Swiss Villa, and capital Stabling, Gravelly Soil, fine views, and extensive frontages, free from tithe and land-tax. Two thirds on mortgage. The Furniture may be taken at a valuation.

A Plot of about 50 acres, planted with fine Evergreens, Fruit, and other trees, would be Sold separately; also a Plot of 25 acres. Apply to

W. TARRY, Bailiff, "Golden Farmer," Bagshot, Surrey.

Victoria Estate, Kansas, U.S.—To Farmers and OTHERS.

FINE STOCK FARMS of 640 Acres and upwards, to be SOLD, Freehold, from 12s. to 50s. per acre. Grass in its natural condition unsurpassed for feeding Sheep and Cattle. For PAMPHLET containing full particulars respecting this Property, apply to

ROBERT W. EDIS, Esq., F.S.A., 14, Fitzroy Square, London, W., Architect to the Estate.

Surrey (Folio 2041).

Half a mile from a first-class Railway Station connected with the Trunk lines, from whence goods may be transmitted to all parts of the Kingdom without change of truck; one hour from London.

AN ESTABLISHED NURSERY, occupying a highly important position, is for DISPOSAL; the Nursery Stock is magnificent. The Proprietor is desirous of leisure, and would take in a PARTNER or PARTNERS, or DISPOSE of the WHOLE. To men of capital wishing to embark into a good sound business, in one of the healthiest counties in England, or to energetic men conversant with the outdoor business, this would be well worthy of their notice. Arrangements to meet most circumstances could be made, as a moderate sum in cash would be accepted down, with good security, and a large part of premium could be allowed to remain at interest. Unexceptional references will be required.

Full particulars may be obtained of PROTHEROE AND MORRIS, Auctioneers and Estate Agents, 98, Gracechurch Street, E.C., and Leytonstone, E.

THE LINDLEY CLUB (late the Horticultural Club).—The attendance of all interested in Horticultural pursuits is requested at an AGGREGATE MEETING of HORTICULTURISTS, convened by the above Club, to be held at the Charing Cross Hotel, Strand, W.C., on WEDNESDAY, June 16, at 4 o'Clock in the afternoon, to consider the present position and prospects of the Royal Horticultural Society. The Chair will be taken by A. F. Godson, Esq., M.A.

The Club will dine at 6.30 P.M., and any friends desirous of dining are requested to communicate their wish to the undersigned.

RICHARD DEAN, Secretary.

Ealing, London, W.—June 2.

Last Day for Entries, Thursday next, June 17.

THE MIDLAND COUNTIES GRAND HORTICULTURAL EXHIBITION, Lower Grounds, Aston Park, Birmingham, JULY 1, 2, 3, and 5, for the benefit of the Building Fund of the Midland Institute.

Schedules may be had from H. G. QUILTER, Lower Grounds, Aston Park, Birmingham.

THE LEE and BLACKHEATH HORTICULTURAL SOCIETY will hold its ANNUAL EXHIBITION, in the Grounds of John Penn, Esq., The Cedars, Lee, on JUNE 17 and 18. Special Prizes, open to all England:—8 Cut Roses, distinct, £3, £2, £1; 8 Stove or Greenhouse Plants, in flower, £4, £2 10s., £1 10s. Schedules and forms of entry may be had on application to

5, Boones Road, Lee, Kent. Mr. C. HELMER, Sec.

ALEXANDRA PALACE.—The GREAT ROSE SHOW will take place on THURSDAY and FRIDAY, June 24 and 25. Last day of Entry, Thursday, June 17.

NOTE.—Rule No. 7 of Schedule will be altered, making the time for Specimens to be ready 10 o'Clock instead of 9 o'Clock.

SCHEDULES of PRIZES, &c., may be had on application to A. MCKENZIE, Alexandra Palace, Muswell Hill, N.

WEST of ENGLAND ROSE SHOW, Shire Hall, Hereford, TUESDAY, June 29.

Entries to this Exhibition (the most varied and highest Prize List in the Kingdom), close on FRIDAY, June 25.

Rev. C. H. BULMER, Hon. Sec.

Credenhill Rectory, Hereford.

WISBECH "ALL ENGLAND PRIZE" ROSE SHOW and HORTICULTURAL EXHIBITION will be held on WEDNESDAY, June 30, in the Grounds of Colville House, Wisbech. No Entrance Fees to Exhibitors. SCHEDULES of PRIZES and all particulars may be had on application to CHARLES PARKER, Hon. Sec.

SHOW of HORTICULTURAL BUILDINGS, GARDEN FURNITURE, IMPLEMENTS, APPLIANCES, &c., at the MIDLAND COUNTIES GRAND HORTICULTURAL EXHIBITION, to be held at the Lower Grounds, Birmingham, JULY 1, 2, 3, and 5. Intending Exhibitors should apply at once for a Schedule of Prizes, &c., to

Mr. H. G. QUILTER, Lower Grounds, Aston Park, Birmingham.

GRANTHAM and SOUTH LINCOLNSHIRE HORTICULTURAL SOCIETY.

President—The Right Hon. Earl BROWNLOW, Lord-Lieutenant of the County.

The next Exhibition will be at GRANTHAM, JULY 6 and 7, and not 7 and 8, as previously advertised.

Forms of Entry and Schedules of Prizes (£220—2 Silver Cups) are now ready, and may be had of Mr. LYNE, Bookseller, Grantham.

Persons intending to compete at NOTTINGHAM on JULY 8, &c., will be able to exhibit at Grantham, which is within one hour's ride of Nottingham; and every facility will be given for leaving Grantham on the evening of the 7th, the station being only 200 yards from the show ground. Conveyances for the Plants, &c., provided free.

RICHMOND HORTICULTURAL SOCIETY.—President, H.S.H. the DUKE OF TECK, G.C.B. Under the Royal and Distinguished Patronage of H.R.H. the Duchess of Cambridge, H.R.H. the Princess Mary Duchess of Teck, H.R.H. the Duc d'Aumale, &c.

THE FIRST ANNUAL EXHIBITION of PLANTS, FLOWERS, FRUIT, and VEGETABLES, will be held on THURSDAY, July 8, in the Old Deer Park, Richmond, Surrey. Two Military Bands will attend. A Subscription of £1 1s. entitles to Four Admission Tickets. Tickets and Schedules may be had of

ALBERT CHANCELLOR, Hon. Sec.

Richmond, Surrey.

NOTTINGHAM and MIDLAND COUNTIES GRAND ROSE SHOW and HORTICULTURAL EXHIBITION (open to all England) will be held at the ARBORETUM, NOTTINGHAM, on THURSDAY, FRIDAY, and SATURDAY, July 8, 9, and 10. The Mayor of Nottingham President; the Town Clerk Honorary Secretary. Prize List amounting to £750. Prizes for Roses upwards of £240. Space will be allotted for the exhibition of Horticultural Implements and Garden Furniture. Certificates of Merit awarded. Schedules are now ready, and may, with particulars, be obtained on application to

ALFRED KIRK, Municipal Offices, Nottingham.

DURHAM COUNTY AGRICULTURAL SOCIETY, and CITY DOG and POULTRY SHOW.—The THIRTY-SECOND ANNUAL SHOW will be held on FRIDAY, July 23, at Durham, when upwards of £570 in Money Prizes and Silver Cups will be awarded to Exhibitors. Prize Lists and Forms of Entry may be had on application to

Durham. THOMAS WETHERELL, Sec.

SHROPSHIRE HORTICULTURAL EXHIBITION.—A Grand Horticultural Exhibition will be held in the magnificent Quarry Grounds, adjoining the town of Shrewsbury, on the same days as the Agricultural Society's Meeting, viz., JULY 29 and 30 NEXT. Prizes to the amount of about TWO HUNDRED POUNDS will be given. Prize Lists may be had on application to

H. W. ADNITT } Hon.
Shrewsbury, June 9. WALTER W. NAUNTON } Secs.

The Autumn Show of 1875.

THE STAMFORD HORTICULTURAL SOCIETY'S GREAT SHOW of PLANTS, FLOWERS, FRUITS and VEGETABLES, will be held on SEPTEMBER 15 and 16 NEXT, in Burghley Park, in connection with the Northamptonshire Agricultural Society's Exhibition. £300 in Prizes, 12 Silver Cups, £20, £5, £5, and £5 First Prizes for Stove and Greenhouse Plants and Ferns; £10 and £5 First Prizes for Desserts of Fruit; £10, £5, and £2 First Prizes for Collections of Potatos, and 300 other Prizes in proportion, including £100 for Cut Flowers. No entry fees. Schedules may be had on application to

HENRY JOHNSON, } Hon. Secs.
Stamford. THOS. LAXTON,

GREAT HORTICULTURAL SHOW in Burghley Park, Stamford, SEPTEMBER 15 and 16.

ADVERTISEMENTS for insertion in the Schedule must reach the Secretaries not later than TUESDAY next, June 15.

HENRY JOHNSON, } Hon. Secs.
Stamford. THOMAS LAXTON,

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION, for the relief of decayed Farmers, their Widows and Orphans.

Patron—HER MAJESTY THE QUEEN.
President—HIS GRACE THE DUKE OF RICHMOND.

Allowances to Pensioners.

Married	.. ..	£40 per annum.
Male ..	.. ..	£26 ,,
Widow and unmarried Orphan Daughters		£20 ,,

Every information to be had of the Secretary, by whom Subscriptions and Donations will be thankfully received.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.—The ANNUAL GENERAL MEETING will be held at Willis's Rooms, St. James's, on WEDNESDAY, June 16, at 11 o'Clock precisely, and the ELECTION of PENSIONERS will take place on the same day, at half-past 11 o'Clock.

All Subscriptions shall be deemed payable on January 1 in each year; and no Contributor shall vote in respect of an Annual Subscription while the same is in arrear.

Offices of the Institution—
26 Charles Street, St. James's, London, S.W.

Strong Verbenas.—Special Offer.

WILLIAM BADMAN offers the following VERBENAS, strong plants, from single pots:—
PURPLE KING.
CRIMSON KING, best scarlet.
LE GRAND BOULE DE NEIGE, finest white.
GRANT DES BATAILLES, crimson.
LADY COWLEY, rose, fine bedder.

All healthy good stuff, 1s. 6d. per dozen, 10s. per 100, 80s. per 1000, package included. Terms cash.

Cemetery Nursery, Gravesend.

NEW and CHOICE FLOWER SEEDS.

AURICULA, PANSY and POLYANTHUS, saved from a prize collection, 1s. per packet.

CALCEOLARIA, saved from 120 beautiful varieties, 1s. and 2s. 6d. per packet.

CINERARIA and PRIMULA SINENSIS, including fern-leaf varieties, 1s. and 2s. 6d. per packet.

None of the above can be surpassed.

JOHN SCOTT, The Seed Stores, Yeovil.

E. G. HENDERSON and SON will place in commerce, for the first time, the following NEW PLANTS, full descriptions and prices of which are given in their NEW PLANT CATALOGUE, a copy of which will be immediately forwarded on application:—

Amaryllis Hendersoni* (†)	Convolvulus mauritanicus atrocœruleus
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Asplenium nobile	Epigynium acuminatum (†)
Armeria cephalotes alba	Hæmanthus Rooperi* (†)
Ageratum cordifolium	Ixora Fraserii (†)
Begonia Orange Boven	Nerine rosea
,, Dr. Dollinger	Plumeria bicolor
,, White Queen	Sonerila Hendersoni* (†)
Blandfordia flammea elegans*	,, ,, argentea (†)
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,, multiflora	Yucca stricta, &c.; with other
Cantua corymbiflora	New and Florist Flowers.
Cyclamen Peakeanum (†)	

Large Coloured Illustrations of the kinds marked * will be forwarded for twelve stamps each.

Those marked (†) have been awarded First-class Certificates.

E. G. HENDERSON AND SON'S SEED CATALOGUE for 1875, containing over 200 Illustrations of Flowers, will be posted, free, on application, and from which the following can be supplied, of first-class quality:—

CALCEOLARIA, in mixed colours, 1s., 2s. 6d., and 5s. per pkt.
CINERARIA, 1s., 2s. 6d., and 5s. per packet.
PRIMULA SINENSIS, fine strain, 2s. 6d. and 5s.
,, ,, RUBRA FLORE-PLENA, 2s. 6d. and 5s.
,, ,, ALBA FLORE-PLENA, 2s. 6d. and 5s.
AURICULA, 1s. and 2s. 6d. CARNATION, 2s. 6d. and 5s.
CYCLAMEN PERSICUM, 1s. and 2s. 6d.
HOLLYHOCK, 1s. and 2s. 6d. PINKS, 1s. and 2s. 6d.
MIMULUS, 1s. PANSIES, 6d. and 1s. 6d.
PETUNIAS, 6d. and 1s. VERBENA, 1s. and 2s. 6d.
SWEET WILLIAM, Perfection, 1s.
,, from named flowers, 1s. and 2s. 6d.

The Wellington Nursery, St. John's Wood, London, N.W.

Imported Cycas revoluta.

SANDER AND CO. offer a fine importation, in perfect condition, of the above, at the following very ow prices :—

	Each.		Each.
About 2½ feet high,	£6 0 0	About 12 inches high,	£1 5 0
,, 2 ,,	3 10 0	,, 9 ,,	0 15 0
,, 1½ ,,	2 10 0	,, 6 ,,	0 6 0
,, 15 inches high	1 10 0	,, 4 ,,	0 4 0

All orders must be accompanied by cash, as we sell them on and for account of a Collector.

SANDER AND CO., Seed Growers, St. Albans.

NEW CLEMATIS, now being sent out by JOHN STANDISH AND CO.—

ASCOTIENSIS.—The flowers are considerably larger than Jackmanni, and are well shaped, containing six petals each; colour, a fine azure-blue; it throws a profusion of flowers the whole summer long, and is of a very vigorous habit. 10s. 6d. each.

MRS. QUILTER.—A magnificent white flower, containing eight petals; it is the largest, smoothest, and purest of all the whites, and a very free bloomer, with strong habit. 10s. 6d. each.

The above are decided acquisitions, and should be in every collection. Orders are now being booked for them.

Royal Nurseries, Ascot, Berks.

Tree Ferns.

THE NEW PLANT and BULB COMPANY having received large importations, Tree Ferns need no longer be considered a luxury. They can be had in all sizes and in a fine growing condition, from 10s. 6d. each. Detailed Lists of sizes and Prices, just published, free on application.

FILMY FERNS, LOMARIAS, POLYSTICHUMS, and other FERNS from New Zealand, all suitable for a Cool Fernery, for planting out, or pot culture, shortly to give effect, at the prices of ordinary pot plants.

ORCHIDS are being constantly received in splendid condition in fine pieces. We respectfully invite Cultivators of these to send their Names and Addresses, that particulars of consignments, as to condition and quality, may be forwarded from time to time, as all are sold at a moderate profit. For present consignments, see Lists, free on application.

AMARYLLIS.—Hundreds of these now throwing up fine flower-spikes.

CYPRIPEDIUM JAPONICUM.—See Catalogue.

FREESIA LEICHTLINIANA.—For particulars of this grand bulbous plant, see *Gardeners' Chronicle*, May 7, 1875.

LILIES and other BULBOUS PLANTS.—An unrivalled collection. Lion Walk, Colchester.

To Planters and the Trade.

MESSRS. MASTERS AND KINMONT beg to call the attention of Planters and the Trade to their stock of the following trees, which can be furnished at low prices :—

LIMES, 7 to 9 feet, clean grown.
THORNS, of sorts, Standard and Pyramid, including Paul's new Double Scarlet.
ASH, Weeping, 6 to 10 feet stems, good heads.
WILLOWS, Weeping, American, Babylonian, and Kilmarnock.
ELMS, of sorts, grafted, 5 to 7 feet, including Huntingdon, fastigiated, and cork-barked.
BIRCH, 8 to 10 feet.
PHILADELPHUS, of sorts.
VIBURNUM, of sorts.
LILAC, of sorts.
OAK, Scarlet, 6 to 8 feet.
YUCCA RECURVA, very fine.
ROSES, Standard and Half-Standard.
,, Dwarf, on Manetti.
CURRANTS, Black.
GOOSEBERRIES, of sorts.
ABIES CANADENSIS, 3 to 5 feet.
AUCUBA JAPONICA, 1 to 2 feet.
CUPRESSUS SEMPERVIRENS, 2½ to 4 feet.
Exotic and Vauxhall Nurseries, Canterbury.

RODGER, McCLELLAND AND CO. have to offer, in good plants, as follows :—

ARALIA SIEBOLDII, 1½ to 2 feet, 18s. to 24s. per dozen.
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DASYLIRION LONGIFOLIUM, 3s. 6d., 5s., and 7s. 6d. each.
MIMULUS, extra fine varieties, 2s. 6d. and 3s. 6d. per dozen.
MUHLENBECKIA COMPLEXA, the most elegant evergreen hardy climbing plant in cultivation. Slender shoots and small foliage, giving the plant the appearance of a Maidenhair Fern: 12s. to 18s. per dozen.
SEMPERVIVUM ARBOREUM RUBRUM, 1½ to 2 feet, 12s. to 24s. per dozen.
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ALOYSIA CITRIODORA, 25s. and 40s. per 100.
64, Hill Street, Newry.

VARIEGATED DOUBLE GERANIUM,

MRS. CARR.

A remarkably distinct variety, with large trusses of double pink flowers (similar and equal to Marie Lemoine). Foliage broadly margined with white; very free grower, and, as described in *Garden Oracle* for 1874, "Unquestionably the most decided novelty of the season." First-class Certificate Royal Horticultural Society.

Price 21s. each.

Post Office Orders from unknown correspondents.

FELTON & SONS,
ROYAL EXOTIC NURSERY, HARBORNE ROAD, BIRMINGHAM.

Bedding Roses.

CRANSTON'S CRIMSON BEDDER: strong plants, in 5-inch pots, 30s. per dozen.

TEA-SCENTED, CHINA, NOISETTE, and HYBRID-PERPETUAL ROSES, in 4 and 5-inch pots, 9s. to 15s. per dozen.

Now is the best time for bedding-out the Tea-scented and China Roses, and Hybrid Perpetuals, on their own roots.

Address, CRANSTON AND MAYOS, King's Acre Nurseries, Hereford.

COCOA-NUT FIBRE REFUSE—nutritious for beds; as supplied by H. WRIGHT to Herr Schmidt, Erfurt, Prussia, appointed Florist to His Imperial Majesty the Emperor of Prussia, and to 1200 Nurserymen and Gardeners. Delivered free within 8 miles or on to any rail. Twenty bushels, 6s. 8d.; 50 bushels, 12s. 6d.; 330 bushels, 45s.

H. WRIGHT, Steam Fibre Works, Heneage Street, Brick Lane, London, E.

SUPERIOR TURF and MOULD for SALE, cheap.—Large or small quantities. Two miles from Marble Arch.—Apply by letter,

T. PEIRCE, 386, Cochrane Street, St. John's Wood, N.W.

COCOA-NUT FIBRE REFUSE (newly made), 3d. per bushel, 20s. per 100 bushels, 45s. per 300 bushels. Larger quantities contracted for.

J. STEVENS, Fibre Works, High Street, Battersea, S.E.

Fibrous Peat for Orchids, &c.

BROWN FIBROUS PEAT, best quality for Orchids, Stove Plants, &c.

BLACK FIBROUS PEAT, for Rhododendrons, Azaleas, Heaths, New Holland Plants.

BROWN and BLACK PEAT, for general purposes.

Delivered on rail at Blackwater (South-Eastern Railway), or Farnborough (South-Western Railway), by the truck load. Sample sacks, 5s. 6d. each.

WALKER AND CO., Farnborough Station, Hants.

Carter's

THE FINEST COLEUS EVER INTRODUCED.

NEW COLEUS;
"DUCHESS OF EDINBURGH."

AWARDED FIRST-CLASS CERTIFICATES:—

Royal Horticultural Society, June 17, 1874; Royal Botanic Society, June 20, 1874.

The foliage of this distinct and beautiful variety has margins of purple and creamy yellow, with a centre of bright crimson-magenta, forming a superb contrast to the green-leaved section of Coleus, by reason of its dazzling brilliancy of colour.

Professor THUBER, in the *American Agriculturist*, says:—"It is the most beautiful foliage plant that has ever been exhibited."

Price 3s. 6d. each. Extra Strong Plants 5s. each. Post Free 6d extra.

See Illustration in "Gardeners' Chronicle," May 22, and also Carter's Illustrated Plant Catalogue with beautifully coloured Engraving of above. Price 6d., Post Free, Gratis to Customers.

CARTERS (The Queen's Seedsmen), 237 and 238, HIGH HOLBORN, LONDON, W.C.

NEW ZEALAND TREE AND OTHER FERNS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, June 16, a fine Importation of the above, all of which are in a fine healthy growing condition.

On view the morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

NEW ONCIDIUMS.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, June 21, at half-past 12 o'Clock precisely, an Importation, from the United States of Colombia, of many rare and choice species, including a few plants of an exceedingly beautiful new ONCIDIUM, O. CARDERI, just described by Professor Reichenbach, and now sent to this country for the first time; also a quantity of plants of the new ONCIDIUM ROSTRANS, just described, and now introduced for the first time; the new golden ODONTOGLOSSUM, O. SPATHACEUM, which magnificent species produces on a single stem upwards of a hundred of its golden-yellow, richly-spotted flowers; ODONTOGLOSSUM NÆVIUM, a large quantity of ODONTOGLOSSUM LUTEO-PURPUREUM, ODONTOGLOSSUM CRISPUM, ONCIDIUM NUBIGENUM, a few plants of the handsome ODONTOGLOSSUM RAMOSISSIMUM, described by Professor Reichenbach at p. 396 of the *Gardeners' Chronicle*, March 27, 1875; ONCIDIUM ANNULARE, new, and offered for the first time; and various other choice sorts.

On view the morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

HIGHLY IMPORTANT SALE OF ORCHIDS,

COLLECTED by M. ROEZL in MEXICO.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, June 16, at half-past 12 o'Clock precisely, a Consignment of 6000 ORCHIDS, collected by M. Roezl in Mexico, nearly all adapted for Growing in cool houses, and including the beautiful LÆLIA MAJALIS, ONCIDIUM TIGRINUM, ODONTOGLOSSUM ROSSII MAJUS, ODONTOGLOSSUM CITROSMUM ROSEUM, ONCIDIUM BARKERI, LÆLIA AUTUMNALIS, ODONTOGLOSSUM INSLEAYI LEOPARDINUM, many of the sorts in large masses, and all in very excellent condition; also 1000 ODONTOGLOSSUMS from New Granada, a Consignment of TREE FERNS, and an Importation of ORCHIDS from Brazil.

On view the morning of Sale, and Catalogues had.

AUCTION ROOMS AND OFFICES, 38, KING STREET, COVENT GARDEN, LONDON, W.C.

CHATSWORTH,

THE SEAT OF THE DUKE OF DEVONSHIRE, K.G.

THE "GARDENERS' CHRONICLE" *for* June 26 *will contain a Special Supplement, uniform with those already published of* Hatfield *and* Windsor, *and consisting of Eight Pages of Original Illustrations and Letterpress description.*

Price Fivepence; Post Free, Fivepence-halfpenny.

ADVERTISERS DESIROUS OF HAVING EXTRA SPACE IN THIS NUMBER are particularly requested to communicate at once with the Publisher.

PUBLISHED BY W. RICHARDS, 41, WELLINGTON STREET, STRAND, W.C.

SATURDAY, JUNE 12, 1875.

PLANT LIFE.

MR. W. S. CLARK, President of the State Agricultural College, Amherst, Massachusetts, has published a paper, which he presented to the Massachusetts Board of Agriculture, containing a record of observations on the phenomena of plant life. About twelve months ago we noticed the same author's lecture on the circulation of the sap in plants. The interest awakened by his observations concerning this phenomenon, he informs us, rendered it impossible to refrain from further investigations, which he has carried through in conjunction with some of the officers and students of his College. The phenomena submitted to observation were:—The structure, composition, and arrangement of the winter buds of hardy trees and shrubs; the percentage of water to be found in the branches and roots of trees during their annual period of rest, as well as when in active growth; the causes of the flow of sap from wounds in trees when denuded of their foliage, as well as the flow from the stumps of woody and herbaceous plants when cut near the ground in summer; the structure and functions of the bark of exogenous trees, with special reference to the circulation of the sap, the formation of the wood, and the effects of girdling; and the measurement of the expansive force of growing vegetable tissue.

So wide a field of research yielded, as might be expected, some very interesting results, but the means employed to register the different forces may possibly, we are inclined to think, have led to error. True, we know very little respecting the phenomena of plant life, but we hope the time is approaching when some attention will be given in this country to this branch of inquiry. We would commend this to the consideration of Messrs. Lawes and Gilbert, who have effected so much in experimental scientific agriculture, and who possess great facilities for carrying out such work with the necessary exactitude. Some of the costly experiments conducted at Rothamsted may be said to have reached a stage of refinement of ascertained facts, and might well be discontinued in favour of new ones in other directions.

We will briefly summarise Mr. Clark's somewhat lengthy but very interesting paper. Our remark respecting the possibility of inaccuracy in the results will be understood literally, not as any reflection on the capacity of the observer or his conscientiousness in the search for truth. On this point the writer himself enlarges, and adds, in reference to biological research, "when we consider that, to observe the transit of Venus, expeditions have been sent to different parts of the earth, at a cost of more than a million dollars, we may, at least, hope that scientific observations upon things nearer home, and having more to do with every-day life, will soon be appreciated and suffered." An experiment to ascertain the expansive force of growing vegetable tissue furnished results that appear almost incredible. A fruit of the large Pumpkin—Cucurbita maxima—was chosen for this purpose. The plant bearing it grew in a large bed in a propagating-house, the bed being built above, and free from the floor. Without going further into particulars, we may say that all the details appear to have been conducted with great care. In order, however, that the reader may understand the experiment, it seems necessary to explain the way in which Mr. Clark proceeded to determine the lifting or expansive power of the growing Gourd. The female flower which bore the Gourd was artificially impregnated on August 1, and on the 17th of the same month the fruit measured 27 inches in circumference. We will here employ Mr. Clark's own words:—

"Though the rind of the young fruit was very soft, it was now determined to confine it in such a way as to test its expansive power. In doing this great care was taken to preserve the health and soundness of every part of the Squash (Pumpkin), and to expose at least one-half of its surface to the air and the light. The apparatus for testing its growing force consisted of a frame, or bed, of 7-inch boards, 1 foot long. These were arranged in a radiat manner, like the spokes of the lower half of a wheel, their inner edges being turned towards the central axis. These pieces were held firmly in place by two end boards, 12 inches square, to the lower half of which they were secured by nails and iron rods. A hemi-ellipsoidal cavity, about 5 inches deep in the centre, and 8 inches long, was cut from the inner edges of the seven boards, and in this the Squash was carefully deposited, the stem and vine being carefully protected by blocks of wood from injury by compression. Over the Squash was placed a semi-cylindrical harness, or basket of strap-iron, firmly rivetted together. The meshes between the bands, which crossed each other at right angles, were about 1½ inch square. The harness was 12 inches long, and the same in width, so that when placed over the Squash it just filled the space between the end boards. Upon the top of the harness, and parallel with the axis of the cylinder and the Squash, was fastened a bar of iron with a knife-edge to serve as the fulcrum of a lever to support the weight by which the expansive force was to be measured."

The fulcrum and the lever both had to be replaced by stronger ones several times, as the weights were increased. The weight lifted by the Gourd in the course of its development increased from day to day until the experiment came to an end on October 31, through the breaking down of the apparatus. On August 21 it lifted 60 lb.; 25th, 225; 31st, 500; September 11, 1100; 15th, 1400; 30th, 2015; October 12th, 2500; 18th, 3120; 24th, 4120; and 31st, 5000 lb. The last weight, although borne for ten days, was never clearly lifted, in consequence of the bending and final breaking of the harness. The growing Pumpkin adapted itself to whatever space it could find, filling up the meshes of the harness; nor did it ever crack, except in the epidermis. The lifting power was observed to be greatest after midnight, when the growth of the vine and the exhalation from the foliage were least. The weight of the fruit was 47¾ lb., and when opened, the rind was found to be about 3 inches thick, and unusually hard and compact. The internal cavity corresponded in general form to the exterior, but was very small, and nearly filled with fibrous tissue, and plump and apparently perfect seeds in about the usual number. The plant having been grown in a separate raised bed, an examination of its root development was practicable. Accordingly, the soil was thoroughly saturated with water, and a few days afterwards some holes bored in the bottom of the bed, and the soil washed away from the roots. These were spread out on the floor of a room, and carefully measured, and it was estimated that their total length exceeded 15 miles, the greater portion of which was produced at the rate of 1000 feet or more per day.

A second plant of Curcubita maxima was used for the purpose of measuring the pressure exerted by the rising sap of a herbaceous plant. When it was about two months old, and had a length of 12 feet, it was cut off nearly close to the ground, and a mercurial guage fixed to the root part left in the ground. The maximum force with which the root of this plant exuded the water absorbed by it was equal to a column of water 48.50 feet in height. Guages were also attached to the stumps of large plants of Indian Corn, Tobacco, and the Dahlia, with results similar to those recorded by Hofmeister and others.

From observations on trees growing on and between rocks, Mr. Clark thinks there is no doubt that trees are actually lifted in such cases by about half the thickness of their horizontal

roots, and he describes and figures instances, as also of trees whose roots have lifted large slabs of rock in the course of their growth. Mr. Clark ridicules Dr. Pettigrew's hypothesis of the flow of the sap, and hopes that he himself is adding some new facts to the general stock of knowledge, "though painfully conscious of the need of much more investigation before a complete and correct theory of the circulation of the sap can be stated." He still adheres to his former assertion, that too much has been claimed for osmosis. On this point he says :—

"One of the most surprising facts to be noticed in examining the wood of any tree with well-developed foliage, is the entire absence of free or fluid water. A freshly-cut surface of the sap-wood is not even moist to the touch ; and if a tube be inserted in the trunk of such a tree it will frequently absorb water with great avidity. On June 6 last, a half-inch tube, 6 feet in length, was attached to a stop-cock inserted into the trunk of an Elm and filled with water. The absorption was so rapid that the fluid disappeared in thirty minutes, and this was repeated several times the same day. . . . . Now, the absorption was not osmotic, since the rapidity of it was too great, and there was no outward flow, but apparently the result of imbibition, or the affinity of the cellulose of the woody fibre for water. Is not this, then, the proper name for the force which carries up the crude sap?"

The writer enlarges upon this, basing his argument mainly upon the power exercised by the cellulose. An experiment was made to determine how small a proportion of the sap-wood could conduct the necessary supply of sap to the foliage of a growing tree, and also whether the bark alone could furnish the requisite water to prevent the leaves from withering. A stem of Hibiscus splendens, about 4 inches in girth, was selected for the purpose, and the whole of the bark, an inch in length, and all the wood, excepting a small piece of the outside layer of sap-wood, which was 1 inch long and seven-sixteenths of an inch in circumference, were removed. The result was that the plant remained perfectly fresh and green for ten days, when the specimen was cut for the museum. Another stem of the same plant was operated upon to test the ability of the bark to furnish the water supply, but the leaves drooped in an hour, and never recovered. This leads to the remark, "If osmosis were the cause of the ascent of the sap it would seem that the abundant parenchyma of the bark, intimately united as it is with the wood of the medullary rays, must freely transmit the amount required in this case."

Of a counter-movement of the elaborated sap in the bark, as generally understood, the writer gives abundant proof in his observations on girdling or ringing, &c., if perfectly performed. An excellent demonstration of the transverse diffusion of the sap was obtained in some experiments performed to observe the result of protecting girdled places on trees from the effects of exposure. Healthy young trees, or large branches of Elm, Chestnut, Apple, Grape, and White Pine were drawn through glass tubes, 2 inches in diameter and 2 feet long, upon either end of which were fastened short pieces of rubber hose.

"These tubes were placed over girdled spots, from which the bark was removed on the 30th of the previous May, and the rubber securely fastened with iron wire to the tree. From all of these specimens a considerable quantity of sap escaped, apparently in the form of vapour, and was collected in the tubes. There was no layer of wood formed, but the foliage of all except the Pine was killed before autumn, apparently by the fermentation of the sap and its re-absorption into the wood."

An experiment to ascertain whether the annual layer of wood upon trees is developed from the outside of the old wood or from the inside of the bark satisfactorily demonstrated that it proceeds from the latter. Mr. Clark's investigations into the consequences of ringing Apple trees, &c., lead him to the conclusion that this treatment cannot be recommended (though it frequently has the effect of inducing fruitfulness), for if effectually performed the death of the tree is almost certain.

We have only space left to mention some experiments on the bleeding of various trees. Contrary to popular opinion, the Grape Vine bleeds far less than many other trees. A large number of experiments were devised and carried out with a great amount of labour and no little expense. The collection and weighing of the sap flowing from the trees from November until the following May, formed no small portion of it. The results showed that the Paper Birch gave the most copious flow, amounting (from a tree 75 feet high) in less than two months to 1486 lb. of sap ; and in one day it reached 63 lb. Carpinus americanus bled only 6 lb. from April 9 to May 22. A Sugar Maple furnished 566 lb. from December 16, 1873, to April 30, 1874; and another, from April 1 to May 1, 55 lb. ; Acer pennsylvanicum, from March 23 to May 4, 15 lb. Full tables of the progress and results of the different experiments, as well as illustrations, are appended ; also the names and parts taken by the different officers and students who assisted. Analyses of the sap collected from different trees, percentage of water in the wood and bark of the branches and roots of trees at different seasons of the year, and meteorological tables, render this set of observations exceedingly valuable. Doubtless the discoveries made by Mr. Clark and his coadjutors will induce them to continue and extend their observations on the phenomena of plant life.

New Garden Plants.

ONCIDIUM CARDERI, *n. sp.**

Among all the group of the Cyrtochila "labello elongato sepalis exappendiculatis," twelve species, including the old Humboldtian, undulatum, and eleven of my species, there is no one with such a pandurate lip as this. It appears to grow just like O. zebrinum, as I judge from a sketch prepared by the collector. The flowers stand in "a most profuse" panicle. They are equal to those of O. superbiens—"light coffee colour, the petals half white ; the superior part of the lip yellow, the anterior beautifully pink." Those indications are given on the discoverer's authority. I feel certain doubts as to the brown of "coffee" colour, since it is very doubtful whether the allusion goes towards the roasted beans, or towards that dreadful beverage of chicory and a few coffee beans that is so much drunk and liked (!) in England, where the trade brings immense cargos of the noblest coffee. At all events, we must acknowledge some brown colour, as is the case in all the allied species. The half white petals afford a quite novel ornament, and make one think of a Vanda. The discovery is due to Mr. Carder, a rising star in the firmament of collectors, to whom the species is dedicated. May Mr. Carder be very lucky, find many good things, and dry many specimens. I have to thank Mr. Bull for the materials—an inflorescence and a sketch. *H. G. Rchb. f.*

ONCIDIUM ROSTRANS, *n. sp.*†

This is an interesting plant. It belongs to that assemblage of "Macropetala pentapetala," whose Lindleyan type is the old O. pyramidale. All the other species are my children—chrysopyramis, ochthodes, elephantotis, alcicorne. Here is the sixth member of the company. They all have the column very gracefully bent, with most peculiar wings and an immense long beak to the rostellum. The numerous flowers stand in dense clusters, and make a rather gay appearance. The bulbs look quite peculiar, pear-shaped, with a gray hue. It was discovered by Mr. Carder, and I have obtained it from Mr. Bull. *H. G. Rchb. f.*

SCILLA (LEDEBOURIA) MACOWANI, *Baker, n. sp.*‡

Sent by Mr. MacOwan from Somerset East in South Africa in 1873, to the living collection at Kew, where it flowered May, 1875. Not a striking species. Horticulturally it is like a reduced inferior edition of Scilla Cooperi, Hook. fil. (*Bot. Mag.*, tab. 5580), and the flowers are greenish instead of bright purple, so that it is what the gardening dictionaries would call "only of botanical interest."

Bulb ovoid, an inch thick, clothed with brown membranous tunics. Leaves 3—4, cotemporary with the flowers, suberect, linear, green, fleshy, bluntish, 3—4 inches long, 3—4 lines broad, deeply channelled down the face, very convex on the back, much mottled with purple on the back in the lower third or half. Scape 4 inches long, slender, terete, mottled with purple. Raceme dense, conic, containing 20—30 flowers, ¾ inch broad, above an inch long when expanded. Lower pedicels spreading, brilliant mauve-red, ¼ inch long. Bracts deltoid, very minute. Perianth campanulate, 2 lines deep, greenish both inside and out ; the ligulate blunt divisions falcate when expanded from below the middle. Stamens scarcely shorter than the perianth, bright mauve-red except at the very base. Anthers oblong, milk-white, with a slight purple tinge. Ovary round, green, deeply 6-angled ; style under a line long, bright mauve-purple. *J. G. B.*

ODONTOGLOSSUM VEXILLARIUM, *Rchb. f.*

I have just received a wonderfully developed raceme of seven very grand lilac flowers. The lateral keels of the base of the lip are toothed as in so many Odontoglossums. The dark streaks are a very peculiar decoration. The inflorescence comes from J. Brunton, Esq., The Ferns, Beckenham, whose intelligent and able gardener, Mr. Henley, understood so well how to manage the plant that it produced from one growth three such grand inflorescences, one with eight, one with seven, the last with five flowers. Another plant has a single shoot with four racemes, each with six blooms. This grand plant is, we see it now, wonderfully free in its habit. Mr. Rucker, the Nestor of Orchid growers, is repaid for his indefatigable zeal by a plant of O. vexillarium with seven spikes and thirty-five (!) blooms. These details, and the inflorescence above alluded to, were given me by Mr. Harry Veitch, who may indeed easily be understood to be gratified at seeing the immense success of the lovely plant that appeared on the European scene as an introduction of the Royal Exotic Nursery. And let us not forget, I say it once more, that Mr. Wallis discovered the true locality of the plant when nearly sinking to the grave from having worked so long, so vigorously, and so successfully for his employer. If, indeed, he has just been praised so much and so well by him (see No. 72, p. 630), why should we not praise Mr. Wallis too? *H. G. Rchb. f.*

LARCH DISEASE.

At the meeting of the Scientific Committee of the Royal Horticultural Society on December 2 of last year, Mr. Andrew Murray "exhibited specimens illustrative of the Larch disease in various stages, and made a brief comment on them. He considered it probable that the increased dryness of the climate of Scotland from drainage might account for the prevalence of the disease, which was also beginning to attack the Spruce and the Pinus excelsa."

Mr. Murray's long experience in matters connected with arboriculture entitles his remarks to great respect, but from the examination of the fine series of specimens which he has liberally presented to the pathological collection now being arranged by Mr. Jackson in one of the rooms of No. 2 Museum at Kew, I could not help feeling that the disease of the Larch is rather a local than a constitutional malady ; it seemed to me, without, however, having paid any previous attention to the subject, to be in all probability connected in some way with the ravages of a fungus.

Quite recently in the library of the Linnean Society I came by accident on Professor Willkomm's *Die mikroskopischen Feinde des Waldes.* The second part of this (published in 1867) contains the memoir on "The Bark-canker of the Larch, or Larch Disease," to which I alluded at the last meeting of the Scientific Committee. The admirable figures leave no doubt in my mind that this is the same thing as that which Mr. Murray discussed. The conclusion which Professor Willkomm arrives at with respect to the disease he states in the following words (p. 208) :—"The sickening and death of the Larch is occasioned by the luxuriant development in the bark of the mycelium of Corticium amorphum, which consequently plays the part of a parasitic fungus." I have very little doubt that this is the true state of the case.

The structural details which Professor Willkomm has worked out most carefully show that the so-called Corticium is not, as might be expected, a hymenomycetal fungus, but that its spores are contained in asci. Its history is extremely curious. It was first described by Persoon as a Peziza. It was then transferred to Thelephora by Fries, and when that genus was broken up was placed by him in Corticium, where, in the new edition of his *Hymenomycetum*

* *Oncidium Carderi*, Rchb. f., n. sp. (Cyrtochila labello elongato, exauriculata). "Caulescens ; pseudobulbis oblongo ligulatis compressis ; foliis lineari-lanceolatis acutis" ; panicula amplissima ; sepalis unguiculatis oblongis acutis hinc crenulato undulatis exappendiculatis ; tepalis ab ungue brevissimo oblongis-acutis crenulatis ; labello ligulato pandurato acuto rostro retusiusculo in centro callosum ; callis appositis utrinque ligulatis quaternis ; callo rhombeo utrinque superposita juxta carinulam parvam, carina lineari extrorsa utrinque ; columna curva, apice valde dilatata, tabula infrastigmatica utrinque arguta.

† *Oncidium rostrans*, Rchb.f., n. sp. (Pentapetala macropetala.) Aff. O. pyramidali ; labello pandurato basi latiori ; lobis anticis valde latis ; callis bis terris in basi, mediis elongatis ; columnæ cycnicollis alis linearibus ascendentibus apice bifidis seu quadrifidis.

‡ *Scilla (Ledebouria) Macowani*, Baker, n. sp.—Bulbo ovoideo tunicato ; foliis 3—4 synanthiis erectis carnosis viridibus 3—4 poll. longis profunde canaliculatis dorso prope basin purpureo maculatis ; scapo gracili foliis æquilongo ; racemo denso conico parvo ; pedicellis patulis pulchre rubro-purpureis ; bracteis minutis deltoideis ; perianthio campanulato 2 lin. longo utrinque viridulo ; genitalibus perianthio vix brevioribus.

Epicrisis, recently published, he still retains it with a mark of interrogation. He adds, however :—"Habit exactly that of Corticium, but the structure of the disk is doubtful. De Bary found it to bear asci ; in specimens distributed by Mougeot, and in numerous others from America, asci are present—often, however, they are empty."

I have searched, but in vain, for any observations of De Bary's upon the subject, and am disposed to think that Fries must have had what Willkomm has written in his mind. The present synonymy of the species stands as follows :—

Corticium ? amorphum, Fr., Summ. Veg. 333 ; Hymen. Eur. ed. alt., 648.

Thelephora amorpha, Fr., Elench. 183 ; Berk., Eng. Fl. vi. 167.

Peziza amorpha, Pers., Syn. 657 ; De Cand., Fl. Franc. vi. 23.

A more recent writer—Hartig—is, however, of opinion that Willkomm's fungus is not really Corticium amorphum, but a species of Peziza, not identical as Hoffmann supposed with P. calycina, but hitherto undescribed. He gives it the name of P. Willkommii, n. sp. Willkomm's figures show that the fruit has all the characters of that of Peziza. It consists of small ascigerous disks from ⅛ to ½ inch in diameter; these are developed from the mycelium, which penetrates the bark, and, forcing their way through the outer layers, make their appearance at the surface.

Willkomm points out that the disease principally makes its appearance on plants four or five years old. It destroys or seriously injures the bark and subjacent cambium. This dies or forms unhealthy wood, and although the "ulcer" which is formed may heal over, it frequently goes from bad to worse. A damp situation favours the germination of the spores, which are carried from dying or dead wood in older diseased trees, on which the fruit matures. All this, therefore, ought to be cleared away and destroyed. The Larch especially demands abundance of light and air, and the absence of these when the plants are grown too much crowded together, by weakening their growth, predisposes them for the attacks of the disease.

W. T. Thiselton Dyer.

SENECIO MACROGLOSSUS.*

At one of the recent meetings of the Royal Horticultural Society, Mr. Green, The Botanical Nursery, Holmesdale Road, Reigate, exhibited a small flowering specimen of this very singular plant, from which the accompanying illustration fig. 155, was prepared. The *Botanical Magazine* for February last contains a beautifully coloured plate of it, and we cannot do better than quote the remarks which accompany it, from the pen of Dr. Hooker :—"A remarkably handsome plant, and one fitted for dwelling-room culture, its Ivy-like glossy leaves being evergreen, its large flowers produced in mid-winter, and its habit well adapted for a trelliswork. I have indeed heard of either this or an allied species being cultivated in drawing-rooms abroad, and trained round the walls beneath the ceiling. Like most Cape plants, it wants very careful watering and plenty of fresh air. It is the largest flowered species of the enormous genus to which it belongs, and which contains nearly one thousand species, and the flowers remain for a considerable period in perfection. According to the *Flora Capensis*, S. macroglossus extends from the Keiskamma River (west of Algoa Bay) to Natal, but the only specimen we have that precisely agrees with the cultivated plant was collected by Mr. Sanderson on the Palmiet River, immediately to the east of Table Bay in the western Cape district. The specimen figured (tab. 6149) is from a plant cultivated in the succulent-house at Kew, where it is trained upon one of the rafters, and forms a very ornamental feature, blossoming at Christmas; it was raised from seed sent by Mr. Sanderson in 1868."

Fig. 155.—SENECIO MACROGLOSSUS.

* *Senecio macroglossus.* — Quite glabrous, lucid, shining. Stems slender, twining, climbing trees for many feet, cylindric, terete, red-brown below; branches green. Leaves alternate, petioled, 1½ to 2½ inches in diameter, triangular, acute, or acuminate with acuminate simple lobed or toothed lateral lobes, base deeply cordate with a narrow sinus, dark glossy green above, pale beneath, rather fleshy, nerves palmate as in the Ivy. Penduncles terminal and axillary, 3 to 5 inches long, slender, green, naked, or with a few subulate green bracts. Heads 2½ inches across. Involucre 1 inch long; outer scales or bracteoles spreading and incurved, narrow linear, acuminate, as long as the inner, which are broader, acute, erect, and connivent into a cylinder, tips of all green. Ray flowers eight to twelve, very large; limb 1½ inch long, elliptic, pale yellow, with three minute blunt teeth at the much contracted lip ; disk flowers about forty, small. Pappus of fine soft hairs. Achene slender, terete, striate.

HOLES AND CORNERS.

In what is understood by landscape gardening the artistic administration of a large tract of ground is usually presumed, lawn, woodland, distant prospect, home glades, and so on—all to be blended with the more dressed foreground into various picturesque effects; even where, as in the greater number of cases, these are not at command and the beauties of the garden must be drawn from itself, the same principle still holds good. It is in utilising the capabilities of the place, making the most of each piece of sunlight and shadow, following up the ideas suggested by the various natural growths or groupings, the failures or successes of special spots, that the home picture is usually formed with the most success ; and in the very smallest spot which can be called a garden there is usually, besides the amount of lawn and flower-beds—whatever this may be—a certain amount of what may be called "holes and corners," patches where nothing will (or at least nothing does) grow, non-thriving and truly described "fusty" bushes, tubs or pumps (or whatever may be the centre of the water supplies) with moisture running all about to no purpose save causing a most inconvenient mess, and other miscellaneous "bits," perplexing and annoying in themselves, but which if followed up in their indications might be thoroughly cured, and in some cases turned to very good account.

Bushes are often troublesome, simply from being choked below with the accumulated leaves dropped in the course of years from their own and neighbouring boughs, and the mouldiness from the unstirred mass at times is both unpleasant and unwholesome. In a Lilac (to give a single instance) the bush may be found solidly filled up with the droppings of previous years fully 2 feet above the ground, the mass in different stages of progressive decay ; but near a house other revelations will probably be found.

Where a hiding-hole exists rubbish will go in, and here probably will be a store of all *débris* that no common means will get rid of—broken china and scraps of oilcloth, saucepan lids and old scrubbing brushes, and similar curiosities of the most miscellaneous sort will reward a search, and one turns from the inspection with the reflection, "no wonder the bushes were fusty."

If easily penetrable bushes must exist near the back door, it is well for some member of the family to have an especial eye to their condition, and by removing the rubbish stores, refreshing the surface earth and pruning the boughs as admissible, a fresh growth of leaves and a proper state of soil is insured, which will usually remove the unpleasant state of affairs often noticeable. In many cases, however, some ornamental climber or evergreen shrub, which can be fastened to the house—a Magnolia, for instance—answers every purpose, or some low shrub impenetrable without some degree of pain as well as difficulty, is serviceable, such as the variegated Holly, or the double-flowered Gorse, cheerful and bright with its golden blossoms for a good part of the year.

Another point (which seems especially adapted to get over two horticultural difficulties together) is the bit of ground often left half waste at the edge of country gardens, where land is not of great value. Garden flowers will not prosper on the unmanured soil, wild flowers only exceptionally thrive on the rich artificial soil of the garden, and on a piece of ground of this kind, and beneath the shade of a shrubbery not thick enough to shut out all sunshine, a collection of wild plants of the neighbourhood, both the sun and shade loving sorts, might be made which would soon drive out the unornamental growths too often in possession. The Lily of the Valley, the wild Squill, and the Bluebell all have a good effect in masses under large trees or in a coppice, Bluebells especially, and those who have lately seen them carpeting the ground beneath the trees in some of the localities near London for hundreds of feet together, with their bright blue blossoms, will need no reminding of their beauties. Foxgloves, again, flower well in sunshine or moderate shade, and Chicory, evergreen Alkanet, common Honeysuckle, and the larger Bindweed, the common wild Broom, and countless other plants which only need a glance round the neighbourhood to suggest themselves for selection, would often (with a little care in removal, so as to replace them with unbroken fibres, and their own earth round them) give a constant brightness and cheerfulness to what is apt to look very much the reverse.

A deal of cheerful effect may also be given to bare pieces of earth under the shade of struggling bushes by introducing some white-leaved plant—variegated Periwinkle, for instance, or the white-leaved or varie-

gated Arabis; or, if there is rough unmanageable grass, by placing ribbon grass in front. A surface of black earth, with dingy black stems of Laurels, or similarly straggling growths above, such as it is difficult to avoid in confined spaces near back doors either in town or country gardens, is gloomy and uncomfortable picturesquely considered, but the clean white carpet of constantly changing vegetation at once puts a deal of the objectionable part out of sight, and gives the spot a bright and cared-for appearance.

Another point where two difficulties might often remove each other, is the spot round the garden-pump, tub, or whatever may be the centre from which water is supplied. In large gardens, of course, where space and means are at command, it is presumed such matters are only regulated by the wishes of the proprietor, but the amateur owner of many a small garden might often utilise the slop round the pump basin into something very ornamental.

A dry standing place should first be secured, and then, if it is in the kitchen garden, by simply putting a neat row of bricks or stones to mark the limits, and preparing the soil inside, a small bed well adapted for Watercresses may at once be made. With a little care, all the water running to waste may be sent in one direction, and in the flower garden it may be turned into the spot often wanted for moisture-loving plants which are unattainable in any other way. An old tree trunk for a casing to the pump, with a square stone basin beneath, form a good centre; and a hole at the bottom of front or side of the basin, with a little channel, will take the spare water where it is wished, or give a thorough soaking when desirable. In such a situation, a constant succession of flowering plants may be kept up, including some of the half-wild kinds, such as the rose-coloured Spiræa Ulmaria, and others, seldom seen in full beauty for want of more moisture, and, with the aid of a few masses of stone or similar material to group with, many of our English Ferns, especially the Osmunda, will thrive luxuriantly.

For dry banks, as well as for wet and shady nooks, one or other of the different kinds of Ferns may always be found to suit. The Liverwort or the Wall Rue may fill up holes in an unsightly stone wall, and the Blechnum, or Hard Fern, with the aid of some good soil, if its roots are protected from the extreme heat of the sun, will thrive in unusually dry exposures, and with wild Thyme, and the wild white and yellow Cistus grouped around, with some small pieces of rock or flat stone on which they may spread their bright sheets of colour, and trim foliage in natural growth, will give a suggestion of heathland or rocky moor, much pleasanter than the simple view of a dry bank.

In the management of the main part of the garden itself the common rules of growth must necessarily be followed, but the exceptional bits, which in their entire unsuitability to plants grown in the common way give a scope for taste, and invite both groupings and specimens of a totally different character to all about them, may, by following out their own suggestions, be turned to the best account as spots of interest and picturesque beauty. *O.*

ZEBRA-WOOD.

In a paper "On the Identity of Goa Powder and Araroba," read before the Pharmaceutical Society on April 7 last, and published in the Society's *Journal* for April 10 (p. 801), Mr. E. M. Holmes, the author, refers incidentally to the botanical source of zebra-wood, and, quoting from Martius' *Flora Brasiliensis*, refers it to Centrolobium robustum, Bth., a large leguminous tree bearing winged fruits very similar in shape to those of the Maple, but very much larger. In the discussion which ensued upon Mr. Holmes' paper Professor Bentley took occasion to show that, according to Schomburgk, zebra-wood is derived from Omphalobium Lamberti, a tree of Guiana, belonging to the Connaraceæ. This reference to a valuable ornamental wood opens a question of some interest, inasmuch as a good deal of doubt has hitherto existed regarding the source of zebra-wood.

In Holtzapffel's *Descriptive Catalogue of the Woods Commonly Employed in this Country for the Mechanical and Ornamental Arts*, the botanical notes to which are by Dr. Royle, zebra-wood is described as the produce of the Brazils and Rio Janeiro. Its colour is described as orange-brown and dark brown variously mixed, generally in straight stripes. It is considered by cabinetmakers to be intermediate in general appearance between mahogany and rosewood, so as to form a pleasing contrast with either of them. It is used in cabinetwork and in turnery, and has a very handsome appearance when polished. It is described as being "sent in logs and planks as large as 24 inches." No reference is made to the tree furnishing it, but from a note we are told that "zebra-wood is also called pigeon-wood by Browne. One kind of pigeon-wood in Jamaica is Guettarda speciosa; another kind, called also zebra-wood, is described by Browne, but he was unable to make out the genus." What this last may have been we are unable to say, it seems clear, however, that none of the zebra-wood of commerce comes from the West Indies, though Grisebach, in his West Indian *Flora*, tells us that the name is applied to Eugenia fragrans var. cuneata. So far as we have been able to make out, Martius' description and identification of the zebra-wood of Rio de Janerio with Centrolobium robustum seems correct, and Schomburgk's identity of Omphalobium Lamberti with that of Guiana is probably also correct, for we are told by one of the largest importers of foreign woods in this country that the best zebra-wood comes from Rio de Janeiro, the next best from Bahia, which may, perhaps, also be the produce of Centrolobium. Honduras supplies an inferior sort, although the wood is larger in diameter. Of the tree furnishing this kind we have no information; that obtained from Demerara, which undoubtedly is furnished by Omphalobium Lamberti, is of a poorer class than all the preceding, a wood of a similar quality commercially being produced in Nicaragua, to the botanical origin of which we have no clue.

From these remarks it will be seen that zebra-wood is the produce not of one tree but of several, two of which it may be considered are pretty satisfactorily settled, namely, that the Rio de Janeiro zebra-wood is obtained from Centrolobium robustum, and the Demerara sort from Omphalobium Lamberti. There is a peculiar mystery hanging over the origin of most of the South American woods, many of which are highly ornamental, and are imported in large quantities, considering the uses to which they are put. Thus, for instance, a wood known in the trade as angica-wood, which is very similar in appearance to zebra-wood, was at one time shipped in quantity from Parahiba and Paranahiba (Brazils), but its origin was never known, and its importation has ceased for many years. *John R. Jackson, Museum, Kew.*

HARDINESS OF INDIAN AZALEAS.

In the winter of 1873-74, on mentioning to a friend the statement which had been made by a writer in the *Gardeners' Chronicle* that Indian Azaleas had proved hardy in England in an exposed situation, he said, "Take these two, and try them. They are not good for much; they will do nothing in the spring; the loss will be but trifling should they die." So the Azaleas were turned out of their comfortable greenhouse and planted, with the balls of earth from their pots, in ordinary garden soil, rather hard, and containing a considerable proportion of lime, on the sunny side and beneath the branches of a Yew which serves to shade a small group of Ferns. This was all the care bestowed on them; they were watered when the rain from above could reach them, which was not always, on account of the Yew. In the summer they put forth a few sickly flowers, then they had that summer's drought to go through and then the winter of 1874-75 without the slightest protection or assistance. Last December, for days and nights together, the thermometer did not rise higher than 25° Fahr., and one or two nights it fell as low as 15° or even 13°. On looking at the wretched Azaleas this spring one of them was decidedly dead; it had suffered quite enough ill treatment and neglect to kill it, without the cold. If asked why I had so forgotten it, I can only ask in return, "Why do people leave undone those things which they ought to do, and do those things which they ought not to do?" The other plant still showed signs of life; the bark adhered firmly, and the twigs when broken were green and sappy.

Its tenacity excited admiration and pity. I had it potted in leaf-mould, took it indoors, nursed it, and now it is breaking into leaf all over, not vigorously, but with an evident determination and strong effort to live and gain sufficient health and strength to show itself as an Azalea which passed the December of 1874 and the February and March of 1875 in the open ground, without a hand to help it. It deserves to be petted like an arctic voyager who has been to the North Pole and come back again alive. The resistance thus offered to frost by Indian Azaleas is no conclusive reason for advocating their culture in the open ground, still less for diminishing in any way the present practice of growing them under glass. Were they ever so hardy, it is not likely we should obtain outdoors as perfect specimens as are now produced in greenhouses; and as they are almost exclusively used for indoor decoration, their earlier date of blooming is of some importance. The Rose is hardy, and yet who does not admire and love well grown pot Roses, a little hastened in their flowering by gentle heat? Early flowering plants and shrubs, however tolerant of frost themselves, are too much at the mercy of our cruel springs to allow their blossoms to be exposed to all weathers without great risk of failure. Apricot, Peach, and Plum trees are familiar examples. But for that the Camellia might be made a shrubbery or border plant in many sheltered situations; the shrub would survive although the blooms might fail. And nothing is gained, in an ornamental point of view, by a plant which has to be swaddled, or thatched, or screened with straw at the time when it is wanted to be decorative. That pretty little shrub, the Deutzia gracilis, has its bunches of snow-white flowers so often spoilt beyond recovery in spring, that the only certain and satisfatory way of enjoying its blooming time is to grow it in pots under glass, when it proves one of the nicest window plants we have. And yet it is perfectly hardy in British winters, probably more hardy than Indian Azaleas would show themselves to be, if tested on an extensive scale. These latter will therefore remain what they are at present—the glory of our conservatories in spring, which is better than being the invalids of our parterres. *E. S. D.*

RECLAMATION OF SAND WASTES IN NEW ZEALAND.

At p. 726, vol. i., of the *Gardeners' Chronicle* for 1874 we drew attention to some experiments that had been made in San Francisco in planting European and other plants for reclaiming sand downs. The subject is one of such general importance, affecting as it does coast land in all parts of the world, that we shall again refer to the matter in introducing to our readers the substance of a paper read before the Auckland Institute by Mr. T. Kirk, F.L.S., "On the Plants best Adapted for the Reclamation of Sand Wastes." Mr. Kirk's remarks have special reference to the coast of New Zealand, and consequently his first consideration is in reference to indigenous trees, shrubs, grasses, &c. Amongst native grasses the following are recommended:—Festuca littoralis, a common grass on rocks all round the coast, and native also of Tasmania and Australia. Of the genus Poa nine species are recorded in New Zealand, besides which the common English P. annua is also found on roadsides. Of the native species, P. australis var. lævis and P. breviglumis are recommended as the best, and amongst other grasses are Spinifex hirsutus, a common coast plant, growing also in Tasmania, Australia, India, and the Pacific Islands. It is so abundant on sandhills on the New Zealand coast that almost any quantity could be obtained for planting. Its bushy, rigid, branching habit makes it a valuable sand-binding grass, though not equal to the Marram or Lyme-grass. Zoysia pungens is a grass of much smaller growth, the herbage of which rarely exceeds 2 inches in height, but forms a dense compact sward. It has creeping roots, and is suitable for planting with the larger-growing species. It is common on the coasts of Australia, India, and the China Seas, and though growing in New Zealand only to the small size indicated above, it is very variable in other situations, growing sometimes to a foot in height.

With regard to naturalised or cultivated grasses, Cynodon Dactylon, the Doab-grass of India, is naturalised throughout the colony, and is of great value. The well-known Marram (Psamma arenaria), is cultivated in New Zealand. Mr. Kirk says that between the town of New Plymouth and the Sugar Loaves he recently observed some dead culms of an exotic grass, apparently belonging to this species, and which exhibited great luxuriance, being 4 to 5 feet in height; he was unable to ascertain if it occurred in other localities in the neighbourhood, or to procure any particulars respecting its introduction; but, from its being found in several patches of considerable extent, and in many widely-scattered and isolated tussocks, it would appear that seeds were scattered on the beach without protection.

The sedges and grasses, chiefly with creeping roots, of indigenous and foreign growth suitable for sand-binding purposes, and adapted to the New Zealand climate, are given in a list, and number twenty-four; while under the head of "suffruticose and sub-herbaceous plants, most of which cover the surface with their foliage," are enumerated such plants as Crambe maritima, Portulaca oleracea, Trifolium subterraneum, Mesembryanthemum australe, M. maximum, and M. falciforme, Tetragonia expansa, Eryngium maritimum, Salsola australis, Euphorbia glauca, Iris germanica, &c. Amongst undershrubs and creepers the native plants include Hymenanthera crassifolia, Coprosma acerosa, Olearia semidentata, and others, and the introduced plants—Ulex europæus (which is naturalised throughout the colony), Rubus discolor (likewise naturalised in many localities), Agave americana, Opuntia vulgaris, &c. With regard to this latter plant, it is stated that it has been successfully employed in reclaiming coast sands in Madras; but it has become so abundant that it is a serious impediment to travellers in certain localities. It has long been cultivated in the province of Auckland, without evincing any ten-

dency to spontaneous propagation. In most parts of the North Island it would prove serviceable, and the ease with which it can be increased by cuttings, which merely require to be laid on the surface of the sand, is another recommendation for its use.

Several fine native trees and shrubs are included in a list devoted to this larger-growing vegetation. Metrosideros tomentosa, a stout much-branched tree, 30 to 40 feet high, grows on sandy and rocky coasts in Auckland, enduring the sea spray without injury, and producing a hard wood useful for ship-building. Pittosporum crassifolium is a fine shrub or small tree, sometimes growing to a height of 20 or 25 feet, and common on sandy and rocky coasts from the North Cape to Poverty Bay. It produces its seed freely, and would be extensively propagated. The several species of Salix as well as Populus are of course included, also the Stone Pine (Pinus Pinea) the Aleppo Pine (P. halepensis), and the Pinus Pinaster var. maritima: this is described as one of the best known trees for the purpose, and one that can be obtained at all the nurseries in the colony. "It has been so generally planted about Auckland and other places in New Zealand that seeds can be procured in large quantities." Both P. Pinea and P. halepensis produce their seeds in the vicinity of Auckland.

The sand wastes in some parts of New Zealand seem to require exceptional treatment, for it is said "that the violence of the south-west winds is such that it would not prevent any shrubs or trees from having the sand blown from under them, unless it is first protected by a sward of some grassy sort of vegetation;" to secure the sward it is suggested that a plan might be adopted of using grass ropes made of properly ripened and selected grasses which contained the ears and matured seeds; these ropes when made are "pegged down to the sand all over the area to be reclaimed in chequered lines." The seed is thus enabled to germinate and take firm hold of the sand, and very soon the whole area becomes an uniform mass of vegetation.

Mr. Kirk concludes his paper by remarking that—

"It would prove advantageous to the colony if a small portion of the money now being spent on public works could be applied to the reclamation of sand wastes. The magnitude of the evil to be remedied is admitted by all who have paid the slightest attention to the subject. In several localities the natives are compelled, year by year, to abandon their cultivation as the sand-wave advances, and settlers are helpless witnesses of the destruction of their paddocks from the same cause. Fences, large trees, and patches of bush have been overwhelmed within the memory of settlers of comparatively recent standing, and, in some cases, still more serious injury must result unless preventive measures are taken. The danger is not confined to any one district or province, it is general, and demands prompt attention. It must be confessed that such localities as the Waikato Heads, and some parts of the Kaipara Sand hills, are calculated to produce an impression of man's inability to cope with Nature; but if we look at what has been accomplished with more slender resources than those now indicated it will be seen there is abundance of encouragement. In the Gulf of Gascony immense wastes of trackless sand were utterly destitute of vegetation, and during violent storms exhibited a complete change of surface—hills becoming valleys, and valleys taking the place of hills, the sand being gradually carried into the interior, and covering cultivated fields, villages, and entire forests. This process of devastation has been completely arrested, and thousands of acres of former sand waste now yield a handsome revenue, and support a considerable population. To arrest the process of destruction now to be seen in so many localities in this colony is an object for which we may well venture to encounter the possibility, the probability even, of repeated failures, in the certainty of ultimate success." *J.*

FERNS ON THE WEST COAST OF NORWAY.

THE general run of tourists are becoming weary of the old-fashioned Continental round, and are beginning to look out for a new field. Thus, Norway is attracting more visitors year by year.

If asked by a botanical friend to point out the best place for a few weeks' botanising, we would strongly recommend him (speaking from experience) to lose no time in the neighbourhood of Christiania, where he will probably land on his arrival, but at once proceed by the railway to the Miösen lake, thence per steamer to Lillehammer. The Lake Miösen is surrounded by lovely scenery. From Lillehammer we must take up with the primitive mode of travelling, now almost peculiar to Scandinavia, and proceed on our journey with a cariole and pony; the latter are excellent little animals, very sure-footed, and swift. It is a cheap way of travelling, although tedious, slow, and disagreeable, to be compelled to change horse and cariole about every Norske mile, equal to 7 English miles. From Lillehammer to Drontheim the route, or Government road, is up the Gudbransdal valley, and in many places *en route* the views are magnificent, not to say wild and picturesque.

The best spot for alpine botanising is undoubtedly on the Dovrefjeld, and the wisest plan is to make our stay for about a fortnight at the station called Jerkin (pronounced Verkin), situated at the summit of the Dovrefjeld, and close to Snaehatten, whose summit is clothed with perpetual snows. In this neighbourhood a rich harvest of alpine rarities can be gleaned with a little exertion.

Having exhausted this locality, we would urge the visitor to retrace his steps and diverge towards the west coast, so as to make another short stay at some convenient station in the Sogne district. Much valuable time may be saved by fixing at the outset upon some central position, where daily walks and rides will lead to good ground.

On the other hand, if asked by any one wishful only to see the grand waterfalls and huge glaciers, for which this northern land is noted, without taking into consideration the botany, we would recommend them to leave the steamer on the Miösen (it usually stops to land passengers about half-way up the lake) and make tracks for the western coast. Every one who visits Scandinavia for sightseeing, returns disappointed if he has not had an opportunity of seeing the glaciers, lakes, and waterfalls in the Bergen district; but if the botanist follows the above route he may embark on the steamer at Bergen for Hull, without again going round to Christiania.

We hope to be able again shortly to refer to this subject and give our readers a little advice, which was gleaned by the writer, who went to Norway as a botanical collector, after hard experience and suffering, which he wishes others to avoid. Many tourists look about for Ferns who do not care much for Phænogamous plants. It is for these that the following notes are written, for it is well known that Scandinavia is an attractive place for the Pteridologist. It contains some of our rarest British Ferns—may be rare with us but common or abundant on the Norske mountains. All the undermentioned species are to be met with on the west coast; the Sognefjord district is especially pointed out as being rich in these plants. About six are unknown in the British islands, the rest are natives in both countries.

Allosorus crispus, Bernh. (Parsley Fern).—This is to be met with, in much the same situations as it occurs in the North of England, about Justedalen, Vig, Fjierland.

Asplenium Adiantum-nigrum, L. (Black Maidenhair).—Walls, &c., but liable to be overlooked, and seldom as fine specimens as in North Wales.

A. Trichomanes, L. (Centipede Spleenwort).—In crevices of rocks, in sheltered situations, not common.

A. viride, Huds. (Green Spleenwort).—Rare; I only met with a few specimens at Vig; it ascends higher above the sea-level than many other Ferns.

A. septentrionale, Sw. (Forked Spleenwort).—Scarce; mountain ledges above Vig.

A. Breynii, Retz.—Lærdal, Urland, &c.

A. Ruta-muraria, L. (Wall Rue).—Walls; often overlooked from its diminutive character; Tungodden, Sulen, &c.

Athyrium Filix-fœmina, L. (Lady Fern).—Aardal, Justedalen, frequent in many places. We have often thought of Rhoderick Dhu's men, as described in the *Lady of the Lake*, rising from beneath the Bracken at the whistle of their chieftain. It is seldom we find any of our Bracken sufficiently tall to screen armed men; but in Scandinavia the botanist is surprised to find the Lady Fern, Pteris aquilina, and Lastrea Oreopteris (montana), very tall—8 and 9 feet is not uncommon; we have seen most luxuriant fronds on the border of the Bojumsbræ's glacier, where of all places we should not have expected them—near melting ice.

Blechnum Spicant, Smith (Northern Hard Fern).—Common; often seen in the valleys at a high elevation.

Botrychium Lunaria, Swartz (Moonwort).—Frequent in fields, heaths, &c.; it seems very hardy, for we found it peeping from beneath a snow-drift near Snaehatten.

B. boreale (Northern Moonwort).—This is probably an incorrect specific name; we only found one specimen at Lærdalsören, and another in the Aardal district; it is evidently rare in its distribution.

Cystopteris fragilis, L. (Common Brittle Fern).—Frequent, becoming more rare as we proceed farther north.

C. dentata (Toothed Brittle Fern).—We gathered what we believe to be this variety in several places near Bergen.

Lastrea Filix-mas, Presl. (Male Fern).—Common.

L. Oreopteris, Presl. (Sweet Mountain Fern).—Frequent; very fine specimens are occasionally gathered.

L. dilatata, Presl. (Shield Fern).—Perhaps not uncommon, but liable to be confused with the following.

L. spinulosa, Presl. (Prickly Shield Fern).—Frequent about Vig, Jordalen, &c.

Polypodium vulgare, L. (Common Polypody).—Common.

P. vulgare γ *acutum*.—Christiania, &c.

P. Dryopteris, L. (Oak Fern).—Frequent in hilly situations.

P. Phegopteris, L. (Beech Fern).—Laardal, Vig, Lifjeld, &c.; frequent.

P. Robertianum, Hoffm.—Rare, or passed over sometimes in mistake for the Beech Fern; near Laardal.

P. rhæticum, L.—Frequent.

Polystichum Lonchitis, Roth. (Holly Fern).—In mountain districts, often near glaciers, as at Justedalen; a very pretty variety of this Fern is met with in Norway.

P. aculeatum, Roth.—Bergen.

I. angulare, Presl.—Frequent.

Pteris aquilina, L. (Bracken).—Common.

Struthiopteris germanica, Willd.—Aardal, &c.

Hymenophyllum Wilsoni, Hook. (Filmy Fern).—Very rare; by damp rocks; Omdalsvigen.

Woodsia ilvensis, R. Br.—Frequent in walls, crevices of rocks, &c.

W. glabella, R. Br.—Occasionally met with in walls. *R.*

ON JUDGING GRAPES.

THE importance of the Grape to mankind needs no eulogium, for it has cheered the heart of man from time immemorial, and when we read of this great gift of Providence having been abused, that is no reason why such a blessing should be lightly spoken of. The art of Grape growing under glass is now so well understood in this country that I doubt if any country, however favoured its climate may be, could produce such splendid samples of perfect fruit as is to be seen in England at our great exhibitions, and, inferior ones being discarded we have to decide only between good, better and best.

The immense bunches of Grapes exhibited last year from the Earl of Durham's gardens put all previous samples into the shade, for not only were the bunches large, but the berries were so swelled above the normal size as to make good judges doubt of their being the sorts which they were named. When exhibited in Ireland they "took a rise" out of the Irish Grape growers as well as out of those on this side of the Channel, and the first check that they met with was when they were shown at the Pomona Gardens, Manchester, where the judges awarded the first prize to some highly finished Grapes from the Earl of Ellesmere's gardens at Worsley. Now as the character of the judges for skill and impartiality has not been impeached it is but right to inquire how such a case was brought about, and this more especially as the season has come round for exhibiting Grapes.

The points of excellence in a bunch of Grapes are these—size of bunch and berry, shape or form, colour or being fair to the eye, and perfect ripeness—ripeness here meaning high flavour as tested by the palate. Small bunches are necessarily condemned for want of size and weight, and it would be idle to justify them, however agreeable to the palate. Badly-shaped bunches, having little or no resemblance to the normal type, that is, to the outline of an equilateral triangle, are objected to, on the score of form, and although this is a weak point, an elegantly shaped bunch, taken by itself, is preferable to one with an outline like that of an oyster. But there is a common sense criterion in judging Grapes that cannot be left out of the calculation, and that is the test of the palate to discover ripeness. The ordinary marks of maturity by colour and by bloom on the berries may mislead, but this test once applied by the judges places their opinion far above that of the visitors, who can only look at the outward signs of perfection. I have called this a common sense criterion because Grapes in this country are only used for table, and that not either green or half ripe: so that there is never any half way resting place, no "rest and be thankful"—for it is a grave error to cut Grapes not fully ripe, whether for table or for exhibition; and this simple fact clearly established would settle heartburnings between rivals and blame to the judges, who have no choice but to prefer ripe to unripe Grapes.

I have a clear recollection of taking Grapes to Chiswick, where Mr. Dowding expected to walk over the course and win the first prize for Grapes easily, but Mr. Wilmot came in first with bunches smaller than Dowding's, and berries smaller also, but highly finished; in short, ours were not so ripe as Wilmot's, and he "cantered" off with the medal. Now, ever since that practical lesson was taught me, I for one know that the judges had the advantage of tasting before giving in their award, and the palate would generally clench the verdict.

There is a good deal of mystery about bloom on various fruits of the berry type. We see it on the Plum in the greatest perfection whilst the fruit is still sour and unwholesome; it is evidently an ornamental epiphyte, growing after its own fashion on the skin of certain fruits—green with those of that hue, golden with others, and shot blue-

black with black Plums and black Grapes. Now although bloom is a chief test of highly finished Grapes, yet no scientific work gives us any data of its true character, and we all know how highly ornamental it is. Bloom seems independent of the fruit that carries it, and however quaint its character may be, it cannot be done without. It is a veil thin and delicate thrown over a favourite fruit, as the moss on the Rose fair and sweet, and is, like many of Nature's gifts, the "measure heaped and running over" given in love as a father giveth. I see now in the shops in Manchester Muscat and Hamburgh Grapes, but they have been rubbed in transit, and the deceit is exposed and the value thereby lessened —in short, they were not ripe. Muscat of Alexandria Grapes fully ripe in the month of May would tax the powers of the best Grape grower in the best situation.

I think I hear Crabstock of the City Vineyard say—If a bunch of Grapes for exhibition were ever so much rubbed in carrying from the Vine to the table the flavour of the fruit and its nutritious qualities would not thereby be impaired. Now, this doctrine does not hold good, for the dish of Grapes at table is valued not only as useful, but as being exceedingly ornamental; and although the bust of a human being would be nowise altered whether the subject had a bald pate or a luxuriant head of hair—and it might be open to cavil whether the hair, however ornamental, is ever of any use, like the eyes, ears, &c.—in the battle of life the golden tresses of the Northern "Blue Belle" and the raven hair of the southern "Brunette" will be found heavy metal, and fearful odds in favour of the side to which they belong. And ladies, wise in their day, using this useless ornament with effect in the graceful curls and more compact chignon, with or without Rowland's Kalydor, put it out of the power of man to say with any kind of certainty, as a judge, how much of this display is inherited and what got by purchase; and so much depends upon taste and usage that no one can alter, that the bloom on Grapes, although a small affair, is in reality vastly important. *Alexander Forsyth.*

THE ROYAL HORTICULTURAL SOCIETY.

As an old, well-tried, and, as I think some of my horticultural friends will acknowledge, not untrue friend of the Royal Horticultural Society, allow me to say a few words on the subject of its present position. In the first place I would most strongly urge the Fellows of the Society to consider what you so truly speak of in your leading article (p. 724) as to the fatal results of breaking up the Society. Whatever mess the Society may be in, in consequence of the unfortunate Kensington speculation, it still holds a position, and must do so as long as it exists, which no new Society could possibly acquire. The establishment of the Fruit and Floral and Scientific Committees, and of the provincial shows, have been steps in advance during the last few years. Of course the blighting influence of Kensington has prevented these from becoming what the committees and shows of the Horticultural Society ought to be, and what, in spite of Kensington, I hope to see them become, but be sure that they can only become what they should be, as committees and shows of the Horticultural Society; without the Society they would not be at all. From the time when our friend Dr. Lindley sought to turn the Society into a London Club, I have felt very strongly that there is one ground, and only one, on which the Society can safely build. It must take up its rightful position as the Horticultural Society, and as such must devote all its energies towards promoting horticulture in all its branches throughout England, and so enlist the support and interest of all horticulturists in the kingdom in its behalf. The establishment of the committees and of the provincial shows was a step in this direction; the establishment at South Kensington was a step the other way; but the step in advance was a very small one, and was taken somewhat timidly. For instance, in the Fruit Committee, the establishment of local branches throughout the kingdom and the keeping them up to their work has never been carried out, and without doing this, it is impossible to have any real knowledge of the fruits at present grown in England, or of how to improve them. But there is no reason why we should despair of the Society's some day taking up its true position; only let us remember and be quite certain that, if the Society be broken up, there will be no Horticultural Society of England, for he must be very sanguine indeed who thinks that there will ever arise another one. I do not quite see why the having the garden at South Kensington should necessarily be prejudicial to the Society, if only the moneys intended for its support, and that which is subscribed for the purpose of promoting horticulture, were kept distinct, and under separate management. I have been a Fellow, and have paid my subscription, for a great many years, in the hope of some day seeing the Society take its proper position at the head of English horticulture; and I care nothing whatever for the Cockney tea garden, but I do not in the least see why those who do care for it, and who use it, should not do so as much as they please so long as they will pay for it themselves, and do not spend my subscription upon it. Nor on these conditions do I see any objection to the Society managing the said garden. *C. W. Strickland, Hildenley, Malton.*

—— Until we have the opportunity of deliberately perusing the whole text of the various propositions made by the Council to Her Majesty's Commissioners, and their replies, of which Viscount Bury read portions at the meeting on Friday, it would be premature to discuss them. There are, however, some collateral points in his lordship's speech which invite comment for which no delay is necessary, and it may be as well to clear them out of the way at once.

In the first place allow me to express my admiration for the way in which his lordship, at a later period of the meeting, atoned for the little burst of petulance with which he received the check administered by the meeting at its commencement, when he announced his intention to read and comment on the reply of the Commissioners before communicating the papers to which the reply was an answer. "I always like to add my hollo when I see a good shot or a good blow," on whichever side it be; and the mixture of *bonhommie* and good-humoured self-depreciation and apology with which he turned it off was everything that could be wished. But I doubt if his lordship fully understood the meaning of the opposition he met. The fact was that the incautious and ill-advised terms in which he had spoken at the previous meeting, about the gentlemen and their exhibiting gardeners, had been bitterly resented by them and disapproved by the Fellows generally, and the meeting were in no mood to make any allowances. When, therefore, he proposed to begin by reading and commenting on the answer first, the natural inference that rose in every man's mind was, that this was an attempt to bias their judgment by pitching into the Commissioners on half-told premises—a course against which their English love of fair play at once revolted; and although in the ordinary course of things they would have allowed it to pass without more than tacit condemnation, in their present mood they would not stand it, and so kicked over the traces.

Passing that, my next remark is upon his lordship's statement that when his Council took office the debts of the Society (other than debenture debt) amounted to £6000, whereas they had now been reduced to £4000. This statement or something akin to it has been made before, but it has never been sifted. Lord Bury promised that the Treasurer would give explanations as to this, but the interminable length of his lordship's speech left no time for it. We have, therefore, still to get it, and I trust that either Mr. Dobree or his successor will be called on to furnish it; and that there may be no mistake as to what we want, I shall give my understanding of it. Everybody knows that the Society has been going to the bad ever since Lord Bury's Council took its direction, and therefore a statement that they had reduced the debts by £2000 has been looked upon with suspicion, and the general explanation of it has been that it was a mere culinary operation consisting in a *double entendre* of the word "debts,"—the Council understanding it in the sense of sums actually due without regard to the money in hand to pay them, while they meant the public and the Fellows to understand it as the balance of debt that remained after deducting assets; so that to say that the debts had been reduced to the extent of £2000 only meant that they had applied the £2000 which was standing to the credit of the Provincial Show Fund to the extinction of debts to that amount; and any of the Fellows who thought about the matter rather laughed at the pomposity of Lord Bury's assurance at the former meeting that "when we took office our debts (and I will not now enter particularly into figures) were much larger they are now, but they have been steadily diminished under our exertions," the exertions consisting in drawing a cheque for £2000, which had been made by several years' labour and some responsibility by the old Council. This explanation has, as I say, been generally supposed to meet the case—the sum of £2000 claimed to be reduced and the £2000 from the Provincial Show Fund corresponding in amount; so that the inference would be that, allowing the Council credit for their exertions, the Society was at least in no worse position than it was in 1873. So much assets drawn on, so much debt paid, actual balance—as you were. But Lord Bury has now dispelled that illusion. He has entered into figures, and the first thing that strikes one is that he states that the debts left by the old Council were £6000. The old Council stated them, if I recollect rightly, at £3800. How have they mounted up to £6000? I am told, I know not how truly—but I want to know how truly—that it has been by adding the total amount of certain disputed claims to the amount of the £3800 of admitted debts, and treating the whole as actual debt. Now it is surely an unheard of mode of stating the accounts of an estate to put the disputed debts on the same footing with the admitted debts, and to treat them both as of equal obligation. But if this would be deemed strange measure while the final value of the disputed claims was still in abeyance, what can be said in defence of it after their value has been ascertained? Surely then at least there is no apology for stating them at a higher figure than their ascertained value. And yet this is what has been done by Lord Bury, after the claims have been settled and actually paid.

It is for the Council now to tell us by how much the debt has been thus overweighted. By however much that has been done by so much must the deficiency that they have made be increased. I have endeavoured to work it out for myself, and what I bring it to is that instead of the Society being £2000 in a sounder position than it was in 1873, it is £2000 worse; but I have not access to to the figures, and it is not my business. It is the Treasurer's—let him tell us. The settlement of these disputed claims suggests another remark. If the Council treated them as good just debts how came they to compromise them? Why did they deal with them differently from any of the other creditors? The Society does not want to take any advantage of anybody. They want to pay every man his just due; no doubt if they could get the relief without the discredit that attended it they might be willing to shut their eyes. If the Council could or would take the odium to themselves and leave the profit to the Society—if they would say with Sampson Brass, "The shame, gentlemen, if there is any, is ours; it is better that the Society should be spared it"—no doubt then the transaction might be condoned, but otherwise I don't think they would like. But neither the old Council nor the new regarded these as just debts. They might be legal, but they were not equitable, and both alike without discredit tried to compromise them. The old Council were in treaty for a compromise of the principal one (of £1200) for £450. The new one did it for £600; they were less liable in this instance by £150. I find from his lordship's speech that both you and I, Mr. Editor, have to retract our comments in a recent number of this journal on the bankruptcy which, we had erroneously supposed, threatened the Society. It is a great relief to be assured by his lordship that the gardening papers had quite misunderstood him. At the same time I cannot admit that we were without excuse for our misapprehension, for, on turning to the newspaper report of his speech (which entirely agrees with my own remembrance of it), I find that he did say—"I merely mention this circumstance here because, between this time and the time of our adjourned meeting, you may be reported in the newspaper proceedings in the County Court, which may go against us; and in that case, in order to carry out our principles, we shall have to file a declaration of insolvency to protect our other creditors." If he really meant to say this, then I apprehend that what we said was fully justified. But if he had been carried away in the heat of speaking, and said more than he meant or intended, then do not you think that instead of saying that we had misapprehended him, the more proper expression would have been that he had misled us?

It has not much to do with the matter, but the concluding farce of the proceedings on Friday was too comical to be passed wholly over. It was a new version of "To be or not to be." We had been already told by Lord Bury that resignation was the only course open to him, and those who thought with, him, consistent with their honour and self-respect, although it appeared that some wrong-headed individual members of the Council could not be brought to see it in that light. Then we had an affecting series of farewells from Lord Bury and others; if, indeed, they were farewells, which after all seemed doubtful, for like the worthy in the cart, "they oft bade adieu and seemed loth to depart;" and their last word was that they had not resigned yet, and might not do it after all—a statement which seemed to the meeting rather to smack of levity.

Then we had a mutual admiration testimonial, which might have passed for a rehearsal of the reconciliation scene at the supper in *Pickwick*, in which divers of the members of the Council narrated how they had been the most united, amiable, harmonious, and unanimous body that ever existed—a view which, however, it is right to mention, was not endorsed by any of the four gentlemen seated in the body of the hall who, Lord Bury said, "had quarrelled with their colleagues," and successfully seceded from the Council. Finally, we had a touching parental admonition and blessing from his lordship; and, to conclude, the recalcitrant fling about not resigning. It was very droll. *Andrew Murray.*

RARE CONIFERS.

PICEA MAGNIFICA.—No species is safe from an attack of synonym. However distinct it may be, however clear the description and unmistakable the illustrations, there is no security that an author will not come who does not appreciate its characters in the same light, and will relegate it to the limbo of synonyms. That has been the fate of the present species, only it has not stayed there, for its distinctness has gradually been recognised.

And nobody that knows it, now disputes its being a good species. Before attaining that established position, however, it had been referred as a synonym to at least two very different species—first to P. nobilis, and then to P. amabilis. There was some apology for the former. For the latter I find none. The former error was very much confined to practical horticulturists, who perhaps had never seen my description of its cone and other special characters, and only judged of it by the leaves of the plants in nurseries and gardens, which, as I acknowledged lately, were so similar that I was myself unable to distinguish them at that stage. Mr. Syme has supplied a careful diagnose which, if he is correct in one assumption, will enable any one to distinguish them in future, viz., briefly, that the leaf of P. magnifica is slightly tetragonal in section while that of P. nobilis is channelled on the upper side. He has found that this is the character of the two plants when reared from

seed, and he assumes (I do not say unreasonably) that all the other plants in this country that bear these characters are of similar parentage respectively; but still this is an assumption, for there are a great many plants in this country which have always been considered P. nobilis, which have been bought as P. nobilis, which have been raised from seed sent home as P. nobilis, which yet have tetragonal leaves. I anticipate Mr. Syme's answer to this objection, that P. magnifica has been confounded with P. nobilis in its native country, and that these plants with sub-tetragonal leaves are really P. magnifica raised from seed sent home as P. nobilis by mistake. This seems a very reasonable explanation, and I have no doubt is a true one, although it will not be possible to prove it until the plants in question have borne cones. It accords with the fact that the specimens of P. magnifica sent home are furnished with much thicker leaves than anything we have yet seen as the introduced plants, indicating a reason for their assuming their tetragonal form. The reader may, perhaps, care to see the relative disposition of the resin canals, &c., in these two species, and I therefore show them in figs. 157 and 158. I have not complicated the cuts with the hypoderm partly because I am not sure about it in my sections, and partly because my faith in it is small. The letters A A indicate the resin canals.

There is not the same apology for confounding P. magnifica with P. amabilis, and yet Professor Parlatore has entered it as a synonym of that species in his monograph. I do not think he would have done so had he seen the cone. I remember when I described it hesitating about giving a figure of the cone, and I refrained because it was too big to go into the pages of the *Proceedings* of the Royal Horticultural Society, in which I described it, and I thought a description might do instead, but there is no description like a figure; you can skip or overlook a description, but you can hardly skip a picture. To atone as far as possible for the omission, I now give one of a small cone (fig. 156). That which I described from was twice the size, and it will at once be seen that, however similar the leaves may be, the cones are widely different. *Andrew Murray.*

Forestry.

Every attentive forester finds enough, and generally more than enough for all his hands to do, and while about to congratulate himself upon the near prospect of gaining full mastery over his work for once, some untoward circumstance, in all likelihood, occurs, nonplussing all his schemes and efforts, and casting him with his work as far into arrears as ever, Such is my own exact experience and position at the present time.

Trusting to have been able to thin, prune, and dead-wood a number of young plantations, and overtake a considerable amount of other work too long held in abeyance, I am sorry to find an express and urgent call to attend to a series of disasters, the result of last winter's snowstorms. In this, as in many other parts of the country, heavy falls of snow occurred, the first of them on the first day of January. The dry state of the snow and violence of the winds combined soon filled every hollow and sheltered place with deep wreaths of snowdrift, and, as is generally the case, glens, deep ravines, exhausted gravel and marl pits, old quarry holes, and similar places inaccessible to the plough, are such as are generally planted in agricultural districts; hence the liability of all such plantations being filled with snowdrift, and the trees being seriously damaged thereby. In order to mitigate this evil and prevent its occurrence every effort should be made when planting ravines to extend the boundary line backwards, even a few yards (when land is valuable), from the top of the sloping bank, to form a margin or border of bushy trees to lodge the snow, and prevent it from blowing into the ravine, where it does the damage. I have at present several young plantations under treatment, from between five and twenty years old, some of them very much injured by accumulations of snowdrift. It becomes a matter of deep consideration, not only how to treat each plantation efficiently and cheaply, but how and what to do with each individual tree injured.

If the tree, of whatever species, is either crushed flat to the ground, or in any way put off the upright position, it should at once be set up. If the tree is small, one or two men are able simply with the hands to adjust it, but if large a rope must be attached, and sufficient strength applied to bring it into its proper position. If a hard-wood tree is too large to be restored in this way, the top branches had better be lightened, and the whole top of the tree considerably reduced, which not only admits of the tree being more easily raised, but prevents the wind from injuriously affecting it afterwards. As all such prostrated trees have their roots less or more forced out of the ground on one side, they should be carefully re-established, and a turf placed over them with the earthy side down. The turf both covers and protects the roots, and forms a sort of buttress to the tree. If the tree is considerably large, it should be secured by means of rope-yarn twisted and attached to a short peg or post driven into the ground; generally one anchor is sufficient, but in some cases two, and even three, in the form of a triangle, are required to keep it secure against winds till it again establishes itself. Small trees, if only put upright, and a thick turf by way of a buttress firmly

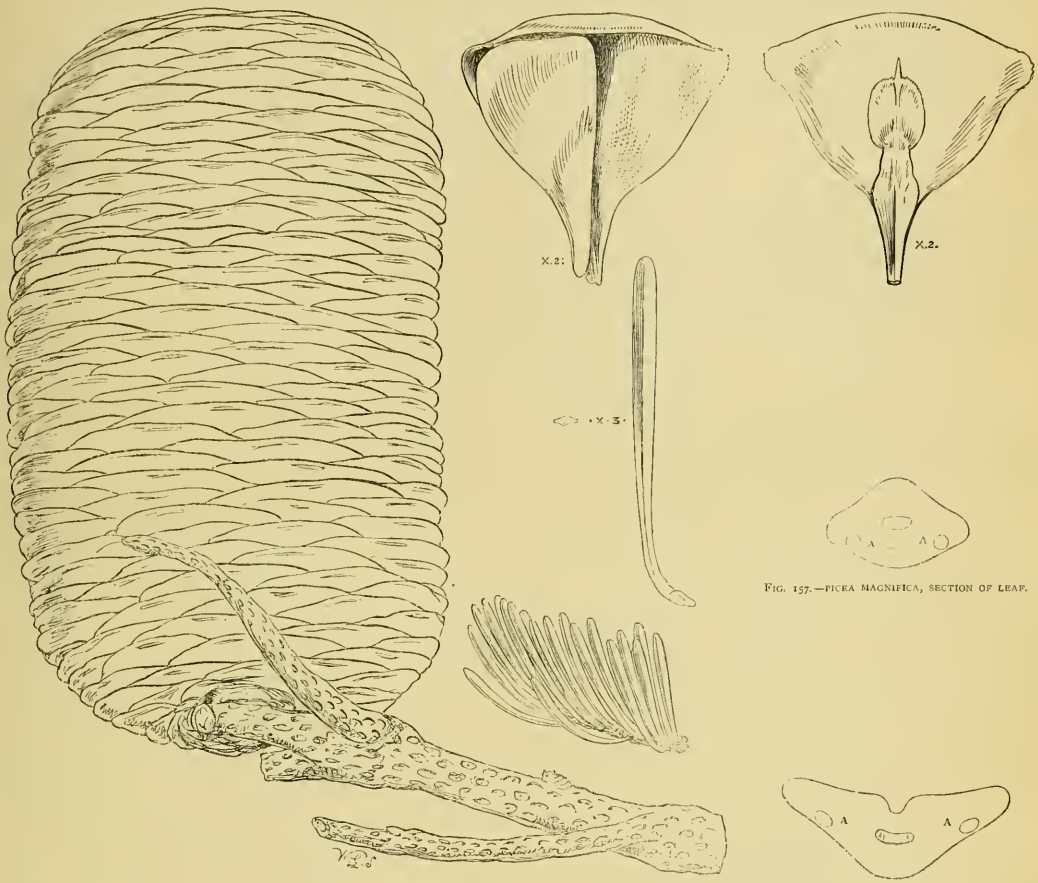


Fig. 156.—Picea nobilis.

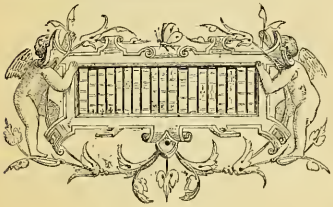
Fig. 157.—Picea magnifica, section of leaf.

Fig. 158.—Picea nobilis, section of leaf.

tramped against the side to which they incline, will generally recover without further trouble or expense; but all such as are secured by ropes, wire, or other similar means, must subsequently have strict attention paid to them, lest the moorings give way, or the ligatures gall or fret the bark, &c.

Some trees, both hard-woods and Coniferæ, are found in such a broken and mangled condition as to perplex the most skilful in the treatment of them; indeed, there are some cases where no alternative is left but to remove them either by grubbing or cutting down. Hard-wood trees, and even Silver Fir and Larch, may, if broken at any considerable distance from the ground, be successfully treated by cutting over below the fracture, allowing them to produce new leaders, which, if healthy, they soon do. All sites whence the trees had to be removed must be left vacant till the proper season for planting arrives, when either neighbouring trees that can be spared may be lifted and transplanted into them, or sufficiently large plants brought from a distance to do it.

The urgent necessity for attending to trees in the state described must be obvious to all when it is borne in mind that if only one season's growth is made by a tree in a prostrate or reclining position, it is next to impossible, with even the best subsequent treatment, to restore it to uprightness and symmetry. *C. V. Michie, Cullen, June* 1.



Notices of Books.

Blüthendiagramme, *construirt und erläutert von* Dr. W. Eichler, Professor der Botanik an der Universität, Kiel. Erster theil, enthaltend Einleitung, Gymnospermen, Monocotylen und sympetale Dicotylen; mit 176 figuren in Holzschnitt. 1875. 8vo, pp. 348. [The Plan of the Flower, &c.] (Williams & Norgate.)

A series of empirical and theoretical floral diagrams or ground plans, illustrating the construction of flowers and the arrangement and mutual relation of their parts, constructed and explained from one point of view, cannot fail to be of the greatest interest and service to systematists and students of organogeny in following up their investigations in whatsoever direction. This is the first work devoted wholly to an examination of this subject, and, as might be expected, there are many gaps left to be filled up as opportunities offer; but had the author delayed publishing until he had himself critically examined every family it is probable that the book would never have seen the light. The author tell us in his preface that it is with considerable diffidence and some misgivings that he offers this book to his colleagues, because he is aware that others, whom he need not name, were better qualified for the task—an assertion we are by no means disposed to assent to. Nevertheless, he does not doubt that it will be welcome to many, and he is satisfied that he has spared neither care nor pains to render his work, as far as it goes, as complete as possible. In spite of his wishes to the contrary, he has been obliged, however, to omit several families on account of inadequate personal knowledge of their structure, and this defect, he says, will be still more apparent in the forthcoming volume. Respecting his guiding principles, Dr. Eichler says that he has attached great importance to the theoretical explanation of floral structures, and in working these out he has always employed general comparative investigations, in which equal stress is laid upon the condition of affairs in the perfect flower and upon the history of its development and progressive changes.

In his introduction the author says that a general theory of the structure of the flower might be expected to precede the floral diagrams, which, however, he does not feel himself in a position to offer, as there are so many questions involved that he has had no opportunities of personally studying.

We will take a rapid survey of the introductory portion as best giving an idea of the manner in which he has handled his subject.

On the Diagram.—This is, as above stated, merely a device like a ground plan, drawn so as to show the number and mutual relationships of the several parts of the flower.

On the Flower.—The writer first of all reminds us of the difficulties in the way of framing an absolute and universal definition of the flower, and remarks that we must be content here, as in many other problems of natural history, with a sort of compromise. A gradual transition from the bracts to the inner floral envelopes in the case of certain flowers will be familiar to all who study this subject. With reference to the axis of the flower, Dr. Eichler regards it as simple, for, otherwise, he says, we should have no distinction between flower and inflorescence. But yet, he adds, it is quite clear that it is not so in cases where it bears lateral ovules, on an axile placenta. These, he suggests, might be regarded as lateral branches for the purpose of reproduction, though this view is untenable, because if we extend it to the staminal growth of Euphorbia what other solution could we give than that the entire "cyathium" is one flower?

The floral axis is sometimes quite simple, as in the Gnetaceæ, Piperaceæ, &c., and bears only one ovule-bud. Sometimes it bears ovule-buds in the form of lateral shoots (Primulaceæ), perhaps also sometimes placentas, in which case the ovule buds are lateral shootlets of the second degree. Against this notion of the undivided nature of the floral axis we may instance many proliferous flowers, as also those which present what gardeners call many centres. The development of the floral leaves is usually in harmony with the universal rule, acropetalous or centripetal, though there are cases which must at present be admitted as exceptions. The author thinks that some of the numerous "exceptions" pointed out by Hofmeister are to be explained in the ordinary way. It would be superfluous for us to follow the author in his description of symmetrical and asymmetrical flowers, æstivation, &c.

As to the disposition of the parts of the flower, Dr. Eichler refers to the spiral whorled and other arrangements, and discusses the relative position and number of the parts of different whorls. Next, in considering the parts of the flower, the author says that nearly all disk formations are to be regarded as outgrowths from the axis, while such parts as the appendages on the petals of Silene, &c., and the corona of Narcissus are to be regarded as outgrowths from the leaf.

Bracteoles.—Under this head are discussed the relation of the bracteoles to the floral whorls, the insertion of the flower with regard to the axis from which it is given off when the bracteoles are absent. In monocotyledons there is usually one, and in dicotyledons usually two bracteoles. In the former the back of the bracteole is commonly turned towards the axis from which the flower is produced, and in the latter the two bracteoles are usually lateral or oblique to the position of the axis. Brackets in the diagrams denote the absence of the bracteoles (*vorblätter*). In one of the figures is shown the relative spiral arrangement of the bracts, lateral bracteoles and true floral envelope, and various other arrangements are described and illustrated.

On the Inflorescence.—The author adopts in this section the most recent views promulgated by Warming and others, which, however, are too technical for us to do more than mention in this place.

The Nature of the Ovule.—Eichler accepts "Braun's view," that it is morphologically a bud, and the nucleus the axis of the bud. He thinks it is invariably a bud, and that its morphological status is the same in all cases; that it is not to be considered sometimes as a bud, at other times as a leaf, lobe of a leaf, or appendage. In this, as in other cases, he briefly discusses the more plausible theories that have been advanced by different writers.

Nature of the Placenta.—Within certain limitations he accepts the view that the placenta in different plants is of different morphological value. Thus in Primulaceæ it is an axis, while in Delphinium, Liliaceæ, &c., it is to be regarded as the thickened margins of the carpels.

Nature of the Stamen.—Eichler does not consider this a settled point, but he is of opinion that a stamen is invariably a leaf or lobe of a leaf.

Perigyny and Epigyny.—Usually this is the result of a cup-shaped expansion of the floral axis. Occasional adhesion and cohesion of organs in gamopetalous flowers is proved by their separation in the earlier stages of development. No hard-and-fast line can be drawn between the two conditions.

Under each family he gives copious references to morphological literature, and in all cases faithfully disclaims all credit for what is not strictly his own.

Comparative morphology, including the history of the stages of development from the beginning to the completed condition, must form the basis of the botanical science of the future. The consideration of those questions which have assumed so much importance of late, viz., adaptation to particular office, variation, inheritance, reversion, &c., must be considered from a morphological point of view; while, for purposes of classification, so far as that is genealogical, natural morphology, as opposed to what is conventional and arbitrary, is, of course, all-important. We can imagine few greater services to classificatory science than such a treatise as Dr. Eichler has here given us. He has most carefully and conscientiously performed his self-imposed task, and although some of his views will not pass unchallenged, the essential value of the book cannot be affected by that circumstance. It is a pity that it is almost useless except to those possessing a pretty good knowledge of the German language, especially as we fear it is not likely to find a translator.

Home Correspondence.

A Frost in the End of May.—On the morning of the 30th the thermometer was as low as 35° here, but in low and exposed situations it was frosty enough to blacken all the Potato tops as well as Scarlet Runners and French Beans. The late Duke of Portland once informed me that, when a lad, he remembered that the Oaks in Welbeck and Thoresby Parks, in exposed situations, were so injured by a frost on May 29 that when the sun shone on the trees all the foliage became as black as his Grace's hat. This shows that we are never safe from spring frosts till May is out, and that extreme climatal changes were the same a hundred years ago as they are now. The rainfalls here in April and May have been much below the average (about 2½ inches in the two months), and this deficiency, after the very dry year of 1874, has told upon the state of the springs, brooks, and rivers, and caused them to be much lower than usual. Rain is now much wanted, for the soil is getting as hard as a board, and the hot sun and drying north-east winds are telling every day against a vigorous growth in vegetation. I was fortunate enough last year in having the kitchen garden here thoroughly furnished with water-pipes and hydrants, so that we can irrigate every vegetable quarter, as well as the fruit tree borders, and we now find great advantages from the system. Fruit of all the hardy sorts have set abundantly this year, but I see the Apples and Pears are dropping their young fruit. I do not think this will matter very much, for some kinds want a thinning, they having set so thickly, yet I believe the crops of these fruits will not be so good as is generally reported, at least in this district. Strawberries are looking well for a great crop, and with the hose at work every other night they will swell their fruit out to a good size. This day (the 7th) although breezy, is one of the hottest we have yet had, the thermometer reading 81° in the shade. *William Tillery.*

Double White Narcissus Damping Off.—Can any correspondent explain why the double white Narcissus, after attaining its full bud, so frequently damps off and collapses into decay? I have this season, just as I was expecting a floral display, lost nearly every Narcissus of this double white description, whether planted in light and warm soil with a south aspect, or in a heavier and cooler situation. And I have seen hundreds of similar failures in grounds having the same situation, at Brighton, for which I can in no way account. *W. E. Heathfield.*

Sheffield and Horticulture.—In the *Gardeners' Chronicle* of May 29 "A. B." makes a sweeping assertion which is very incorrect. He states that we have to resort to all sorts of low and degrading means to draw company. I should like to know what "A. B." means by "all sorts?" I have seen more than sixty *galas* here, but I have not seen anything very low and degrading about them. Once a year we have some comic singing and dancing, sometimes performances on the trapeze, and three or four bands of music—that is all. Some very good local flower shows are held near this town every year, and the best one takes the precaution of having Punch and Judy as well as other attractions in that line of business. At a fine flower show which is held in Derbyshire every year, and which is patronised by a Duke and all the country gentlemen in that neighbourhood, I have seen jugglers, a man-fish, comic singers, dances, and such like amusements carried on; much to the enjoyment of the thousands who were at that show, when the flower tents were so crowded that the people could not see with any degree of comfort and were glad to get out into the open air and see those feats on the stage. If "A. B." could come to our next *gala* on July 12, which will be got up by the Bands of Hope, he will, if it is a fine day, hear more than 2000 children on a stage singing beautiful hymns, and also three or four fine bands of music. Speakers will also deliver orations on the temperance cause, and I should like to know if that be degrading? When wines, spirits and beer are sold at flower shows I think they are more apt to degrade some, more than the amusements which "A. B." alludes to. *J. Ewing, Botanical Gardens, Sheffield.*

American Potatos.—In consequence of various prizes being offered for American Potatos this season an inquiry has arisen amongst intending competitors as to which sorts of the great number of varieties in cultivation are of American origin. In order, therefore, that no confusion may exist upon this point, and

that no exhibitor may be disqualified by the presentation of sorts not American, we ask you to publish for us the following list of Potatos which have been introduced to this country from America:—Alpha, Eureka, Snowflake, Brownell's Beauty (syn. Vermont Beauty), Extra Early Vermont, Compton's Surprise, Early Gem, Late Rose, King of the Earlies, Climax, Bresee's Peerless, Bresee's Prolific, Early Goodrich, Garnet Chili, Peachblow, Early Rose. The above names stand about in the order of date of their introduction, the newest varieties being first. *Hooper & Co., Covent Garden, W.C.*

Early Peas in Durham.—By to-day's post I forward you in a box a few Peas of Dillistone's Early, which I have selected from some gathered to-day. These Peas were sown on February 2; they are the earliest I have heard of in this neighbourhood, and it is considered good work to have early Peas in the third week of June here. I am situated four miles from Newcastle, near to the Tyne, whose banks, I need not tell you, are literally clothed with manufactories, many of which are chemical; collieries also abound in the vicinity. The rainfall here this last month has been almost a minimum; we have had hot, dry arid days, with the thermometer standing at 70°, whilst at night in many cases it has fallen to 28°, with a cold, cutting sharp wind. *B. Cowan, Gr. to Sir H. Clavering, Bart., Newell Park, Blaydon, Durham.*

Sweet Peas.—The advantage of sowing Sweet Peas in autumn, so as to get an early bloom the following year, is hardly sufficiently appreciated. I have now in my garden at Binsted Wyck, in the north of Hampshire, strong plants of Sweet Peas in bloom which were sown towards the end of last summer, came up in the autumn, and stood the long and severe winter without any protection. *William Wickham.*

Strawberry Culture in Pots.—During the last week or two I have been reading the different ideas of your correspondents on Strawberry culture, in regard to placing saucers underneath the pots. I have found very bad results to take place from such a system; in fact, the Strawberry plant is very impatient of anything like stagnation of water at the root. Lately we have forced them here very extensively and with considerable success, having picked for some time from 6 lb. to 40 lb. in a morning. These have all been grown on plain shelves, some near the glass and others at a good distance from it, with a moderate supply of water, and nothing in the way of liquid manure. *William Bowman, Leybourne Grange, Kent.* P.S.—From April 22 to May 26 we picked 319 lb.

Wireworms and Vine Roots.—I do not, as a rule, care to answer letters on disputed subjects when written by persons who do not sign their names to their communications. "J. S. W.," p. 600, doubts the truth of what I stated, that wireworms never eat Vine roots, or indeed the roots of any tree or shrub, because he had found young Vines eaten, and knew his soil contained wireworms. If that is the extent of his knowledge of the subject, it would be just as well if he had not written. I have no object in trying to make "J. S. W." believe my statement; but I do think it well that the minds of such as fear injury from this insect attacking their Vines should be set at rest. Gardeners have enemies enough, vegetable and animal, to combat without being troubled with imaginary ones, and if their plants suffer it is anything but kindness to mislead them as to the cause. As I stated, we grow thousands of Vines every year in green turf abounding in wireworms—neither I nor any of my men ever found a root injured by wireworm. "J. S. W." may have had greater experience, but if so his opinion would have greater weight if we knew his name. I have little doubt the grub which injured his Vines was the larvæ of the Otiorbyncus sulcatus, which is most injurious to Vine roots. *J. R. Pearson, Chilwell.*

The Old Oaks at Dallwitz.—I do not know whether any account has been published of the old Oak trees at Dallwitz, near here; but as I have never seen any mention of them, I think it as well to inform you that I measured the largest one accurately, and found the circumference at 4 feet from the ground 28 feet, and at 3 feet from the ground 32 feet. They have all lost a good deal of top, but the stems seem as sound as ever. They are said to be 1000 years old—a statement not much perhaps over the fact. A Lime near to the Oaks I also measured; this at 5 feet from the ground is 16 feet in circumference. *James Howard, Königs-villa, Carlsbad, June 3.*

Seedling Primroses.—I should be glad if Major Trevor Clarke could mention from what he raised the blue Primrose. I am rather interested in this question on account of the unmistakable crimson patch on the small blue Polyanthus I sent for your inspection some weeks ago, taken from a plant two or three years old, made by dividing a much older one, both blue. If his "stalked Lilac" is a Polyanthus resembling the double lilac Primrose, it must be very fine. As to the relation of Primroses and Polyanthuses, most of the single Primroses I know are in the habit of throwing up Polyanthus stalks occasionally (I mean, of course, the garden sorts), and I have never considered it anything but a sign of lavish growth. One large seedling I know has always about an equal number of Primrose flowers, and others collected on stalks; and, what is worth remarking, the flowers are all Primroses in shape; the Polyanthus heads are bunches of large crimson Primroses, with yellow stars, and perfectly flat. It is a handsome showy flower, and I have great hopes from a very similar white one. Both, I believe, are hybridised seedlings of the single white Primrose. On the other hand, I have more than once noticed a solitary flower of the old dark double Polyanthus, which is a true Cowslip, and in each case the solitary flower was a Polyanthus still, for it had the joint in the stem. My experience, such as it is, inclines me to agree with Major Trevor Clarke, in supposing that the change in your correspondent, "C. W. D.'s," Primroses is owing to "atavism," to use a fine word, and not to manure—notably because the wild Primrose grows chiefly in soil that is little else than leaf-mould, and is often in the way of every sort of animal manure; yet out of millions of blooms I must have seen, I never saw but one plant which varied at all, and then the blooms were of a somewhat paler yellow than ordinary. I think that change of shape with the change of colour points to the same thing, besides being interesting in itself. I certainly have suspected garden Primroses of a tendency to run back, by seedlings or otherwise, to a dull fleshy pink; and also I lately noticed a Polyanthus of fine and clear, and I think rather new, colour, which could have been nothing but simply a seedling of such a Primrose. *J. M.*

The Cost of Limekiln Heating.—I read in your number of June 5, in an article on "Boilers at Manchester," signed D. T. Fish, the following lines:—"Too much fuel is consumed for the equivalent of work rendered, and the sooner the horticultural engineers turn their whole energies to the matter of getting more heat from the coal the better for their own interest and the future prosperity of horticulture. Dissatisfaction merges into impotency unless it becomes the pioneer of improvement. We gladly welcome all that has been done, and the much more attempted, but our cry is yet for cheaper horticultural heat." The enclosed balance-sheet, which Lord Cawdor has allowed me to publish, will answer the cry for cheaper horticultural heat:—

Balance-sheet of Limekiln erected at Stackpole Court—Twelve Months from May 1, 1874, to May 1, 1875.

May 1.—Digging 272 loads stone at 10*d.* per load..	£11	6	8
Hauling ditto	20	0	0
52 tons culm at 9*s.**	23	8	0
Freight of ditto	4	11	0
25 loads coke and small coal from the house at 5*s.*	6	5	0
Fifty-two weeks' attendance: half-day each day for breaking stone and charging kiln, at 7*s.* 6*d.*	19	10	0
	£85	0	8
May 1.—254 loads of lime, at 7*s.* 6*d.* per load ..	£95	5	0
	85	0	8
Balance	£10	4	4

With this new system we get our houses heated cost free, and a good balance to pay for repairs.

Old System: Twelve Months.

Culm and freight	£30	0	0
20 loads coke and small coal from the house, 5*s.* ..	5	0	0
20 loads clay and hauling	3	10	0
20 loads firewood, at 7*s.* 6*d.*	7	10	0
A man making balls for twelve months and attending fires, 13*s.* per week	33	16	0
Second man six months wheeling in and out culm and ashes, cleaning stokeholes, &c., 13*s.* per week	16	18	0
	£96	14	0

No returns but dust and ashes.

The expenditure under the old system is taken from an average of five years.

Charles P. Hoffman, Chairman, The Cowan Patents Co. (Limited), 21, Whitehall Place, S.W., June 7.

* Culm 3*s.* per ton dearer than it ever was before 1874.

Scents of Flowers.—I have a personal observation about the scents of flowers which rather illustrates your correspondent, "H.'s," curious case, given in your paper of May 15. To me the smells of Mignonette and the sweet Violet are sometimes undistinguishable; not generally in the open air, but if there is a small bouquet in the room I sometimes have to look to know which it is. This really does bear out the idea of Mignonette having a double scent, one identical with that of the Violet. At other times, in a room, strong Mignonette grown out-of-doors seems to me to smell like Raspberry jam; how is "H.," I wonder, as to the smell of Raspberries? I quite think the partial want of the sense of smell is a very rare thing; colour blindness in some small degree, about some particular colour, seems to be much more the rule than the exception; but the sense of smell is so intimately connected with our choice of food, and other conditions of life and health, that Nature rarely ventures to play tricks with it. There is, of course, the greatest difference as to general keenness of smell between one person and another very often, and also as liking or being annoyed by smells, good, bad, or indifferent. I believe the well-known Italian horror of a good smell, as I remember a traveller savagely expressing it, to have something to do with the old idea of poison being conveyed in perfumes. I think every one would agree that the smell of the Pansy was totally distinct from that of the Violet (it is very pleasant to me); while I ought to mention that that peculiar smell of Mignonette, when clearly distinguishable, is to me far the most agreeable of the stronger flower scents. It strikes me this season, when it has been so very fine, that the smell of Lily of the Valley has a basis, so to speak, of Lemon. *J. M.*

Natural History.

WASPS.—Like Mr. Smith we have been swarmed with large wasps this year, and my employer wishing to get rid of the pests gives a penny for each one killed by the men and boys, and has done so for the last ten years or more. The largest amount paid during any one year of that period is 19*s.* 6*d.*, making 234 wasps. This year they have killed nearly 700, one of the lads having killed 140 himself. As regards their being all queens, I believe there are male as well as female, for one of the men was digging a piece of ground on Monday and he dug up two nests, about the size of a large Walnut, in one of which there were two large wasps and in the other only one. This, I think, is very early for them to begin. I have also observed that they seem particularly fond of the Cotoneaster microphylla. I should think it would not be amiss to form a wasp club in every village, which would be much better than a sparrow club. *P. Bennett, Ockenden House, Cuckfield, Sussex.*

—— One of your correspondents has drawn attention to the number of wasps frequenting the flowers of the Cotoneaster microphylla in his garden. I have had my attention also drawn to the number of humble bees frequenting its flowers. There are three kinds, or more properly I suppose I might say four kinds. There is the common broad yellow and black-banded kind; another, a smaller bee, with narrower stripes of the same colour; and a third, a tawny-coloured bee, more hairy about the body; whilst there are a few, very few, of the black bee with scarlet tail. The plant is situated at the south-east corner of the house, and though the flower is fully out on both sides, very few come to the eastern side, while the southern side is crowded. Although I have bees in the garden their visits are very few and far between. I have only seen two wasps as yet in all this year. I have carefully watched the bees at a large Wistaria (blue), but I have not been able to find a dead one near it; I cannot think its flowers are destructive to the bee. *J. A. C., Cleughead, Annan, June 1.*

MOLES.—The principal traps used for catching moles are made of iron, with a steel spring, and cost, I believe, sixpence. It is a very simple contrivance, is easily set, and can scarcely be seen. A young fellow caught a great many on my uncle's estates last winter, and among them was a brown one with a light yellow breast,—quite a curiosity. I always thought moles were shy, timid animals, until last winter. I was out with a couple of young spaniels when they caught something, and kept tossing it in the air, and yelling. Wondering what the deuce was up, I went to them, and found they had caught a mole; but the vicious little animal, instead of yielding quietly, turned on the dogs, and bit them severely about the lips, just like a rat. On examination, I found the mole had a set of splendid teeth, finer than a ferret's—in fact, as small and sharp as needles. *Arthur Smyth, in "Hardwicke's Science Gossip."*

THE BURNET MOTH.—I should be much obliged if any of your correspondents could tell me if there is a larger kind of Burnet moth than the one usually seen in the fields at this season. The kind I refer to is 2 inches across when the wings are open, and marked in a similar manner to the common small Burnet moth. I have seen it in a plantation of Pines here for the last fortnight. *M. D. S.*

HORTICULTURAL EXHIBITIONS, 1875.

June.

22 and 23.—The Kingston and Surbiton Royal Horticultural Society's Eleventh Exhibition, at Norbiton. Sec., J. Kirk, 2, East Villas, East Road, Richmond Road, Kingston-on-Thames.
22 and 23.—Lewisham Horticultural Society's Third Summer Exhibition. Hon. Sec., R. Armstrong, Esq., Lansdowne Terrace, Eastdown Park, Lewisham.
23.—Fareham and South Hants Horticultural Society's Show. Sec., Harry Smith, Fareham.
24.—Royal Horticultural Society of Ireland. Great Summer Exhibition. Sec., A. Balfe, 28, Westland Row, Dublin.
24.—Bristol, Clifton, and West of England Rose and Strawberry Show at Clifton.
24 and 25.—Great Rose Show at the Alexandra Palace. Manager, A. McKenzie.
26.—Crystal Palace Rose Show. Sec., F. W. Wilson.
30.—Royal Botanic Society, Regent's Park. Exhibition of Fruit and Cut Flowers. Sec., W. Sowerby.
30.—Wisbeach Rose Show and Horticultural Exhibition. Hon. Sec., Charles Parker, Wisbeach.
30.—Maidstone Rose Show. Sec., Hubert Barsted, Maidstone.

July.

1 and 2.—Spalding Horticultural Society's Exhibition. Hon. Sec., George F. Barrell.
1, 2, 3, and 5.—Horticultural Exhibition at the Lower Grounds, Aston, Birmingham.
2.—The Tunbridge Wells Horticultural Society's Exhibition. Sec., E. F. Loof, The Parade.
2.—Thirty-second Anniversary Festival of the Gardeners' Royal Benevolent Institution.
3.—Southgate Horticultural and Cottage Gardeners' Society's Exhibition. Hon. Sec., J. Mills, Esq., Southgate, N.
3.—West Kent Horticultural Society's Exhibition in Camden Park, Chislehurst. Hon. Sec., H. Nevill, Esq.
6 and 7.—Grantham and South Lincolnshire Horticultural Society's Exhibition at Grantham. Sec., Thomas Lyne, Jun., Grantham.
6 and 7.—Brentwood Horticultural Society's Summer Exhibition. Hon. Sec., R. Earthy.
7.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees. Cut Rose Show.
8.—Frome Rose Show. Sec., A. R. Baily, Frome.
8 and 9.—Manchester Botanical and Horticultural Society. Special Evening Fête and Exhibition of Roses, Floral Decorations, &c. Manager, Bruce Findlay.
8, 9, and 10.—Nottingham and Midland Counties' Grand Rose Show and Horticultural Exhibition, at the Arboretum, Nottingham. Sec., Alfred Kirk, Municipal Offices.
9.—Oxford Rose Show.
14.—Royal Botanic Society, Regent's Park. Evening Fête. Sec., W. Sowerby.
14.—Woodford Horticultural Society's Third Annual Exhibition Hon. Sec., S. J. Taylor, Woodford.
14.—Loughborough Horticultural Society's Show. Sec., William Pallett, 55, Baxter Gate, Loughborough.

THE

Gardeners' Chronicle.

SATURDAY, JUNE 12, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

Tuesday,	June 15	Sale of British Birds' Eggs, at Stevens' Rooms.
Wednesday,	June 16	Royal Botanic Society's Summer Exhibition at Regent's Park. Royal Horticultural Society: Meeting of the Fruit, Floral, and Scientific Committees. Grand Floral Fête at York (three days). Glasgow West of Scotland Horticultural Society's Midsummer Exhibition. Sale of Orchids, at Stevens' Rooms.
Thursday,	June 17	Linnean Society: Meeting at 8 P.M. Lee and Blackheath Horticultural Society's Exhibition (two days).
Friday,	June 18	Scottish Pansy Society's Exhibition at Edinburgh. Exeter Rose Show.

FEW but those who have examined the official returns of our import trade could form any idea of the large amount we pay annually for FOREIGN FRUIT, raw, dried, and preserved, &c. In the year 1873—the latest for which we have the full details—the computed value at entry was close upon £5,500,000, and in all branches, whether fresh, dried, or preserved fruits, the imports show a steady increase. We will take a glance at the trade in green or fresh fruit, although of late years the Board of Trade officials have deprived us of the opportunity of tracing some descriptions of fruit, by lumping them all together under one general head.

For many choice fruits requiring a high range of temperature we are necessarily dependent upon foreign countries, the expense of forcing them rendering their produce too costly for general sale to the public.

We can produce by care and attention very fine Grapes here; but hothouse Grapes cannot be sold cheap, and outdoor Grapes in our climate are seldom worth much. In the latest year of which we have any official record (1870) we received 142,723 bushels of Grapes, valued at £87,416. The greater portion of these came from Portugal and Spain, the rest from Holland and France. The demand for Oranges in this country has nearly doubled in the last six years. In 1867 we imported 1,400,000 bushels of Oranges and Lemons, valued at £744,732; while in the three years ending with 1873, the average annual import was 2,400,000 bushels, of the value of £1,100,000; our supplies come from Spain, Portugal, and the Azores, Italy, and Malta. For many years the production in the Azores was almost annihilated by the attack of a predatory insect, which destroyed the trees; but of late years the plantations have recovered, and our supplies are again larger from this source, ranging in the past six years from 625,000 to nearly 900,000 bushels. The trade calculate the imports by boxes, which can carry on an average 226 fruit. A chest of Oranges, a box and a-half, would have 340. In 1861 209,263 boxes were shipped from St. Michael's, valued at £101,287. A full-grown tree will produce from 12,000 to 16,000 Oranges. Although St. Michael's is the great mart, the other western islands, Fayal, Terceira, and St. Mary's, also grow and ship Oranges.

Of the imports of wall fruit and orchard fruit in the season from the Continent, such as Peaches, Apricots, Green Gages, and Plums, &c., we have no precise details. In 1870 we imported 678,468 bushels of raw Apples, and 53,615 bushels of Pears; whilst in some years we have imported double that quantity, much depending on the yield of our own orchards. In 1873 we also imported 94,789 bushels of dried Apples and Pears. The imports of undescribed raw fruit is large, amounting in 1873 to 1,324,608 bushels, valued at £762,710. In this lump quantity is probably included Pine-Apples, Melons, Bananas, Cherries, and a miscellaneous host of small items. Of Cherries we import variable quantities, ranging from 82,000 bushels up to 153,000 bushels per annum. Melons (Cucumis Melo) from the Continent, and Water Melons (Cucurbita Citrullus) from Malaga and Portugal, are other fleshy fruits which enter into commerce to some small extent. The latter is considered to be the Melon of the Jews, frequently mentioned in Scripture. The juice makes a refreshing drink, but has not much taste. In India it is considered one of the best of fruits, and forms a considerable portion of the food of millions of the people. In Egypt it is used in medicine, especially in ardent fevers; the people collecting the juice when almost rotten and mixing it with sugar and rose water.

The Melon is grown very abundantly in France, and quantities reach this country from thence. One little village, Cavaillon, in the neighbourhood of Vaucluse, often sends out for distribution 5,500,000 in the year, which at the rate of 2*s.* per 100, produce £5000 to the cultivators. The Bahamas, from whence we used to draw the chief proportion of our supply of Pine-apples, now find more ready and profitable customers at the American ports. Out of 381,222 dozen shipped in the quarter ending June, 1873, only 25,000 dozen were sent to London.

In San Salvador there are fields of Pines containing 25 to 60 acres in one block. The long stiff leaves are so short and interwoven as to be almost impassable except in the trodden paths, and the rich green fruitage rear their heads haughtily in countless numbers. In good seasons the yield is about 800 dozen per acre. They are raised from the sucker or slip, which shoots out just at the base of the Pine, and comes into bearing in 18 months. They should be planted in rich red soil about 18 inches apart, and weeded out every three months. Besides the fruit exported, there is a great local demand for tinning it, and 113,000 dozen fruit were bought by one factory at Nassau, and preserved, filling more than 1,000,000 cans of sliced Pine-apples. For tinning the Pines are required fully ripe, and average 15 inches in circumference, none to be less than the usual shipping sizes, 13 and 12 inches for 1st and 2d cutting scarlet, and 12 and 11 inches for sugarloaf. The operation of peeling and slicing is performed on tables in the yards of the waterside premises, over which an awning is placed to protect the operators from the influence of the sun. When the cans are filled they are carried to the warehouse on wooden trays (each containing fifteen), to be immersed in syrup. About 20,000 Pine-apples are peeled and 12,675 cans filled in a day. The tops of the cans are then soldered on, and they are lowered in an iron framework—between 400 and 500 at a time—into the steam boiling vats. After boiling the cans are perforated at the top, to allow the steam to escape. They are then hermetically sealed, and spread over the yard to cool. Each can of fruit, before the syrup is added, weighs 2 lb.

The Pine-apple is now being cultivated with energy in St. Michael's, Azores. The produce of this recent cultivation having realised very considerable profits in the English market, and the quality having been recognised as superior to those of foreign growth generally, conservatories on a large scale are being constructed. The Pine-apple of first quality now returns to the grower from 16*s.* to 20*s.* each, which is a remunerative price, of 35*s.* to 40*s.* per cwt., and some large fine specimens have been sold for as much as 60*s.* each. They attain to a greater size than those received from the West Indies, some weighing 12 lb. to 13 lb. having come to hand. Great care is taken in packing them, to secure their arriving here in sound condition. The stalk is cut several inches below the Pine, an ordinary large-sized flower-pot is then filled with mould, into which the stalk is inserted in such a manner that a casual observer would almost take it to be the way it was grown. Each Pine is then put into a skeleton wooden case, made just large enough to hold it, so that it can be safely handled without the risk of being bruised or injured, the Pine itself being frequently wrapped round with paper as a further protection.

It is satisfactory to find that more attention is now being given in our West Indian colonies to the development of the fruit trade; a good profit might be made, and much that is now wasted be utilised. We are somewhat too far distant here to derive much of the benefit of these shipments, but the Americans and the people of British North America will take any quantity of fruit. The Bahamas are going in extra severely for the culture of Oranges as well as Pine-apples. There was shipped to the States last season from those islands about 4,000,000 Oranges. They are sent in barrels, which hold on an average about 250 Oranges. As yet in its infancy as a branch of West Indian commerce, this fruit trade is capable of wide expansion, and we may reasonably hope that the now constant shipments of Pine-apples, Oranges, and other tropical fruit to London and American ports, are the small beginnings of a business in which the other Antilles will soon take a large part.

The fruit trade between Jamaica and America is satisfactorily progressing. Besides the facilities for transport which are now afforded by regular steam communication from Kingston with New York, the trade continues to increase on the north side of the island by means of sailing vessels, and has now extended from Portland in the east to Hanover in the west, from which last-named place several shipments of fruit are from time to time made. The value of Bananas, Oranges, and other fruit exported in 1870 was but £901; in 1871 it amounted to £2736; and in the last few years it has been greater still.

The fruit is chiefly, however, sent from the

West Indies in bulk, and the heedlessness of the picking and the subsequent handling leads to vast waste and loss. With proper gathering and packing, and with well ventilated vessels, our West India colonists might secure the whole trade of the United States in tropical and subtropical fruit, leaving the Mediterranean, the Peninsula and the Azores to supply their natural market in North and Central Europe.

There are many tropical fruits which are never seen in this kingdom, and there is no reason why experimental efforts should not be made to introduce some of them into the London market; with the special facilities now offered by continuous fast-running steamers from India, the Mediterranean, the West Indies and Brazil, West Africa, and the Cape. New York receives Oranges even now from Calcutta.

The Horticultural Society of Victoria satisfactorily proved at the Vienna Exhibition in 1873, that for the future there need be no difficulty in sending fresh fruit from one side of the world to the other. After having been carefully picked so as to avoid bruising each Apple was wrapped in clean tissue paper and placed in layers between dry cotton wool. The cases which contained these specimens were placed in the ice-rooms of the Peninsular and Oriental steamers by which they were sent, and when unpacked and placed in the show cases they were, with one or two exceptions, in excellent condition. The drying and preservation of fruits of which all sorts grow well in the colony, is an industry to which attention might be at once turned with advantage; and the same remark applies to many other of our younger possessions.

In this hasty examination we have only touched upon a few of the principal green or fresh fruits entering into commerce, although the field of description is a wider and interesting one.*

Once more it would seem as if the horticulturists—would they be but true to themselves and their cause—might have the ball in their own hands, and so long as the Royal Horticultural Society exists, this ought decidedly to be the case; for a horticultural society with horticulture left out is, it must be admitted, something worse than an anomaly. Assuming that the resignations of the President, Treasurer, and other gentlemen of the South Kensington party will be completed, it will then become the duty of the horticulturists to support, with all their influence and goodwill, the remaining horticultural members of the Council, who have had so trying and difficult a position to fill. The earnest thanks of all friends of horticulture are due to those gentlemen who accepted office in such times and under such circumstances, and who have necessarily, but very unfairly, had to bear the brunt of blame for matters for which they were not individually responsible. It may be hoped now that these gentlemen, who have so worthily borne the flag of horticulture through little good repute and much ill-repute, will find themselves supported by all the horticultural body, and that they may associate with themselves other friends of horticulture not fettered by any selfish desire to keep the South Kensington garden solely as an airing-place for their nurserymaids and children, but men capable of taking a broad general view of the requirements and functions of horticulture—men, too, who will be enabled to meet the Commissioners on something like equal terms, and who will be able to come to some satisfactory arrangements with that not very practicable body.

In any case, we advise our horticultural friends to be on the alert lest some of the retiring members of the Council, aided by others who have not long since quitted it, return with a scheme by which they will appropriate the name and the funds of the Royal Horticultural Society, and will use them to keep the garden to themselves without interference from or control by the horticulturists. This seems to us a very likely plan to be attempted, and if it suc-

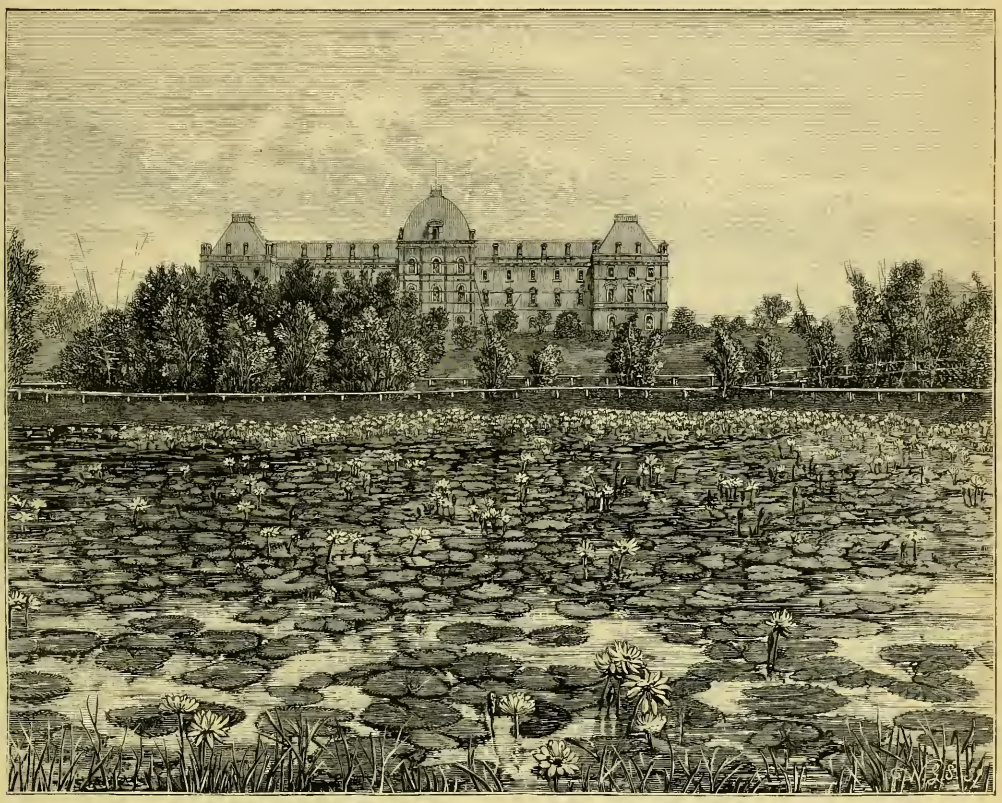


Fig. 159.—Nymphæa gigantea as growing in the lagoon in the Brisbane Botanic Garden.

* The following is a summary of the returned computed value of the several kinds of fruits imported, green and dried and preserved, for the year 1873:—

Almonds	£140,584
Nuts	511,910
Oranges and Lemon	1,124,248
Fruit preserved in their own juice without sugar	98,242
Raw fruit	762,700
Dried fruit (not described)	73,329
Currants	1,275,445
Figs	220,413
Plums and Prunes	32,614
Raisins	668,790
Succades and confectionery, including fruits and vegetables preserved in sugar	215,188
	£5,423,473

ceed horticulturists and horticulture will be worse off than ever. We believe we have but to mention the possibility of some such scheme being attempted, to secure its frustration. The danger is very real, but it is one not difficult to overcome. Horticulturists must be prepared to accept some compromise, but it must be a compromise consistent with their own dignity, and one which will not entail, as former compromises have, material injury to horticulture. In any case we may assume that we have no longer at our head men who take advantage of their position to insult one of the most important if not the very most important section of their clients.

In the meantime the pressing business is to complete the Council, so far as it may be desirable to do so at this juncture, by filling in the further vacancies—for after the statements of Lord BURY and Sir COUTTS LINDSAY, and the letter of Mr. HUME we cannot suppose either of them would seek to remain—with gentlemen who will be acceptable to Her Majesty's Commissioners, and who also have the confidence of Horticulturists, the South Kensington interest not being overlooked; for we altogether deprecate the idea of division into two sections, which can only weaken the influence of both. We understand that the remaining members of the Council have already filled up the four vacancies caused by the resignation a short time since of Sir A. SLADE, Mr. CHETWYND, Mr. CHAMBERS, and Mr. W. A. LINDSAY, by the nomination of Lord LAWKENCE, Admiral HORNBY, Mr. A. GROTE, and Dr. HOGG, all good, honest, straightforward men—the two latter especially acceptable as horticulturists. Lord LAWRENCE, we regret to hear, declines to serve, on the ground of delicate health, and Mr. HAUGHTON has subsequently been chosen in his stead.

Now that there is a prospect of matters taking a turn favourable to horticulture (we are not so churlish as to wish to deprive the Kensingtonians of their fair share of pleasure, too), the whole body of horticulturists, amateur and professional, should stand shoulder to shoulder in support of their craft. Minor differences there will and must be in any considerable body of men, but these should be overlooked, at least, while the effort is being made to reconstitute the Horticultural Society on a horticultural basis, that it may not longer remain the laughing-stock of the country. Those who will not thus act are not friends to horticulture, whatever they may profess to be. As one evidence of this union of purpose, it has been suggested to hold a grand exhibition—the spontaneous effort of our great nurserymen and the leading amateur cultivators, and that, as there is likely to be the nucleus of a good show in the exhibition of the Pelargonium Society and the contest for Messrs. VEITCH'S fruit prizes on July 21, that day should be chosen for the united effort. We heartily commend this proposal, since the contrast between the well-filled benches to be then expected, and the recollections of the empty ones which in the main have this year greeted the flower-show visitors to Kensington, will read a salutary lesson to those in power, whoever they may be. May we suggest that the leading exhibitors should constitute themselves a committee forthwith to carry out this beneficial idea, which, it is to be remembered, is quite outside the efforts of the Council, and intended as a moral support to them, if only they will keep in the straight path, and push forward to the desired goal, which is that HORTICULTURE MAY FLOURISH—by means of its connection both with the Commissioners and the Kensingtonians if possible, but at any rate that horticulture may flourish as it ought to do in such a prosperous country as ours, and one so thoroughly imbued with the horticultural spirit.

—— WE have in preparation, to be issued with our number for June 26, a SPECIAL SUPPLEMENT, consisting of eight pages of original illustrations and letterpress, descriptive of the gardens at Chatsworth, Derbyshire, the seat of the Duke of DEVONSHIRE, K.G.

—— We are requested to state that June 17 is the last day upon which entries can be received for the MIDLAND COUNTIES GRAND HORTICULTURAL EXHIBITION, to be he held in the Lower Grounds, Aston, Birmingham, on July 1, 2, 3, and 5.

—— The June number of the *Botanical Magazine* contains representations of the following plants:—Kniphofia Macowani, a small species best treated as a greenhouse plant, though probably as hardy as the other species of the genus. Crocus Crewei, a new species with solitary flowers, with a slender tube, and segments whitish striped with purple, and with purple anthers; it is a native of Syra, where it was discovered by Mr. ELWES. Dracæna Smithii, a very handsome yellow-flowered species, cultivated at Syon House and at Kew, and presumably of African origin. Balbisia verticillata, a charming half-hardy shrub, with opposite tripartite leaves with linear segments and large yellow Eschscholtzia-like (superficially) flowers. This beautiful and very interesting shrub was introduced by the Horticultural Society in 1825, but, like so many other plants requiring occasional protection to insure its continuance in the open air, it soon was lost from out-of-doors, and, coming from a dry cool climate (Chili), it damped off when transferred to a pit. Such plants, indeed, can be secured only through a constant repetition by cuttings, and by more care than is usually bestowed on plants with unfamiliar names. When properly grown it is an exceedingly handsome thing, flowering in August and September, and resembles a gigantic Hypericum more than an Œnothera, with which latter it has more usually been compared. Messrs. VEITCH are the lucky re-introducers of this fine shrub, which, on the strength of the illustration here referred to, we commend to the notice of those who have winter gardens, or who are favoured by a climate like that of our southern and western coasts. Masdevallia Estradæ was originally described by Professor REICHENBACH in our columns. It is a free flowering species, with pretty violet-spotted flowers. It was introduced to the nursery of Mr. B. S. WILLIAMS by Mr. PATIN. The last figure in the present number is devoted to Viburnum Sandankwa, a hardy evergreen shrub, native of Japan, but which has proved hardy against a wall at Kew. The specimen figured was furnished from the Scilly Islands by J. DORRIEN SMITH, Esq., who, we are delighted to hear, keeps up the splendid collections made by the late AUGUSTUS SMITH, Esq.

—— The June number of the *Revue de l'Horticulture Belge* opens with a coloured figure of the true Spiræa palmata, and illustrations of the magnificent winter garden of M. DE KERCHOVE, lately described in our columns by M. OSWALD DE KERCHOVE. A good practical article on watering, addressed to amateurs, is contributed by M. A. SIRAUX.

—— On the 24th inst. the freehold property known to many of our readers as SISTER HOUSE, Clapham Common, the residence of AMBROSE BASSETT, Esq., is to be sold by auction, and, as a consequence thereof, the fine collection of plants, which has been under the care of Mr. GEORGE BAKER, one of the most successful of our Orchid growers, for the last seventeen years, will probably soon afterwards be dispersed in a similar manner. Mr. BAKER has, we are pleased to learn, met with another appointment worthy of his high character and professional ability; and at the beginning of July takes charge of the garden establishment of EDWARD BARING, Esq., at Coombe Wood.

—— Who is responsible for the term "ENGLISH GARDEN," or *Jardin Anglais*, as applied to a garden arranged in a natural picturesque style, as contradistinguished from a formal or architectural method? We in England never speak of our landscape gardens as "English" gardens. On the Continent, however, the expression *Jardin Anglais* is frequent. M. F. BARILLET takes us, as a nation, to task in a recent number of the *Revue Horticole* for this expression. We plead not guilty, as we do not use the term to which he takes exception. M. BARILLET claims for a Frenchman, DUFRESNY, the origination of this method, stating that DUFRESNY preceded KENT by thirty-six years; but we suspect that M. BARILLET would have to go very much further back, and into the eastern hemisphere, to find the precursor of our landscape garden.

—— Mr. BATEMAN has forwarded to us examples of the CYTISUS ADAMI, which had been sent to him as a "curious Laburnum," from the gardens at The Grange, Congleton. The tree is a fine one, having reached a height of 20 feet, and is this season full of flowers, the blossoms being described as alternately yellow and pink, the former colour predominating—all growing from one stock, which does not appear to have been grafted. With these were also sent "specimens of another flower growing on the same Laburnum tree," which proved to be Cytisus purpureus. This very remarkable plant, commonly called the Purple Laburnum, has been frequently mentioned in our columns, and is certainly a very interesting and to some extent mysterious member of the vegetable kingdom. It is supposed to be a sport or a graft-hybrid (for the accounts of its origin vary) between Cytisus Laburnum or alpinus, and the dwarf shrubby Cytisus purpureus. Whatever its origin, it is by no means uncommon to see trees, such as that above referred to, bearing the golden racemes of the common or Scotch Laburnum (as the one or other may happen to have been used as a stock), the purplish racemes of the Purple Laburnum, and tufts of the Cytisus purpureus, all mixed up together, and certainly produced without special grafting—one branch being of one colour and another of the other, with the tufts of C. purpureus sitting amongst them like "witches' besoms"; sometimes fragments of the same branch, bearing the two sorts of Laburnum, in a thoroughly capricious manner, are to be met with. In fact, it is impossible to predicate what part of the tree may bear purple and what part yellow blossoms.

—— M. CARRIÈRE describes in the *Revue Horticole* a variety of Robinia Pseud-Acacia, remarkable for its free flowering qualities and long continuance in flower, and to which he therefore applies the epithet semperflorens.

—— Botanists of the present day admit very few monotypic natural orders, and therefore a genus which still maintains its title to that dignity is of more than ordinary interest, and all plant lovers will be glad of an opportunity to see a living specimen of COLUMELLIA SERICEA, one of two or three species constituting the genus Columellia and the order Columelliaceæ. The plant in question is now in flower in the winter garden at Kew, and a portrait of it will probably soon appear in the *Botanical Magazine*. The name Columellia, or one very similar, has been applied by different writers to species of Pisonia, Pavonia, Vitis, and Nestlera, with none of which has the Columellia of Ruiz and Pavon any relationship. It is remarkable in having only two stamens, the nature of which has been variously explained, but having had no opportunity of examining them ourselves we can give no opinion. We believe, however, that Mr. BENTHAM considers the nearest affinity of the genus to be with the Gesneraceæ, near which it will be placed in the forthcoming part of the *Genera Plantarum*. In general appearance this Columellia resembles some of the Australian Hibbertias. It is a dwarf apparently evergreen shrub, with small opposite simple leaves, and solitary terminal yellow flowers, about an inch in diameter; and although not wanting in beauty, it is of more interest on account of its peculiar floral structure. We are not quite sure at the present moment whether it has ever before flowered in this country, but we think not.

—— We learn from the *Revue de l'Horticulture Belge*, that Professor EDWARD MORREN, of Liège, the editor of the *Belgique Horticole*, has been appointed a Chevalier of the Order of LEOPOLD. We congratulate our *confrère* on the attainment of a distinction to which nothing analogous is open to British men of science.

—— To guard against the possibility of causing the spread of the PHYLLOXERA, it has been decided to exclude Grapes and Grape Vines from the forthcoming International Exhibition at Cologne. If it be necessary to exclude the Grapes as well as the Vines, our fruit shows will be deprived of one of the chief points of interest. Perhaps this precaution is justifiable in the case of an International Exhibition.

—— A plant of the most perfect symmetry of FREMONTIA CALIFORNICA is splendidly in flower at Kew on the west side of the herbaceous ground wall. It has the appearance of being studded over with gigantic buttercups, and, having very neat foliage, is one of the choicest shrubs introduced.

—— The TEMPERATE HOUSE AT KEW is now in a condition of much interest from the number of good things in flower. Greya Sutherlandii is one of the most important, blooming in one of the octagons. It flowered for the first time in the kingdom at the Chelsea Botanic Garden about two years ago, and more recently at Glasnevin. We reprinted an interesting article concerning it from the *Irish Farmers' Gazette* in our issue of May 22. To flower the plant it will doubtless be found essential to secure well-ripened wood. Agapetes buxifolia is very handsome, flowering along the old wood up to the young growths. This was imported from the eastern frontier of Bhotan, where it grows epiphytically on trees, but in cultivation it forms a good shrub grown in a pot. The flowers are produced in great profusion for several weeks, the corolla is tubular, 1 inch long, and scarlet. Streptocarpus floribundus is productive of a good display, from the large number of its lilac Gloxinia-like flowers. Fine specimens are formed by having three or more plants in a pan. Of Fuchsia splendens there are two fine plants beauti-

fully in flower, one more than 12 feet high. Cordyline australis, near the centre of the house, is bearing a fine panicle. It stands the winter out-of-doors at Edinburgh and other places, and possibly by hybridising a valuable series of hardy forms might be produced. Bossiæa linophylla is represented by a most beautiful specimen. An idea of its appearance may be obtained by imagining a plant 6 feet high of Eutaxia myrtifolia, with extremely slender branches, weeping to the pot in graceful masses. Passiflora cinnabarina is covered with flowers, of a colour indicated by the name, seeming to be a valuable greenhouse climber. A fine shrub of Magnolia fuscata perfumes a considerable space in the house with its delicious Melon-like odour. Ruscus androgynus is in great beauty, near one of the staircases, reaching from the ground to the gallery. The pinnated branches are considerably more than 2 feet long, and the flattened branches are densely margined with flowers. Michelia lanuginosa has just flowered, perhaps for the first time in the country. The leaves are oblong acute, 8 inches long and woolly on the under surface. The flowers were large, pale yellow, with many flimsy petals, and sweetly scented. It is a native of Nepaul, where it forms a tree 60 feet high. Philydrum glaberimum is hand some thoughnot very showy. It is a new plant, figured in the *Botanical Magazine* of 1873. It forms a tuft of ensiform dark green leaves about 3 feet high, the flowers are white, and small, densely disposed in panicles, with spicate branches. The introduction of this by Mr. W. BULL makes a third species for the order Philydreæ. It is supposed to be a native of the Pacific Islands. A large tree of Eucalyptus globulus is in flower, and can be seen well from the gallery. The buds before opening might easily be mistaken for seed-vessels; they have a blue glaucous appearance, and look as if touched over with the blue paint used in the ornamentation of the house. Young plants have been raised from the seeds saved from this tree last year.

—— AGAVE CELSIANA is flowering in the succulent-house at Kew. Two other species, A. hystrix and A. filamentosa, are throwing up vigorous scapes.

—— Dr. KALENICZENKO has recently published, in the *Bulletin of the Imperial Society of Naturalists of Moscow*, a monographic description of the species of CRATÆGUS cultivated by him in his garden at Kharkow. He divides the genus into fifteen groups, including twenty-nine species.

—— Mr. D. MACFARLINE, late of Warnham Court, Sussex, is appointed to the management of the extensive gardens of THOMAS PILKINGTON, Esq., Knowsley Cottage, Prescott, Lancashire.

—— A remarkable instance of the provisions of Nature to ensure the propagation of a species is recorded in the *Monthly Notices of Papers and Proceedings of the Royal Society of Tasmania for* 1873. Under ordinary conditions the Chili Pine, Araucaria imbricata, does not bear cones until it has attained a considerable size and age, and the sexes are usually (?) on separate trees; indeed until recently it was believed to be strictly diœcious. However, a plant in the Botanic Garden at Hobart Town, Tasmania, about 8 feet high, but of stunted growth, produced two cones, from which about one hundred seedlings have been raised. The fact is very interesting, not only on account of the smallness of the plant, but also because the sexes are often separated. In this case we have a small isolated plant producing [apparently] both sexes, and ripening its seed. Is this a fact, may we ask, or is it possible that it was fertilised by pollen from another species? The seedlings will furnish the answer to this question in time. It is supposed that is the first instance of this species bearing fertile cones in the Australian colonies.

—— ALISTER MURRAY, residing at Durie, Fife, was recently charged before Bailie HOWDEN, at the Edinburgh Police Court, with STEALING FIFTY ALPINE PLANTS or slips from the Botanic Garden, Inverleith Row. The accused pleaded guilty, and was fined £5, with the alternative of fifteen days' imprisonment, and ordered to procure £10 caution or suffer other fifteen days' imprisonment.

—— The executive committee for the INTERNATIONAL HORTICULTURAL EXHIBITION AT COLOGNE informs us that the work is progressing steadily in the Exhibition grounds; the great flower and fruit hall is almost completed, and the hall for machinery will be ready in a short time. "The foundations for the glass houses—eight of which have been already announced—are nearly finished. The ground has been prepared and beds cut out for the Roses, flowers, and plants in general in the Exhibition ground adjoining the Flora. Some of the ground has been already planted, and we are happy to state that the plants are flourishing. The grass seed has been furnished by the well-known London firm of JAMES CARTER & CO. The Government railways have agreed to a reduction of 50 per cent. on the ordinary rates of freight, as have also almost all rail and steam navigation companies. Much interest has been taken in the exhibition of fossil plants. Contributions have been offered from all sides—from Government, private and public associations, and from mine owners. Dr. AUDRAE, Professor in Bonn, is at the head of this department."

—— M. HOLZNER has lately detected an insect closely allied to Aphis and Phylloxera, which attacks the ROOTS OF ABIES BALSAMICA and A. FRASERI. The disease ceases when the insect is destroyed, but if the insect returns the disease reappears.

—— We learn from the *Journal of Botany* that the botanical collections of the late Rev. R. T. LOWE are to be divided between the herbaria of Kew and the British Museum, the former taking any uniques. These specimens are important as containing the types of Mr. LOWE's (unfortunately incomplete) *Manual Flora of Madeira*. The same journal also understands that a somewhat similar bequest of his collections was made by Mr. D. HANBURY. He also left by will £100 each to the libraries of the Linnean and Pharmaceutical Societies.

BRISBANE BOTANIC GARDEN.

LAGOON IN FRONT OF PARLIAMENT HOUSES.

AMONGST the several botanic gardens belonging to our colonial possessions, none are administered with greater ability or with more satisfactory results than those of Australia. We have often had occasion to refer to work done in the promotion of botany and horticulture by the botanic gardens of Sydney, Melbourne, Brisbane, and Adelaide, the reports of whose directors have furnished notes for our columns, and photographs taken in the gardens at Adelaide have been reproduced by us. We now engrave from a photograph a view taken in the Botanic Garden, Brisbane, showing a lagoon in front of the new Parliament Houses (fig. 159, p. 757). This lagoon measures 206 feet in length and 144 feet broad, and is thickly planted with the native Water Lily (Nymphæa gigantea), the flowers of which are either blue, purple, or pink, and when fully opened they produce a wonderful effect, forming a great attraction to visitors. The species is figured at t. 4647 of the *Botanical Magazine*, and Mr. Bentham thus speaks of it in the *Flora Australiensis*: —"The species is apparently confined to Australia, unless it be really a modification of the Asiatic and African N. stellata (Willd.), as appears to have been the opinion of Brown. It varies exceedingly in size. The larger specimens have the leaves about 18 inches across, with much raised reticulations underneath, the flowers 12 inches across, with exceedingly numerous petals, and above 200 stamens; the smallest have leaves of 5 or 6 inches, not reticulate, the flowers 3 or 4 inches across, and the petals and stamens much fewer but always more numerous than is usual in N. stellata, to which F. Mueller is disposed to refer several specimens. This Indian species may also be distinguished by the connection lengthened beyond the anther cells into a very prominent appendage, and it appears to me that Caspary (*Notes in Herb.*, Hooker) is right in considering all the Australian specimens as forms of N. gigantea. In Kew Gardens the flowers and leaves are very small in the early part of the season, and larger and larger ones are developed as the season advances. F. Mueller also distinguishes the seeds in size and shape, smaller, more ovoid, and more completely enclosed in the arillus in those he refers to N. stellata than in the true N. gigantea, but in the true N. stellata the seeds are nearly globular, and usually marked with raised longitudinal costæ not mentioned by F. Mueller."

Such is Mr. Bentham's testimony with regard to the affinities of the Australian Water Lily, the representative in that great continent of a large and widely diffused genus belonging to a very attractive family, the members of which, from our own Nymphæa alba to the splendid Victoria regia, are universal favourites. As economic plants the Nymphæaceæ are, perhaps, of very little importance, nevertheless the rhizomes and the fruits of many of them are eaten, and the species under consideration, N. gigantea, furnishes food to the Australian aborigines. With regard to the Brisbane garden itself, as we shall have occasion to refer to it in future numbers, we will content ourselves with noting the popularity of these lakes or lagoons. Mr. Hill in his last report says that not only is the lake a source of great attraction to visitors, owing to the water plants, but that much interest is taken by the public in the fish with which the present lagoon is well stocked—they include the Fitzroy perch, the mullet, and other species. These lakes also help to drain the grounds, and so with the co-operation of the water-fowl and fishes to effectually dispose of the numerous frogs with which some parts of the grounds abound. *John R. Jackson.*

Foreign Correspondence.

THE ADELAIDE BOTANIC GARDEN (*continued from p.* 658).—The experimental garden is a most interesting part of the grounds to persons engaged in agricultural or pastoral pursuits. The experiment is simply a test of the suitability of particular plants useful to the agriculturist and grazier, or in the arts and manufactures, and the value of these experiments is of great importance to the colony at large. Dr. Schomburgk has earned a reputation for his unwearied efforts to benefit the colony, as well by his pen as in the introduction of various useful and economical plants. The garden contains upwards of one hundred varieties of grasses, and amongst these the Director in his last admirable and exhaustive report particularly mentions the following, which have stood the test of our arid climate:—The Bunch-grass, the Guinea-grass (Panicum maximum), the Prairie-grass (Bromus unioloides), Phillips'-grass (Panicum spectabile), the Cat's-tail-grass (Phleum pratense), the Oat-grass (Avena elatior), the Falling-awn grasses (Piptatherium Thomasii and P. multiflorum), Millet-grass (Milium multiflorum), the Panic-grasses (Panicum tomentosa, P. teneriffæ, and P. crus-galli). Amongst the fodder plants may be noticed the Pentzia virgata, a plant from the Cape of Good Hope, which is highly prized in that colony as invaluable for sheep; the Plantains or Rib-grasses (Plantago major and lanceolata), the Burnet (Poterium sanguisorba), and the Clovers. Amongst fibrous and dye plants we saw the Esparto-grass, which is growing most luxuriantly, and stands our summers well, and no doubt will prove a valuable addition to our list of agricultural productions; the Madder (Rubia tinctoria), which is doing remarkably well; the Teasel (Dipsacus fullonum), the American Broom, Millet, and many other useful plants, including medicinal, all doing remarkably well. The experimental garden is laid out in parallel borders, with paths between, leading out from the main walk which runs through the centre. The plants are neatly arranged and labelled, so that the visitor has no trouble in finding any particular plant. After leaving here we pass some very pretty cages for birds and animals: they are from designs by Dr. Schomburgk, and are after the Chinese, Swiss, and Italian styles. We now reach the gem of the garden, the Victoria regia house. The centre of the house is occupied by a large oval cistern of 36 feet by 26 feet, and 6 feet deep. The house is 60 feet long by 40 feet wide, and 16 feet high. One single plant of this superb and most magnificent Water Lily in the world fills the centre basin, with the exception of three or four Nymphæas, which occupy the few spaces amongst the salver-shaped leaves of the Victoria regia. The one now growing was planted six weeks previous to our visit, and the leaves were then 3 feet 6 inches in diameter, and will shortly reach a diameter of 6 or 7 feet; flowers 1 foot diameter. The iron pillars supporting the roof are covered with the bark of the Fern tree, on which has been placed slender growing Ferns, and these seem to thrive in the moist hot atmosphere, which ranges from 80° to 85° Fahrenheit. Here also is a most magnificent collection of leaf plants, amongst which may be mentioned Curculigo recurvata variegata, with large green leaves banded with pure white stripes; Maranta Baraquinii, M. cinerea, M. Legrelliana, M. Makoyana—all magnificent foliage plants. There are fifty varieties of Caladiums, and some of them are very fine, particularly Prince Albert Edward and the Princess of Wales; Pavetta borbonica, Dieffenbachia Bausei, Baraquiniana, Weirii—all most striking and beautiful. There are several very fine climbers, which add very much to the beauty of the whole, amongst which may be mentioned as deserving of special notice, viz, Allamanda nobilis, a most splendid free-flowering stove plant; Vanilla planifolia, which produces the vanilla of commerce; Aristolochia galeata, Duchartrei, labiata; Combretum grandiflorum, Campsidium valdiviana, Passiflora odorata, Dioscorea chrysophylla, D. melanoleuca. We saw here also some new beautiful plants lately introduced, viz., Phyllotænium Lindeni, Curmeria picturata, Maranta hieroglyphica, Anthurium crystallinum, floribundum, and hybridum; Dieffenbachia imperialis, latimaculata; Philodendron daguense, P. melanochrysum; Cyrtodeira fulgida, and the new magnificent Acanthacea, Aphelandra fascinator. The Orchids here are also magnificent, and all the plants in the house are so arranged as to produce a pleasing effect on the visitor. The Victoria regia house stands on a raised terrace, which is tastefully laid out as a flower garden, with fountains and statuary. Here we observed a very fine collection of Gladiolus, which were in full flower, and were really magnificent. There is also here a fine collection of Pæonies, which were nearly out of flower when we saw them. Amongst shrubs we noticed Aralia reticulata, in flower, very fine; Boronia elatior, in flower, also fine; Hydrangea hortensis, japonica vars. argenteo-variegata, and aureo-variegata, Strophanthus capensis, &c. Twelve varieties of the Mulberry form a fine background on one side of this garden, and beyond this, still following round,

we reach another portion of the arboretum and Pine grove. The majority of the Pines have been planted six years only, and the growth they have made is really wonderful; many of them are now 15 to 20 feet high. The Californian Pines are doing remarkably well, and would doubtless succeed well in our mountain districts as forest trees. Amongst these we noticed Pinus Coulterii, P. Sabiniana, P. grandis, P. Massoniana (Japan), P. Smithiana (Himalaya). Altogether, there are between 60 and 70 distinct species of the genus Pinus in the gardens. The Junipers are also well represented; amongst others we note the following:—Juniperus Oxycedrus, bermudiana, splendens, drupacea, and recurva, &c., and the beautiful Thuja Lobbii. Near the eastern end of the gardens is a fine statue of Niobe. It stands on a commanding eminence, from whence are to be obtained some fine views of the gardens. Descending from here we proceed onwards by paths leading through grass lawns dotted with specimen trees and shrubs, with here and there flower borders, fountains, statuary, and cages for animals and birds, while on the lake numerous aquatic birds of different varieties give a charm to the whole scene, which is truly delightful.

Here are some fine Araucarias, which seem to thrive as if indigenous to the colony, and are magnificent objects. Araucaria Cunninghamii is a splendid tree, being upwards of 50 feet high. Araucaria Cookii, very fine, 35 feet high; A. Bidwillii, 35 feet; and A. Cunninghamii glauca, A. excelsa, and A. imbricata, all doing remarkably well; Dammara australis, twelve years planted, and 40 feet high. Specimens of the beautiful Palm-like genus Dracæna adorn the lawns. Cupressus torulosa var. elegans is a noble tree, upwards of 35 feet high; its greatest diameter is at its base, gradually tapering to a thin point. Schinus Molle is a fine tree from Brazil, and is doing well. The Red Cedar (Cedrela australis) is growing most luxuriantly. One tree we saw measured 4 feet round the stem, and 30 feet high. Dr. Schomburgk has experienced great difficulty in procuring seeds of the Cedar—in fact, they are not to be got; but the Doctor will soon be independent of supplies from the other colonies, as this tree we observed was just coming into flower. Here we noticed a fine collection of the genus Philadephus, consisting of upwards of twenty varieties. A very fine specimen of Ficus Roxburghi stands on the lawn here; also Pinus halepensis and P. verticillata, both very fine, and 50 or 60 feet high. The beautiful little Biota aurea is the finest plant for a lawn of small dimensions we know of, and may here be seen in perfection. The Ball Acacia (Robinia Pseud-Acacia var. inermis) is a most beautiful plant for lawns. It is grafted on stocks of the common Robinia, about 6 feet high, and the plant really deserves its name, for the heads resemble both in roundness and for compact growth and regularity a ball, and are really very fine. We noticed here a fine specimen of Ficus spuria; a splendid tree of Pinus insignis, 50 feet high and only seven years planted; also a magnificent Cedrus Deodara, and a Clematis with dark purple flower (Clematis Jackmanni); also Clematis Fortunei and Viticella, all good. Near here is a fine trellised walk covered over with beautiful climbers, which afford an agreeable shade in hot weather.

We observed here a fine obelisk erected in memory of the late Mr. Francis, the first director of the garden, and who died in 1862. He was a gentleman of high literary and scientific attainments; and he displayed much taste and artistic skill in laying out the older portion of the garden, and was highly respected by all who had the pleasure of knowing him.

We here turn to the right, and follow round the margin of the large lake, where there are some fine Weeping Willows.

We then turn up the main avenue towards the entrance-gate. Here are some fine statues and fountains, ribbon flower-beds, and grass lawns dotted here and there with choice trees and shrubs, standard Roses, &c. On the sides of the avenue there are placed, at regular distances apart, cases with open glass roofs, made to shut down in cold stormy weather, and containing a large collection of the genera Mammillaria and Echinocactus, the Nipple Cactus, and the Hedgehog Cactus, and we believe that the gardens possess the finest collection of this order of plants in the Southern Hemisphere, numbering 600 species. The collection of plants, as a whole, is very large, upwards of 9000 distinct species; in addition there are also nearly 2000 varieties of florists' flowers, and the collections are constantly receiving additions from nearly every botanical garden in Europe, East and West Indies, America, &c., with all of which Dr. Schomburgk is in correspondence. It will not be saying too much if we ascribe to Dr. Schomburgk the very highest attainments as a botanist and a gentleman of refined taste and versatility of genius. It was fortunate for the colony when the Doctor consented to leave his beautiful estate on the banks of the Gawler, and assume the directorship of the gardens. The colony owes him much for the source of enjoyment he has conferred by the skill and taste he has displayed in designing and laying out such a beautiful garden, and for his unwearied endeavours by his pen in pointing out the many sources of wealth we have in the vegetable productions suited to our soil and climate. May he long be spared to occupy his present position of usefulness. A fine addition has been made to the gardens, and named the Botanic Garden Park. This consists of about 80 acres of beautiful land lying between the gardens and the River Torrens. A carriage drive about a mile in length goes through the grounds. The main walk of the Botanic Garden is carried right through the park to the Torrens. It is 10 feet wider, however, and is planted on each side with two rows of avenue trees. Midway in this walk has been formed a circle for the purpose of concerts, flower shows, &c. This has been planted with shade trees. Two broad walks lead from the circle as promenades, ending in half-circles, also planted with shade trees. At the end of the main avenue there is provision made for a carriage-stand. The carriage drive—66 feet wide—is lined with two rows of umbrageous trees on each side. Between these, curved and winding walks lead in different directions through the grounds. Seats will be provided, from which magnificent views of the grand ranges of hills which surround Adelaide can be obtained; also different parts of the city and suburbs. The Director planned the whole of the walks and drives; and he has this season put out upwards of 3000 avenue and shade trees, which he placed ready for planting with his own hands. The trees are all doing remarkably well, and in a few years will have attained a magnitude which will render them real objects of beauty, if we measure their growth by those in the garden. Nothing, however, has been done to the avenues or walks except laying them out and paring the grass off, the director's object being to get as many of the trees planted out as possible, evidently imbued with the same idea as the Laird of Logan when he gave the counsel to his son, "Aye be stickin' in a tree, Jock; it 'll be growin' when ye're sleepin'." The creek which runs through the grounds, and was in its natural state a most unsightly object, the banks in many places being then precipices from 20 to 30 feet high, has undergone a wonderful transformation. The banks for a considerable distance have been sloped, hollows have been filled in, leaving charming nooks for choice plants, and the slopes have been planted in with Mesembryanthemum tegens, which is of low dwarf habit, and forms a pretty surface resembling at a little distance grass sward. Operations were begun on the park in the beginning of winter, and the amount of work which has been accomplished by twelve men is really astonishing. Much requires doing yet, however, and it is hoped that the Legislature will vote a liberal sum to complete what may with justice be termed a national work. The Botanic Garden Park is only an instalment of what will eventually be done to the whole of the park lands surrounding the city. The annual grant to the garden is £3000—a small sum

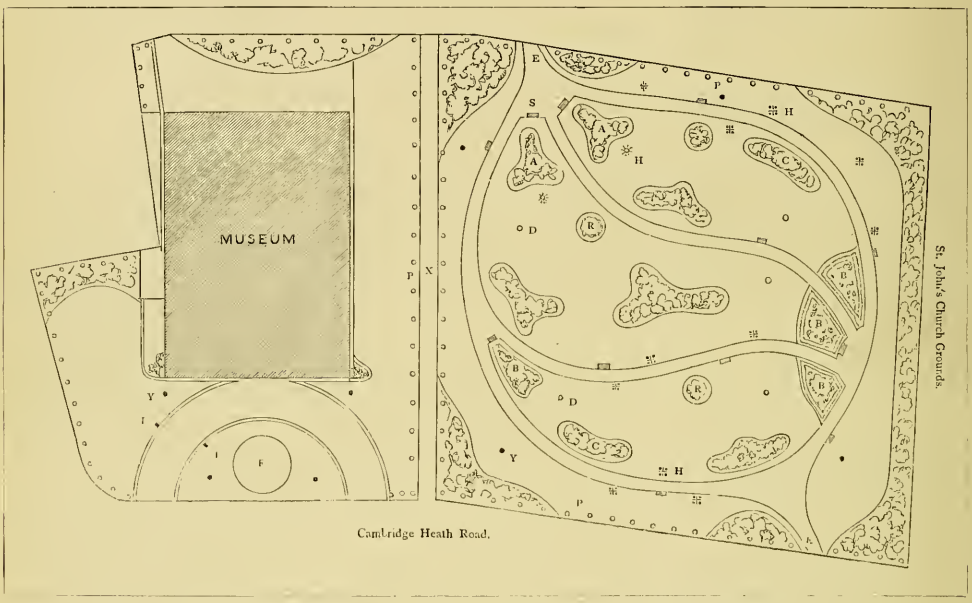


Fig. 160.—Bethnal Green Museum Garden. (Scale about 94 feet to an inch.)

compared with the results attained, not only in the excellent order in which the grounds are kept, but in the buildings and extension of the garden which this annual grant accomplishes. The Director does the whole of the clerical work, occupying much time, and which is of considerable importance. He has an invaluable head gardener in Mr. Rankine, who has charge of the propagation-houses, Orchid-house, and the Victoria-house; also in Messrs. Humphries and Johnson, who have charge of the stoves and green-houses. In addition to these there are four practical gardeners, eight labourers, and two keepers of animals, a carpenter, and a painter and plumber. Altogether the colony has just reason to be proud of these fine gardens, which are acknowledged by competent authorities to be the finest in the Southern Hemisphere. *G. M'Ewen, in "South Australian Register."*

THE NEW GARDEN AT THE BETHNAL GREEN MUSEUM.

The opening of this new "lung" in the East End of London on May 19 was announced in our columns at p. 661, and we have now, thanks to the kind co-operation of Mr. McIntyre, the pleasure of placing before our readers a plan of the grounds as that gentleman has laid them out (fig. 160), together with an indication of the subjects used in planting the beds and the shrubbery borders surrounding the grounds, which will no doubt interest many of our readers as showing what a man of Mr. McIntyre's experience considers suitable subjects for such a soot-begrimed atmosphere as that of Bethnal Green.

In general planting the following trees and shrubs are employed:—Ailantus glandulosa, Acer eriocarpum, A. platanoides, A. monspessulanum, A. colchicum rubrum, A. Lobelii, Planera acuminata, Robinia fastigiata, R. inermis, Populus canadensis, P. canescens pendula, P. nivea, Platanus macrophylla, P. hybrida, Alnus cordata, Pavia humilis, P. atrosanguinea, P. Lyoni, Pyrus salicifolia pendula, Cotoneaster frigida, C. baccilaris, C. affinis, C. Simonsii, &c., Catalpa aurea, C. syringæfolia, C. Kæmpferi, Ribes aureum, R. sanguineum fl.-pleno, R. atropurpureum, Ulmus cordata, U. rugosa pendula, Rhus altissima, R. Cotinus, Fagus purpurea major, F. pendula, F. salicifolia, Ptelia trifoliata, Cornus mascula var., Carpinus quercifolia, Caragana Chamlagu, C. Altagana, Cerasus Padus, Liquidambar, Phillyrea latifolia, Evergreen Oaks in variety, Thorns in variety, Laburnum in variety, Lilacs in variety, Hypericum in variety, Broom, Ligustrum in variety, Guelder Rose, double Peach, Purple Filbert, Arbutus Unedo, double Furze, Spiræa in variety, Rosemary, Laurustinus, Aucuba.

The references to the plan are—A. Beds of variegated Holly and Yucca recurva, edged with Euonymus radicans. B. Dwarf beds with burrs, edged with Ivy and Periwinkle, and filled with the hardier succulents, alpines, Cotoneaster, Skimmia, &c. C. Bedded Hollies, Aucubas, Euonymus, Box, &c., mixed with Delphinium, edged with Golden Chickweed. D. Weeping Lime, Ash, Poplar, and Elm. E. Entrances. F. Majolica fountains. H. Hollies: standard variegated, weeping, and pyramidal. I. Ivy borders round fountain. P. Planes, surrounding ground. R. Rhododendrons, with white Lily, edged with Cerastium. S. Seats. Y. Yuccas gloriosa and recurva. X. Public path.

Reports of Societies.

Royal Horticultural Society: *June* 4.—The adjourned special meeting of the Fellows of the Royal Horticultural Society was held in the Council-room, South Kensington, under the presidency of Viscount Bury. Amongst the members of the Council present were Sir Coutts Lindsay, Bart., Mr. Little, Mr. Kellock, Mr. Webb, Hon. and Rev. J. T. Boscawen, Mr. Warner, Mr. Campion, Mr. Dobree (Treasurer), &c. There was a large number of Fellows present, and the proceedings, which lasted nearly three hours, were exceedingly animated.

The President rose a few minutes after three o'clock, and said:—I think, ladies and gentlemen, that the best way to commence the proceedings of this meeting is to read a letter which has now been received from Her Majesty's Commissioners in answer to the proposals made by us. You will remember that our meeting was adjourned ten days ago until this day, in order that we might consider the answer, if one was received, of Her Majesty's Commissioners. We were not then in possession of the views Her Majesty's Commissioners entertained upon the proposals of our Society, and, having heard what the Commissioners have to say, it will be my duty to briefly review the position of the Society, to tell you how it stands with Her Majesty's Commissioners, and then to exchange with you some deliberations, and take counsel as to what our future action with regard to the Society is to be. I will now call upon the Secretary to read the reply of Her Majesty's Commissioners.

Mr. Shirley Hibberd: I think it would be desirable to have the proposals of the Society read first.

The Chairman: I am in the chair, and will do the best I can to conduct the business of the meeting.

Sir Alexander Gordon moved that the proposals of the Society be read, and this having been seconded, was agreed to.

The Chairman: Well, I will now make a statement which I thought might be advantageously done after the letter of Her Majesty's Commissioners was read. The letter begins—"Office of Her Majesty's Commissioners of the Exhibition of 1851,—I have to acknowledge the receipt of your letter of May 10."

Mr. S. H. Godson: First read the proposals. I beg to move that the proposals first be read.

A Fellow: I second that with pleasure.

The Chairman: If Mr. Godson's motion is carried I shall resign my position in the chair. I shall make the speech and adopt the course which seems to me fit.

Sir A. Slade wished to ask a question, but he was unable from the confusion of voices to put it.

Mr. Guedalla made some observations which were scarcely intelligible, but he thought that the proposals ought to be read.

When order was somewhat restored,

The Chairman said: If you believe the critical statement I have to make is to be made at the dictation of any person you are very much mistaken.

Mr. Shirley Hibberd said there was no dictation whatever—why not let the Fellows have the proposals before the reply?

The Chairman: Then perhaps you will make my speech.

Sir Alfred Slade: I must say, although I agree it is desirable the proposals should be submitted to the meeting, and that if any gentleman chooses to read the reply to them first in the course of his speech, it would be so much the worse for his speech, still it is unusual to interrupt a gentleman in making a speech, even if he puts the cart before the horse, as in this case.

Sir Coutts Lindsay: We have done everything we could to come to an arrangement with the Commissioners. There are six schemes, and not one, and Lord Bury thought we should take them in sequence. If you think right, it is competent for you to see all the schemes, and really the Chairman is anxious you should see all the schemes we have brought forward. (Cheers.)

Mr. W. A. Lindsay: Let them be read.

Sir Coutts Lindsay: Let them be read in due course and in proper order.

Mr. W. A. Lindsay: May I venture then to suggest that you will read the substance of the letter instead of reading it verbatim? (Here several Fellows cried "No.")

The Chairman: I must say that in all my experience of public meetings, it has never been my fate to find a meeting at which the person who was elected to preside over its proceedings was not allowed to make his statement just as he wished to make it. I beg respectfully to say I shall make the statement in my own way, and as I think best, or I shall leave the chair. (The Chairman here took up his hat as if to carry out his threat.)

A Country Fellow: Let the Secretary read all the letters.

Mr. Guedalla: The Chairman can embody them in his speech.

The Chairman: That is the very thing I proposed to do. If you do not let me make my speech in my own way, how am I to make it at all? I assure the meeting they would be in possession of the whole case if I were allowed to go on.

Mr. Haughton said: All we object to is the reading of the reply before the proposals. The correspondence ought to be placed before the meeting in proper order.

The Chairman: Well, then, ladies and gentlemen, if the meeting chooses to say that, I will do the best I can. I wish to state that Her Majesty's Commissioners have refused the proposals made them. I intended to place before you the way in which they have done so, but I honestly confess this interruption has fairly scattered the course of my thoughts, and although I should like to present to you as well and as briefly as I can the position of the affairs of the Society, rather than observe upon an attempt made by ex-members of the Council who, having quarrelled with the Council, could not remain in it, to ——

Sir Alex. Gordon asked whether this had not been better avoided?

The Chairman: Very well. I deprecate the course taken without hearing any of the facts discussed on the one side or the other, and I think it very unfortunate. Honestly, ladies and gentlemen, I confess my ideas are so scattered, I very much doubt whether I can make the satisfactory statement I could have otherwise made to you. I will, for the moment, content myself with a brief review of the position of the Society at the present moment, and then in a few words give a parting counsel to the Society. I say a "parting counsel," for if I had been allowed to read the letter, it would have been observed that the way in which our negotiations had closed with Her Majesty's Commissioners led conclusively in my mind and in the minds of several of my colleagues to the opinion that we could do no further good for the Society in resuming negotiations with Her Majesty's Commissioners. It is quite possible that others who may succeed and replace us may be more fortunate in establishing good relations between Her Majesty's Commissioners and the Royal Horticultural Society; but, for myself and colleagues, I can only say, with all respect for the Society, I shall decline to resume or continue these negotiations. Therefore, I and some of my colleagues propose to resign into your hands the trust you were good enough to give us some time ago, and we ask you to select others who may have better fortune in dealing with Her Majesty's Commissioners than we have had. I should like to go back for a few moments to the origin of the Society. After the Exhibition of 1851, the Commissioners of that Exhibition, with the great and illustrious Prince Consort at their head, found themselves in possession of a very large sum of what was in fact public money, and it occurred to His Royal Highness the Prince Consort that the surplus of the funds arising from the Exhibition could not be better applied than in promoting science and art in every way attainable. Hence the gardens scheme was inaugurated. This South Kensington estate was bought and vested in trustees on behalf of Her Majesty's Commissioners of the Exhibition of 1851 for the promotion of science and art for ever. The place in which we now sit, and the gardens we now have under lease, was at the time wild waste ground. It is now surrounded by houses of great pecuniary value, and, moreover, it is of great value as one of the lungs of the metropolis. There are two things essential to the consideration of this part of the question, especially to the whole of the West End of London, that this shall not be built over, but shall be preserved as an open space for ever; and another is, that the Royal Horticultural Society has, by means which I will explain to you or rather sketch to you, become possessed of a very large interest in this plot of land. His Royal Highness the Prince Consort desired that this wild land should be beautified and adorned according to a plan which His Royal Higness himself designed, and he set about carrying out his design for the furtherance of science and art. He turned to a Society then pursuing the even tenor of its way at Chiswick, doing great service to horticulture, but not, as I believe—for it was not in my time—in the enjoyment of a large revenue. His Royal Highness asked the Society to accept a charter and become tenants of this part of the grounds under certain conditions, and these conditions were, that the Royal Horticultural Society should expend at the outset £50,000 on the decoration of the grounds of which they became possessed. Money must be obtained for the purpose somehow. The gardens were already mortgaged to Chelsea Hospital, and therefore could not be made available for the requirements of the Society. That statement rests upon the authority of my predecessor in this chair—the Duke of Buccleuch. (The Chairman read an extract from the speech of the Duke of Buccleuch at a meeting held March 29, 1873.) Well, continued the Chairman, I was not aware the grounds were mortgaged, but I may take the fact as being substantially correct. The gardens being thus heavily mortgaged, what security could be given to anybody who would step forward and find the money for the beautification of these gardens. I hold one of the original debentures issued under the control of Her Majesty's Commissioners. Any one who is fortunate enough to possess such a document, will see that he has not obtained any security on the gardens, but upon the receipts. Now, we must consider the attitude of mind the Commissioners and his late Royal Highness were in. The Exhibition had succeeded beyond any one's expectation. It was expected that a new Eldorado, a new Fortunatus' cap, had fallen upon the Commissioners. It was thought we should have made so much money, that when the £2400 rent was paid, and the debenture interest was paid, there would be a large surplus to be divided. This was the enormous estimate which then existed in the minds of the late Prince Consort and of his advisers, when the debentures were issued. The debenture holders, no doubt, shared in the sanguine expectation of his late Royal Highness, and believed the garden receipts would be ample to pay the interest, and in part the capital. International Exhibitions, however, were held in Paris, New York, and St. Petersburg, and the Eldorado was found to be a limited one—one having small boundaries. International Exhibitions became a drug in the market; and then we had, from the Exhibition of 1851, the bathos of the annual exhibitions held in the railway-like sheds at the head of South Kensington. Great results were expected from these exhibitions, but people were deceived, and the result was that it was found the debentures rested upon no solid foundation. I nevertheless believe the debenture holders will receive

their money. But why? Because of the great names upon the security of which those funds were supplied —because no part of those funds has been devoted to the uses of the Royal Horticultural Society itself, the whole property being at this moment vested in the landlords—and because the whole profits have been acquired and used by the Royal Commissioners. It is for this reason, I say, Her Majesty's Commissioners cannot, and public opinion would not, allow them to let these debentures go unredeemed. That is our security for the payment of these debentures. Now, ladies and gentlemen, I am obliged unreservedly to express my views about these matters, and tell you frankly we are not responsible for these debentures or the way in which they were raised, and which are such a heavy charge upon us. Fifty thousand pounds of debenture bonds, with their interest, forms the main liability of this Society; but it is because we look to the way in which these debentures were raised that the Council which has now the honour of addressing you through me, and because our lease is terminable at any moment, and that the whole usufruct of that money goes into the pockets of the Commissioners, that we think they are the people to whom the debenture-holders must turn. The interest of the debentures the Society will pay as long as we can, but the Commissioners should assist us in some way, so as to provide for the satisfactory payment of the debenture debt. With that view, whenever we approached the Commissioners we invariably assumed that they should take over the interest, at least, of the debenture bonds. I have detained you not too long, because it is a matter of the most vital importance respecting the debenture debt of the Society. And now I come to the time when, as I said, the International Exhibition had given place to the annual exhibitions in those rows of sheds upon these grounds. By that time the principal power of Her Majesty's Commissioners was exercised by the gentleman who has done so much to advance science and art—I mean Sir Henry Cole. I believe the result of that man's remarkable and magnificent scheme over the way will remain an everlasting monument to his genius, but parents are rather fonder of their own children than of other peoples bantlings, and Sir Henry Cole, I think, treated the Royal Horticultural Society rather hardly. When an arrangement was being come to in 1863, the proposal he framed was that every interest connected with the Royal Horticultural Society should be vested in the Commissioners of the Exhibition, and not in the Society itself. I was not then a member of this Society, not even a subscriber. I was not a member when my honourable friend, Sir Alfred Slade, organised the opposition to the then existing Council, which procured its resignation; but after that resignation was effected my friends and myself were called in as financial doctors of the Society; and I beg to assure you, in this my farewell address, that we, with entire singleness of purpose, have devoted ourselves to the interests of the Society. I found, upon first joining this Society, that it was believed that the Society was divided into two arms —the horticultural body pure and simple, and the South Kensington residents. I fought against the belief, but I confess I was vanquished by that belief that the Society is divided into two sections, and it is to be regretted. I am sorry to say I know little of botany, but I consider myself the representative now of the Royal Horticultural Society in its entirety. I have said this much to show that we have had to face a remarkable state of things immediately after our accession to office. Myself and colleagues were called upon to make the best we could of the circumstances, and I shall be able to show you that we resign our trust into your hands in a better, or at least as good a condition as when we took possession of it. The debts of the Society on January 1, 1873, were £6273, and on January 1, 1875, they were £4887. Our total liabilities are not above a half-year's income of the Society, while the assets far exceed our liabilities; so much so that we could get on very well. Although we may have to starve our Society in a great many necessary things, still we are paying our way at this moment, and will pay it until the end of the year. The prizes won at our last show will be paid this or next week. Prizes for future shows will be provided, and though, like honest men, we are narrowing our expenditure to the lowest limit, we are still paying our way. It is quite true that we owe a debt of £5000, and unless it is paid we shall find ourselves in financial difficulty. That debt was not incurred either by this or the last Council, and, with respect to the debts of 1873 to 1875, I challenge any one to say whether we have not discharged our part well. We have been made the successors of a debt placed upon us. Now, gentlemen, I come to the point when we took office. At that time, the scheme proposed between the Commissioners and our Society having failed, it was our duty to find other bases of schemes which would be acceptable to them, and enable us to live in amity with them. At that time the great position of Commissioner was accepted by a most active individual, Sir Henry Cole. Well, the International Exhibition child must be fed and kept up at any cost. Sir Henry Cole looked after his own offspring, and we were to go to the wall. We were not wanted, but our grounds were wanted for the International Exhibition, and that is the long and the short of it. We found it impossible to approach the Commissioners, and hence the Council could do nothing. The Council was told the sin of illegitimacy was upon them, but two years afterwards the Council received an intimation from the Comissioners, that having found the Council were now in a legitimate position, they should be happy to deal with them. What brought about the change. It was that Sir Henry Cole had ceased to be a Commissioner—that the annual exhibitions had ceased—and the reasons why the grounds were desirable had passed away from the Commissioners' minds. It was quite easy to see that it was from that moment the interest of Her Majesty's Commissioners to be on good terms with the Council. We were secure in the possession of the gardens. If we were turned out the Commissioners would either have to build upon the gardens—which public opinion would not sanction—or the Commissioners must devise some scheme to support the gardens. Were they to find the money out of the revenue of the Royal Commission? The gardens are unproductive —the annual subscriptions of the Fellows and the entrance money being the only means by which the gardens can be made productive. We have several means of keeping the gardens. We have a large organised body of 3000 or 4000 Fellows, we have a great machinery at the disposal of Her Majesty's Commissioners, and we keep up the gardens for the benefit of the Commissioners. If we were removed from them the Commissioners would have to find from £2000 to £3000 a year to keep them up—or at least a considerable sum—and that, I believe, does not suit the books of Her Majesty's Commissioners, who, if report is true, are not in the possession of very much ready money. Under all these circumstances we approached Her Majesty's Commissioners with considerable confidence. It was not, however, until the early part of this year we received an intimation they were ready to treat with us, just after the time of our annual meeting in February. We were ready at a moment's notice. When Her Majesty's Commissioners said they recognised the legitimacy of your Council, we told you we had received an assurance from Her Majesty's Commissioners which led to the highest anticipations, and we said to you we hoped soon to arrange a plan by which the Society would be relieved of its difficulties, and placed in a good financial position. I pledged myself to meet the Commissioners, and to come to you at a meeting to be called for the purpose, with some such plan. It was decided that it would be better for two of the members of our Council—Sir Coutts Lindsay and myself—should discuss the basis on which we could form negotiations. That meeting was held, and has been since treated less as a private meeting than was our original intention. At that meeting three alternative proposals were made by Sir Coutts Lindsay and myself. These proposals I will summarise. We said we would abandon the lease on this condition—first, that we should pay rent. That was at a preliminary and informal meeting held on the part of Sir Coutts Lindsay and myself, representing the Council, to arrange the business to be afterwards decided by the Council. This was not to be binding on the Society unless it was approved of by you. Now, we said we would pay a rent of £215 per year and keep up the gardens, and that it would be better than to pay a rent of £2400 every five years. Our lease was to be terminable in the year 1879, or at any time that we did not pay the rent. Another proposal we made was, that the payment of the £2400 should be made or the forfeiture of the lease take place; and we also said if the Commissioners did not like that, we had two other proposals—one, that we would surrender the lease to the Commissioners if they would give us twenty days for exhibition in each year, and undertake our debenture debt. Another proposal was that Her Majesty's Commissioners should give us leave to make the skating rink, give us possession of the leasehold property of the Society, and allow us to use the French annexe; our idea being to make an aquarium for the study of pisciculture, to enable us to do the best we could with our property. These proposals having been made, we were afterwards informed that the Commissioners, having deliberated upon them, found that the first was the only one which was in any way admissible, and that, without approving of it, they would be prepared to receive further details of the scheme. Upon that I wrote a letter to Lord Granville, embodying the details of the first scheme.—I may now say, as I see a representative of Messrs. Prince present, that in our negotiations with those gentlemen we invariably received the most handsome treatment at their hands; in fact, they looked more to the interests of the Society than they did to their own. However, as to the first scheme, the Commissioners found fault with our statement of income and expenditure, and made their own statement of our financial position, with which we could not agree, and the Commissioners then wrote that on this ground, and on other grounds, the inquiry committee regretted they could not recommend the Commissioners to agree to the proposals, but that they desired that the Council would make other proposals. In answer to that, the Council wrote that they believed the Commissioners were quite willing to help them. They had made other proposals, had shown their position, and if the Commissioners could tell them how to mend their proposals, the Council would be willing to make such as they thought would be acceptable to them. We therefore asked the Commissioners to tell us what proposals they would accept; and to that the Commissioners answered, that it was not their business to make proposals—that the Council might try again, but they could not tell us what proposals would be acceptable. Now comes a very difficult part of the task, because, as you are aware, private negotiations often tend to more business conclusions than more public negotiations. I, as President, felt bound to try and ascertain what proposal would be acceptable to Her Majesty's Commissioners. Well, as a detective would say, "On account of information received," we presented another statement, and, I regret to say, the proposal met with non-acceptance on the part of Her Majesty's Commissioners. You know, ladies and gentlemen, that there are always two parties to a bargain, and that you may bring a horse to the water but you cannot make him drink; and so you cannot make an arrangement between two parties who are not anxious to enter into it. We regret that the Commissioners refused our propositions—we do not blame them, but think them In the wrong. They said they were not satisfied with the statement of our financial position, and said they would not enter into negotiations with us unless we could show we were in such a pecuniary position as would enable us to carry on swimmingly the business of the Society. We drew up a statement to show what the financial position of the Society would be if our proposals were accepted. In order that there should not be any difference of opinion as to the sum at which we were to put down our liabilities, and our means as well, we invited General Scott, accompanied by Mr. Richards, to meet Mr. Dobree, accompanied by the Assistant Secretary. These gentlemen arrived at the result that the facts we placed before them were not in error and not in dispute. We did everything we could to satisfy the Commissioners, and at last we submitted to them this proposal, which I shall ask Sir Coutts Lindsay to read.

Sir Coutts Lindsay read the proposal, as follows:—

"That the Royal Horticultural Society would hope to be placed in possession of that part of the French annexe which is built on ground now leased to the Royal Horticultural Society, and that the Society should be allowed the joint use of the orchard-house entrances.

"If the proposal be adopted by Her Majesty's Commissioners the Council anticipate that an increase in the Society's income would follow large enough to balance their income and expenditure, and to enable them with due economy to offer still greater advantages than heretofore to scientific horticulture.

"The skating rink would bring in by way of rent £1100 a year besides many new Fellows (it was one of the provisions of the agreement lately stopped and still open for acceptance by the Royal Horticultural Society that all members of the skating rink were to be Fellows of the Society before being eligible for becoming members of the skating rink). A considerable augmentation of income under this last head is confidently expected, though there is no data whereon to form a basis of estimate. If the funds of the Society would admit of it, as they probably would in the event of these propositions being accepted, the Council would use every effort to afford aditional advantages to horticulture, with respect to the exact nature of which it is their intention to confer with eminent members of the horticultural world.

The Chairman, in continuation, said the proposal was enclosed in a letter, and in that letter we stated that the Council could not admit the accuracy of the figures stated in the letter of the Commissioners; that they were not in possession of the views of the Commissioners, and that as they had a sincere desire to "hit" their views, they enclosed an alternative scheme, and that if the Commissioners would only tell us they approved of the one or of the other, or admitted one or the other, then the Council would propose a scheme to the Fellows at the adjourned meeting of the Society. It was under these circumstances our meeting was held, but upon the day of the meeting no answer had been received. The second or alternative scheme was:—

"That the purely horticultural Fellows of the Society shall take the entire control and management of the Chiswick Gardens, and that the South Kensington residents should charge themselves with the maintenance of the said Kensington Gardens, and have the control of those gardens. The amount of subscriptions in each case, and the apportionment of the burdens of the Society's debts, being left to be fixed by a committee chosen out of the general body of the Fellows, and repre-

senting the Royal Commissioners, the Horticultural Society, and the resident Fellows; shows and exhibitions to be held at South Kensington as heretofore. This scheme would leave the scientific horticulturists in possession of Chiswick for their operations, and would give the management of the South Kensington Gardens to those who paid for them, and would yet retain to the Royal Horticultural Society the use of the gardens for shows and similar purposes.

"To carry out this it is proposed that there should be two rates for subscription—(*a*) one of which shall admit to the South Kensington Gardens alone under certain restrictions, hereafter called South Kensington Fellows; (*b*) the other shall admit to Chiswick and the Royal Horticultural Society's shows, hereafter called Chiswick Fellows.

"The subscription *a* to be fixed at such a sum as shall be deemed sufficient to keep up the South Kensington Gardens (permanent buildings and a portion of rates and taxes excepted). Subscription *b* shall be fixed at such a sum as shall be deemed sufficient to keep up Chiswick Gardens, and to pay the expenses of the shows. The profits of the shows held at South Kensington to go to Chiswick. The Council of the Society to be increased and divided into two permanent committees, one for the control of the interior economy of South Kensington, the other for the sole control of Chiswick, and a central Council composed of members from each committee to regulate the general affairs of the Society."

The other conditions of this scheme, summarised, are as follows:—

"The general funds of the Society to be fairly divided between the two branches of the Society. An agreed portion of the funds to be kept by the central Council for the payment of the debenture debt and general debts of the Society. Her Majesty's Commissioners to be asked to keep the permanent buildings at South Kensington in repair. Her Majesty's Commissioners to sanction the erection of a rink."

Then the third scheme was as follows:—

"The Fellows' two guineas subscription to be raised to three guineas, and the four guineas subscription to six guineas for a period of say three years. The tickets to be transferable. All entry fees to be abolished. Personal tickets of one guinea each to be issued to persons *bonâ fide* belonging to the gardening profession, and to other persons resident without a given radius from London, giving the Fellows the privilege of attending all the exhibitions and Wednesday committee meetings of the Society. To ask the Commissioners to lend the Society the sum of £6000 at 4 per cent., to enable the Society to pay off outside current liabilities. The increase of income under these new rates of subscription would be about £3991, which, added to the other estimated income, would give a total income of £13,091. All entrance fees to be abolished." A letter from the Assistant Secretary covered these proposals.

That makes six schemes which we have proposed to Her Majesty's Commissioners. I now come, ladies and gentlemen, to the letter of Her Majesty's Commissioners, which we will read, and here I take the opportunity of apologising for any warmth of manner which I displayed at the earlier part of our proceedings. Now I shall read for you the letter of Her Majesty's Commissioners refusing our proposals. It is this:—

"Office of Her Majesty's Commissioners for the Exhibition of 1851.—June 1, 1875.

"Sir,—I have to acknowledge the receipt of your letter of May 10, wherein, after referring to the non-acceptance by the Special Inquiry Committee of Her Majesty's Commissioners of the proposals made on behalf of the Royal Horticultural Society by Lord Bury and Sir Coutts Lindsay, certain further propositions are submitted by the Council of the Society for the consideration of the committee. I have also to acknowledge the receipt of your explanatory letter of May 20. In reference to the passage in your letter of May 10, in which you state that the Council cannot admit the accuracy of the figures given in my letter of May 5, I am to state that the whole of the data made use of in reviewing the financial prospects of the Society (with the exception of the statement for repairs) were furnished by the deputation. But since the difference between the amount of the liabilities now given by you and that stated by the deputation is not so important, compared with the total deficit, as to have influenced the committee in coming to a decision, conveyed to you, this question need be no further debated.

"The committee regret that they must decline the further proposals made to them in your letter of May 10. The Commissioners are still desirous to assist the Society as far as they can do so consistently with their duty, but the committee, having in view their responsibility as trustees of the public funds, cannot recommend that they should consent to contribute towards the maintenance of the Society in the modes specified. It is not apparent to them that the concession even of the large assistance requested would be productive of advantage to horticulture, or in any way benefit the public. In the final paragraph of your letter of May 10 the Council ask the committee what propositions they could recommend for adoption by the Society in the pure interests of horticulture. I am instructed to reply that the Commissioners do not think it to be for the advantage of the Society that they should interfere with the management of its concerns further than absolutely needful. The committee have had their attention called to the proceedings of the general meeting of May 25, and they observe with much regret that serious differences still continue to exist within the body of the Society. The committee direct me to state in conclusion that before recommending any proposition from the Society for assistance by the Royal Commissioners, they will feel it incumbent upon them to satisfy themselves that the differences between the various sections of the Society have been composed, that the advancement of horticulture will in future be made the chief object of the Society, and that steps will be taken to put the Society financially on a more satisfactory footing.—I am, sir, your obedient servant, HENRY Y. D. SCOTT, Major-General.

"The Secretary, Royal Horticultural Society."

With reference to that letter, it closed our negotiations with the Commissioners. I may remark, however, that the Commissioners still say it is their wish to offer some aid to the Society if they can do so. For my own part, I shall be quite willing to accept the assurance, provided some other member of your body is the negotiator. I hope my successor may be more fortunate in his negotiations with Her Majesty's Commissioners than I have been. With regard to the remarks made as to the meeting of the 25th of last month being marked or distinguished by considerable discussion, I should like to tell Her Majesty's Commissioners that if they think a body of 3000 men are to possess a unanimity never known in the whole world, and that if they are to wait until we shall have that unanimity they must really expect that the lion will lie down with the lamb. Unless they are of that opinion, the "composing" of the differences they speak of is a long way off. I think some differences of opinion must exist amongst the members of the Commission themselves—because they are always saying they are willing to give us assistance, but the motive power in General Scott's hand is stronger than the large amount of sympathy they bear with the Royal Horticultural Society. It is to be hoped our successors will find themselves better able to "compose" the differences between the two bodies than we have been. I may say at once, I am afraid we should not be able to frame any scheme which would be acceptable to Her Majesty's Commissioners. Still, I am willing to accept the statement that they are willing to do what they can. I am also willing to say the Council have done all they could to frame such a scheme as they thought would be acceptable to Her Majesty's Commissioners. I now come to a matter somewhat personal. Four members of Council—Sir Coutts Lindsay, Mr. Dobree, Mr. Hume, and myself, consider we should be only acting in the interests of the Society, with a due regard to our own dignity and position, and also to the trust which you have reposed in us, by surrendering into your hands the trust; and to persuade you, if we can do so, as I trust I have done, that we have not been either wrong or remiss with respect to your interests, and that we have done all we knew how to do. We feel the only honourable course is for us to give the opportunity to others to do what they can. We will help you as well as we can, and all minor differences shall be sunk. We will do all we can to relieve the Royal Horticultural Society, as far as it rests in us, from its difficulties, but we consider it our duty to resign our offices. I resign—Mr. Hume does so, Mr. Dobree does so, and Sir Coutts Lindsay does so. I have to thank those members of the Council who do not agree with us in this for their support. Now I have never found in my life a more active or unanimous Council, or one more devoted to the duties of their office. Some of my colleagues do not think it their duty to resign their offices, because, as I believe, they think they were appointed by one section of the Society, and do not think they ought to resign until that section takes the power out of their hands. The horticultural Fellows have been in the majority, and therefore these gentlemen do not feel it their duty to resign. I will, if you will permit me, give you a parting word of advice. My own belief is that the only way to save the Society is that you should divide the two bodies—the pure and simple horticulturists and the Kensingtonians, as they are called. Let the Chiswick Gardens be put in possession of a purely scientific body; the funds required would get still smaller. Then I think the Fellows who live around these gardens ought to pay for their maintenance. Let us divide for the common good. Let the scientific horticulturists go to Chiswick and keep the "Kensingtonians" at South Kensington. That is a scheme you can carry out without the sanction of the Commissioners, and by reducing your expenditure you can keep within your income. I do trust whatever course you pursue may be for the benefit of the Society, for its relief from the embarrassments which lie upon it, from its difficulties which are by no means insuperable. Pay your rent next year and then you can keep possession. I must say before I close that what the horticultural papers stated was not altogether fair. It was never intended that, by anything which fell from me, the idea that the Society was insolvent should be conveyed. In the first place, if I said so it would not be true. I may say that the claims brought against us have been paid. I beg now to conclude this statement with a hope that you will find our retirement conducive to the benefit and honour of the Royal Horticultural Society.

The CHAIRMAN, resuming, said he wished to state that many members of the Society had expressed their wish to subscribe money to relieve the Society from its embarrassments. Mr. Ricketts promised £25, Mr. Godson £25, Mr. Paul £100 a year for ten years on the condition that nine others would do the same, Mr. Bull promised £100 in aid of our show, which he hoped might stand good, and Mr. Dobree said he would give £100. That was an encouragement.

Mr. KELLOCK observed that as a horticulturist he did not feel it his duty to resign his seat at the Council. Neither do the other horticultural Fellows on the Council think it their duty to resign. They respected the South Kensingtonians, but literally they had nothing to do with them. On that ground the horticultural members of the Council did not tender their resignations.

Dr. DENNY remarked that the meeting ought to thank the noble lord for his able statement, and it could not be without regret that they heard it. The Council had come in as a Kensingtonian Council, and as a horticultural Council they had failed; for it must be admitted upon all hands that the horticultural part of the Society was not in the position it was when the present Council took office. The horticultural Fellows were becoming disgusted, and were leaving the Society wholesale, and, more than that, the attendance at the gardens was falling off. In fact, under present management, the Society would fall to pieces in a few months. The Council might say they were paying their present prize money, but why? Because no one was exhibiting. The present Council took office in opposition to the Royal Commissioners ("No"). Why, the Council turned out Royalty—they turned out Prince Arthur.

A FELLOW: No; Prince Arthur resigned.

Dr. DENNY: Well, he could not remain in office under the condition of affairs. I think our thanks are due to those members of the Council who do not resign their seats.

Mr. GUEDALLA believed the dead-lock was entirely due to the shuffling conduct of Her Majesty's Commissioners. They kept the Society in a fix for upwards of twelve months, and then in the month of February they came down and said they were ready to come to an arrangement. The Council had placed most excellent plans before the Commissioners, and what right had the Commissioners to indict their acts? The last plan proposed was the only one to work any real substantial good, and that was to separate Chiswick from South Kensington. He was extremely sorry to see these members of the Council resign, but it was really the only manly course open to them as honourable men.

Sir COUTTS LINDSAY begged, before he left his seat on the Council, to express his extreme satisfaction at the way in which he had been met by all the members of the Council and by the Fellows generally. He quite endorsed what Lord Bury said with respect to the Society. As to the charge brought against the Council of not having fostered horticulture, the answer was that the Council had neither money nor means. Lord Bury had very ably shown them the misfortune under which their Society laboured. They never had funds to meet the expenses placed upon their shoulders by the Commissioners, and so the Society had been brought to a position, if not of bankruptcy, of great impecuniosity. It would be better, after all, to divide the two interests which existed in the Society. Let those who took most direct interest in horticulture take its management in their own hands. As regarded the resignations, he might say that he believed every gentleman on the Council acted to the best of his judgment. Mr. Hume, who was not able to be present, had written a letter, which he would read. He (Sir Coutts Lindsay) could say, with entire sincerity, that those who retired did so with no feeling of soreness, and with the belief that they had at all times received the support of their colleagues and of the Fellows in general.

Mr. DOBREE begged to express his thanks for the support he had received from all connected with the Society. He was sorry his time had not been of more use to the Society than it had been, but he could not afford to give any more time as he was engaged in commercial pursuits. Mr. Hume much regretted he could not attend that meeting as he had to be present that day at a School Board in Norfolk.

Sir ALFRED SLADE wished to say that, according to the 16th Bye-law no business except that for which the adjournment was made could take place. Therefore the meeting was incapable of accepting the resignation of the members of Council or to appoint their successors. He regretted very much that there should be any reason for the resignation of the members of the Board who had tendered it.

The CHAIRMAN: No doubt Sir Alfred Slade is right. Another meeting will have to be called to deal with the resignations. That is quite in accordance with the bye-law quoted. The simple fact is, we shall have to call another meeting. I and my col-

leagues have not yet resigned, and perhaps we shall not.

Mr. W. A. Lindsay wished to say he regretted having made some remarks at the last meeting which created or introduced a feeling of bitterness. All he could do was to express regret for these expressions. Without going into any further matter, he wished to say that he believed the state of the Society was perfectly sound, and he felt it could be re-organised, but only by reverting, both actively and mentally, to the past represented by the picture over the Chairman's head, painted at a time when this Society was renowned for its science but not for its local fashion.

The Chairman: Well, ladies and gentlemen, I have nothing further to say than that the meeting is at an end for the present.

Mr. Shirley Hibberd asked if the Chairman had really taken his farewell of them, and this was met with cries of "No." Mr. Hibberd then said the Chairman had made his farewell speech, and, as he had done good hard work, they ought to thank him. He begged to move a vote of thanks to the Chairman.

Mr. W. A. Lindsay said he had much pleasure in seconding the vote so appropriately moved by Mr. Hibberd.

The motion was carried unanimously, and the Fellows, who had been kept at the meeting an unusually long time, rapidly dispersed.

Obituary.

On June 6, at Ragstead, Worthing, Mary Anne, wife of W. Wilson Saunders, Esq., F.R.S., in the seventy-fourth year of her age.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
For the Week ending Wednesday, June 9, 1875.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Mean of 18 Years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 60 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Degrees of Humidity. Sat. = 100.	Wind. Average Direction.	Rainfall.
June	In.	In.	°	°	°	°	°	°			In.
3	29.76	−0.05	81.1	53.1	28.0	65.7	+ 8.8	51.7	60	E.; E.S.E.	0.00
4	29.70	−0.11	80.3	56.1	24.2	65.0	+ 7.9	55.6	72	E.N.E.; S.S.W.	0.00
5	29.85	0.00	73.0	56.0	17.0	63.7	+ 6.4	44.7	50	W.; S.W.	0.00
6	29.77	−0.03	72.0	55.0	17.0	61.2	+ 3.7	53.0	75	SSW.; S.	0.00
7	29.93	+0.14	70.5	55.0	15.5	61.1	+ 3.5	54.1	79	WSW.; S.W.	0.03
8	29.99	+0.19	75.4	55.8	19.6	63.8	+ 6.1	50.1	61	WSW.; WNW	0.00
9	29.62	−0.18	77.1	53.6	23.5	62.6	+ 4.7	54.1	74	S.S.E.; S.	0.00
Mean	29.80	−0.01	75.6	54.9	20.7	63.3	− 5.9	51.9	67	SW.; S	sum 0.03

June 3.—A very fine hot cloudless day. Distant thunder heard at 4 P.M.
— 4.—Fine, bright, warm, and partially cloudy throughout.
— 5.—A fine warm day, though dull and cloudy at times.
— 6.—Overcast, and dull in morning. Fine and bright afterwards.
— 7.—Fine, but dull throughout, occasional showers of rain from 11 A.M. to 2 P.M.
— 8.—A fine bright day. Cloudy at times.
— 9.—A fine, but dull day. At 2.10 P.M. a flash of lightning, thunder followed, with a smart shower of rain, but for a few minutes only. Lightning again seen at 9.30 P.M.

—— During the week ending Saturday, June 5, in the vicinity of London, the reading of the barometer at the level of the sea increased from 29.90 inches at the beginning of the week to 30.19 inches by the morning of June 1, decreased to 29.87 inches by the afternoon of the 4th, increased to 30.03 inches by the morning of the 5th, and was 29.98 inches at the end of the week. The mean reading for the week was 30.02 inches, being 0.13 inch less than that of the preceding week.

The highest temperatures of the air at 4 feet above the ground ranged from 63¼° on May 30 to 81¾° on June 3, with a mean value for the week of 73°. The lowest temperatures of the air varied between 41° on May 31 and 56° on June 4 and 5 respectively, the mean for the week being 49¼°. The mean daily range of temperature in the week was 23¾°, ranging from 28¼° on June 1 to 17° on the 5th. The mean daily temperatures of the air and the departures from their respective averages were as follows:—May 30, 52°.1, −3°.9; 31st, 51°.6, −4°.7; June 1, 58°.3, + 1°.8; 2d, 61°, + 4°.3; 3d, 65°.7, + 8°.8; 4th, 65°, + 7°.9; 5th, 63°.7, + 6°.4. The mean temperature for the week was 61°.1, being 2°.9 above the average, as deduced from observations extending over 60 years. The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in sun's rays, were 140° and 137° on June 1 and 3; the highest reading on the 5th was 90°. The lowest readings of a thermometer on grass, with its bulb exposed to the sky, were 40° and 36¼° on May 30 and 31; the lowest reading on June 4 was 52°. The mean of the seven low readings was 44¾°. The direction of the wind was mostly E.N.E., and its strength brisk. The weather during the week was fine and bright throughout. Lightning was seen on the evening of June 2, and distant thunder was heard on the afternoon of the 3d.

In England the extreme high day temperatures ranged from 85° at Norwich and 84½° at Leicester to 64° at Newcastle-on-Tyne, the general average over the country being 78°. The extreme low night temperatures varied between 44½° at Liverpool and 33° at Eccles, with a general average of 38¾°. The mean of the extreme range of temperatures in the week was 39¾°, the greatest range being at Eccles, 47½°, and the least at Newcastle-on-Tyne, 24°. The mean high temperatures observed by day ranged between 74½° at Leicester and 60½° at Newcastle-on-Tyne, the general average being 69½°. The mean low temperatures observed by night varied from 50¼° at Liverpool to 42° at Hull, with an average value of 46°. The mean daily range of temperature in the week was 23½°, the greatest range being at Leicester, 28¾°, and the least at Liverpool, 16¼°. The mean temperature of the air for the week was 56½°, being 4° less than the value for the corresponding value in 1874. The highest in the week occurred at Blackheath, 59½°, and the lowest at Newcastle-on-Tyne, 49¾°. The fall of rain during the week varied from two-tenths of an inch at Eccles to one-hundredth of an inch at Sheffield. In the southern counties no rain fell, the average fall over the country was five-hundredths of an inch.

The weather during the week was fine and bright throughout. Distant thunder was heard on June 3 in the afternoon.

In Scotland, the highest temperatures ranged from 72° at Greenock to 64° at Leith; the general average was 68¼°. The lowest temperatures varied between 45° at Greenock and 39½° at Leith, with a general average of 41¾. The mean range of temperature in the week was 26¾°. The mean temperature of the air for the week was 54½°, being 3° lower than the value for the corresponding week in 1874. The highest happened at Greenock, 56½°, and the lowest at Leith, 52¾°. Rain fell at Dundee and Greenock to the amount of a quarter of an inch, but at Aberdeen two-hundredths of an inch only was measured; the average fall was two-tenths of an inch nearly.

At Dublin, the highest temperature was 71½°, the lowest 35½°, the mean 55¾°, and the fall of rain 0.08 inch.

JAMES GLAISHER.

Garden Operations.

(For the Ensuing Fortnight.)

PLANT HOUSES.

Soft-wooded and Greenhouse Plants.—Upon present and timely attention to many of these will depend their ability to furnish their wonted quantity of flower through the autumn and winter months. Nothing is more common, in the urgent immediate demands of the innumerable things that require looking to at this busy season, than that later flowering subjects are allowed to suffer for want of attention in the early stages of their growth, and which no amount of after-care can set to rights. This especially applies to *Chrysanthemums*, which, although easily grown, must have regular attention through the season. If not already done, the plants should at once be transferred to their flowering pots, using good loam well enriched; where they are expected to develope a number of full-sized flowers they should have 12-inch pots. In potting make the soil tolerably firm; they should then be plunged in an open situation, where they will be fully exposed to sun and air, but not where subjected to the unbroken force of the wind, or, despite all that can be done in regard to tying, they get broken. A bed of coal ashes, if such can be had, is much better for them to stand on than soil, on account of its freedom from worms. Place the plants sufficiently far apart to prevent them becoming drawn. To admit of getting amongst them they are frequently stood in rows by the side of walks, but when the pots are exposed to the action of the sun and air the drying influence is such that, in addition to the water-requiring nature of the plants, it is difficult, when the pots get filled with roots, to keep them sufficiently supplied; and so grown the bottom leaves are almost sure to get bad before they flower—a condition that spoils their appearance. Do not stop them after this time; syringe overhead in the evening during sunny weather, this will prevent greenfly. *T. Baines.*

Orchids.—Give a general look through the collection, and any plants that have made vigorous growth, and have filled their pots with roots, should now have a shift. Where the plants are grown in pots the roots frequently attach themselves so firmly to the pot that it is impossible to turn them out without injury to the plants—the *Phalænopsis* especially so. The best plan in such cases is to take a pot two sizes larger, and carefully place the one containing the plant into it, working in a few crocks and sphagnum. Where baskets are used, and the plant has outgrown the basket, it is better to carefully remove the roots from the wood with a thin knife, and give the plant a new basket. Care must be taken not to over-pot. Orchids do not require large pots, nor yet a great mass of material to root into. All the East India plants that do not require shifting should be top-dressed with fresh sphagnum, and *Lycopodiums*, with many of the *Anæctochili*, should be planted on the surface; both will grow well, and benefit rather than otherwise the roots of the Orchids—they also give an additional charm to the Orchid-house. If the repotting is carefully done the growth of the plants will not get any check. Examine the blocks of wood, and if any are found to be decaying replace them with new ones; by reblocking at this season the plants will have a chance to make new roots before the close of the growing season. *Odontoglossums* will require constant attention, air must be given early in the morning, so as to keep a cool temperature; also, with a view of keeping a sweet atmosphere. These plants require copious supplies of water at their roots, and frequent syringings overhead: this syringing will keep their bulbs fat and clean. The yellow thrips is a great pest to Odontoglossums at this season; they must be kept under by frequently and carefully fumigating them; many of them may be got rid of by sponging, but unfortunately they secret themselves so low down in the young growth that it is impossible to reach them in any way but by blowing the smoke into them. *Masdevallias* will do very well if placed in a cool north pit for the next two or three months. When these plants are kept in too warm a house they become drawn and weakly, and rarely produce any flowers; they require plenty of water at their roots: the leaves must be frequently sponged, to keep down thrips. *Oncidiums* that are starting into growth may be repotted; many of these plants require a greater heat than Odontoglossums when making their growth. *Anguloas* will now require large supplies of water. *Dendrobiums* must receive liberal treatment to enable them to make strong growth and be well matured. *G. Baker, Clapham Common.*

FLOWER GARDEN, &c.

Parterre and Mixed Garden.—The heavy rainfall on May 28 has been of great service to all newly planted shrubs and bedding stuff by settling the earth well about the roots, and the latter are now making rapid progress towards filling the beds for an early display. All the tender varieties of plants used for summer decoration should now be got out, provided they are properly hardened, and should the weather be at all bright at the time of planting a slight shade, such as may be afforded by a few Laurel or other evergreen branches, will be of great service in assisting them to become established. For such things as have not been previously established in pots protection in this way becomes a necessity. The grouping of the different varieties of subtropical plants, so as to be effective, requires a considerable amount of taste and skill; and when well done is sure to command admiration. In groupings, make choice of such as associate well together, and for isolated specimens plants only of bold type and easy outline, such as Palms, &c., should be chosen. It is useless attempting this style of decoration unless in very sheltered and favourable situations, as such large-leaved plants are torn to ribbons long before the season is over unless they are afforded proper shelter, and their appearance in a torn and ragged state is very deplorable. Before planting see that the beds or positions it is intended the plants should occupy are thoroughly enriched, as much of their beauty depends on the full development of the leaf, and with such gross feeding plants this can only be brought about by the most liberal treatment. Plants of this description that hold a good deal of wind, on account of their large foliage, should be neatly and securely staked at the time of planting, and receive an abundant supply of water as growth proceeds. Beds intended for *Asters*, *Stocks*, and *Zinnias* should be well enriched previous to planting or sowing the seed. Stocks are more satisfactory if sown thinly in rows where they are intended to bloom, as they transplant badly, and by allowing the bulk to remain till they show flower all the single varieties may be removed and a grand display of double flowers obtained. Zinnias well grown are perhaps the most effective and showy of all annuals, and no garden should be without a bed of them. Seed sown now will be in ample time, as they grow very rapidly, and being of rather tender nature should not be ventured out too soon. Other varieties of annuals that may have been sown in masses in beds or borders should be freely thinned out, or they will

present a weedy appearance, as neither plants nor flowers will come to their proper size and development.

Now that the busy season of bedding is fast drawing to a close, labour will be set at liberty for other work that is apt to fall in arrear at most places. Neatness and order should be the first consideration, and suitable weather chosen to wage war with weeds, and for the several other operations to bring about this desirable end. Much time and labour may be saved by taking advantage of the state of the weather in most of the work connected with gardening, and when favourable for certain operations a good general will then marshal his forces, and concentrate his strength in certain quarters instead of frittering it away when conditions are adverse to rapid progress. Herbaceous borders will now require constant attention in staking and tying the various kinds of plants as they advance in growth. The practice of bundling them up, by just running a piece of matting round, is very objectionable, as they are never seen to advantage, and the stems become drawn and attenuated, and many of the principal leaves destroyed from want of light and air. If only one stake is employed for the purpose of support, the different branches should be looped up separately so that the plants may have breathing room, and present an easy natural appearance. The hoe and rake should be run frequently over the ground to destroy weeds and keep the surface neat and tidy, without which much of the effect and pleasure is lost. Before staking the plants will be much benefited by having the greater portion of the weakest shoots removed, so as to concentrate the strength in those remaining, and induce them to send up fine heads of bloom. Roses are now fast swelling their flower-buds, and will be greatly benefited by liberal applications of liquid manure. The beds should previously receive a mulching of rotten dung, so as to prevent any escape of this through evaporation.

Ranunculus beds can scarce be over-watered at this season, and as they come into bloom a slight shade will be necessary or the beauty of the flowers will only be of short duration. The stock of plants used for spring bedding will now require attention, to insure a good supply of bloom when the season arrives, and this can only be effected by growing the plants well now instead of leaving them uncared for in the reserve garden. Nothing is more beautiful for spring blooming than the old Gentiana acaulis, and yet one seldom sees it in quantity. A few old plants obtained now will divide easily, and soon make a large stock, if planted in favourable situations. *J. Sheppard.*

FRUIT HOUSES.

ORCHARD HOUSE.—*Insects* of various kinds now begin to be troublesome, and in order to keep them down it will be quite necessary to syringe the trees every night, and if this fails to keep them perfectly clean, as it sometimes does, then recourse must at once be had to fumigation. The young shoots of Cherry trees are often sadly infested by the black-fly, which fasten themselves upon the under sides of the leaves, and water thrown by the syringe or garden engine, with whatever force, has but little effect upon them. They can also withstand a considerable amount of tobacco smoke. Although they will generally succumb to repeated and powerful applications of this narcotic, still in large structures there is frequently much difficulty in applying this sufficiently strong, and merely dipping the infested shoots in tobacco-water, however strong, is seldom effective, as the insects are protected by a glutinous substance which has the effect of throwing off the water, so that they remain uninjured. The most effectual method, however, is to gently rub the infested leaves with the fingers, which should be well and repeatedly wetted with tolerably strong tobacco-water. This should be done during the evening, and early on the following morning the trees should be well washed with the syringe or garden engine. During fine weather the ventilators may be allowed to remain open by night as well as by day, taking care to close them during the prevalence of high winds. *P. Grieve, Culford.*

KITCHEN GARDEN.

The *Rosette Colewort* is a subject which is worthy of extensive cultivation in gardens generally, and especially so in those which are required to furnish a supply of hard blanched Cabbages for soups or other purposes through the winter months. Its cultivation is also to be recommended on account of its productiveness, and requiring so little space for that purpose, and also because of its hardy constitution and capability of withstanding the effects of severe weather better than any other variety of Cabbage. It is, however, in this case very important to sow the seed at the proper time, which we have by experience found to be about the 20th of the present month. Prick out the plants as soon as they are sufficiently advanced to be done; this must be attended to in order to secure sturdiness in habit. When they are fit for transferring to the quarters or elsewhere, plant them out 15 inches apart every way. We appropriate for this purpose ground which has been occupied with autumn-sown Onions. The cutting of another portion of the beds of *Asparagus* should be discontinued at once, and this operation should not be prolonged on the others longer than it is absolutely required, as it is very important that the plants have sufficient time allowed them to perfectly develope a natural growth, in order that the buds for the forthcoming season's supply may be perfectly matured. In exposed situations it is advisable to secure the top from being broken off by means of stakes, or by placing these at distances apart, and running string from one to the other. *Peas* are now coming on rapidly. Amongst early varieties William the First is pre-eminent as an early variety—combining, as it does, earliness with productiveness and quality; as such it is at present unsurpassed. We have also another promising early sort in Dr. Hogg, which apparently is one that requires but little time comparatively in attaining perfection. Copious supplies of water should be given to those in a bearing state, and also to advancing crops. When the seed in later rows are too thickly placed, thin out to about 2 inches apart. These should be mulched with either litter or manure, and stacked as soon as fit, and apply the same means in the case of late rows of *Scarlet Runners.* Take advantage of favourable opportunities to plant out, as ground becomes vacant, successional crops of *Broccoli, Winter Greens, Cauliflowers, Savoys,* &c. Maintain successional supplies of *Turnips,* by occasional sowings as required, as also of *Lettuces, Radishes,* and *Endive,* which should at this season be constantly, "when necessary," supplied with water to insure fine quality. Transplant *Endive* "before it gets too much advanced in growth," about 15 inches apart every way. Plentifully supply water at the roots of *Celery* in all stages of growth; earth up that which was planted out early; plant out for a succession, and prick out from outside seed-beds for late supplies. Prepare trenches for these, and make available the space between them for crops of *Lettuce* or *Endive* by sowing them in drills there, or for summer *Spinach.* Attend with regularity to the requirements of *Gherkins, Cucumbers,* and *Vegetable Marrows,* which are planted out in hand-lights; as soon as the vines begin to run elevate the handlight to allow them to pass out underneath. *G. T. Miles, Wycombe Abbey.*

Answers to Correspondents.

INSECTS: *J. T. B.* The small galls of the size of Peas on the male flower-stems of the Oak (see fig. 161), are

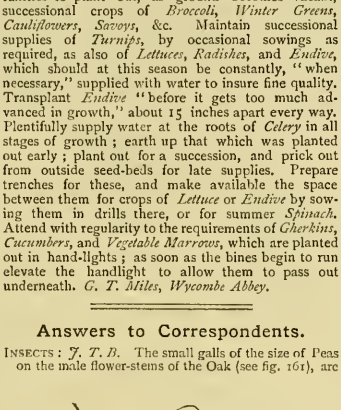


FIG. 161.—CURRANT GALLS ON OAKS.

known by the name of Currant galls, and are formed by Cynips Quercus petioli. *I. O. W.—A. C.* Your Larch, Nordmanniana, and Silver Fir, are attacked by the common Chermes laricis. Repeated fumigation to windward, and syringing with lime-water and soap-suds, may be used; but Nature is already taking steps to diminish the mischief, one of the sprigs sent being cleared by an Aphis-feeding larvæ of one of the two-winged Syrphidæ, nearly full-grown. *I. O. W.—An Old Subscriber.* The wild bees sent are the Andrena cineraria. All the numerous species of this genus burrow in the earth. *I. O. W.—M. S.* The Olive trees in the South of Europe are attacked by the scale, Coccus olea, which is often very injurious, and even destructive to them there. Washing the stems with the ordinary fluids for the destruction of the scale is the only remedy. There are numerous treatises on the insect by Bernard, Olivier, Bompar, Costa, Risso, Bayle Barelle, Gremalde, Passerini, &c. *I. O. W.*

ACTION OF MANURES: *S. B. D.* Your questions would require a small volume to answer them fully. Some are absorbed unchanged from the soil, others (most) are changed in the plant itself; others again, as you say, act on the soil, and render some otherwise insoluble ingredients available as plant food.

CHISWICK GARDEN: *E. A. Maynard.* Any Fellow of the Society can give an order of admission.

FENCING: *L. J.* You do not say whether you intend the fencing to be permanent or not, hence we cannot answer you to the point. Presuming that you only want a temporary fence, we would recommend that strong Oak posts, pointed and charred, be driven into the ground in squares of four, six, or seven eight. Drive them in sloping outwards, and fix four rails to them horizontally, those near the ground being the closest together.

FRUIT SHOW AT SOUTH KENSINGTON: We are requested to correct an error which crept into our report at p. 728, col. *a*, with reference to the fine Black Hamburgh and Foster's Seedling Grapes shown by Mr. Harrison, gr. to the Earl of Derby, Knowesley. These were entered "not for competition" consequently it was an error to say, as we have done, that they did compete, though we saw no notice to that effect on the exhibition table.

NAMES OF PLANTS: *J. H., Ipswich.* Phyllocactus crenatus.—*A Subscriber.* 2, Trollius europæus; 5, may be Jasminum revolutum, but we cannot be sure without flowers. All the other specimens are not sufficient to name. The variegation of the Rose leaves is certainly unusual.—*J. C. & Co.* Clypeola cyclodontea.—*A. J. O.* Lysimachia nemorum.—*C. E. G.* 1, Helianthemum mutabile, var. roseum; 2, Helianthemum hybrid; 4, Veronica incana; 5, Catasetum luridum; 8, indeterminable. The others next week. Please do not send more than six another time.—*Mrs. C. M.* Shrub, Lonicera Xylosteum; tree, Pyrus Aria.—*E. G.* The large leaved plant is Viburnum Lentago; the other Leucothoe axillaris.—*N. M.* Trewia nudiflora.—*M. J.* 1, Cordyline australis; 2, Fraxinus Ornus; 3, Cotyledon umbilicus.

PINK LABURNUM: *Laburnum.* Only the well-known Cytisus Adami. See a note respecting it on p. 758.

ROSE: *An Amateur.* The old Persian Yellow, we believe. The other plant was too much withered.

CATALOGUES RECEIVED: James Cocker & Sons (Aberdeen), General Spring Catalogue of Bedding and other Soft-wooded Plants.—Rollisson & Sons (The Nurseries, Tooting, London, S.W.), General Catalogue of Stove, Greenhouse, Hardy, and Bedding Plants.—James Veitch & Sons (Royal Exotic Nursery, King's Road, Chelsea, S.W.), Illustrated Catalogue of New and Beautiful Plants.—Messrs. M. C. Alkemade & Son (Zeestraat, Noordwijk, Binnen, near Haarlem, Holland), Catalogue of Flower Roots, Bulbs, &c.

COMMUNICATIONS RECEIVED.—A. J. Maule (next week)—Professor Parlatore—A. W. B.—S. B. D.—H. J. V.—H. G. Rchb. f.—A. F.—J. Scott.—An Old Subscriber (next week; please be more moderate in your requests another time).—J. Smith.—J. V. & Sons (next week).—J. Miller.—J. McI., Handsworth.—P. W. J.—J. J. B.—H. K. M.—T. T.—Nomenclature.—W. W.—J. Dimmick.—A. B.—James Harvey.—R. A. P.

Markets.

COVENT GARDEN, June 10.

Heavy consignments from the Continent, including Strawberries, Cherries, and Apricots, arrive daily. Strawberries from the west of England are also largely in bulk, selling at 2s. to 4s. per dozen lb., but they are very common goods. Peaches and Nectarines have improved, but English Pines have made very little progress in size and quality; 10,000 are announced from the West Indies as first arrival. *Thos. Taylor, Wholesale Apple Market.*

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Azaleas, p. 12 sprays	0 6-	1 6	Pelargoniums, 12 spr.	0 6-	1 6
Carnations, 12 blooms	1 0-	3 0	— Zonal, do.	.. 0 4-	1 0
Cornflower, p. doz. bun.	3 0-	6 0	Pæonies, 12 bun.	.. 4 0-	12 0
Deutzia, per bunch ..	0 4-	1 0	Primula, dbl., p. bun.	0 9-	1 6
Eschscholtzia, 12 bun.	3 0-	6 0	Ranunculus, p. bun.	0 4-	1 0
Eucharis, per doz. ..	6 0-	12 0	Roses, indoor, p. doz.	2 0-	6 0
Heliotropes, 12 spr.	0 6-	1 0	— outdoor, 12 bun.	4 0-	9 0
Lily-of-the-Valley, 12 sprays ..	0 6-	2 6	— Moss, 12 bun.	.. 6 0-	12 0
Mignonette, 12 bun.	4 0-	6 0	Rose de Mai, doz. bun.	3 0-	9 0
Myosotis, per bunch	0 4-	0 9	Spiræa, 12 sprays ..	1 0-	3 0
Nemophila, 12 bun.	1 6-	3 0	Stephanotis, 12 sprays	2 0-	6 0
			Stocks, 12 bun. ..	6 0-	12 0
			Sweet Peas, 12 bunch.	4 0-	9 0

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Begonias, do. ..	6 0-	12 0	Lobelia, per doz. ..	4 0-	9 0
Bouvardias, do. ..	9 0-	18 0	Mignonette, do. ..	6 0-	9 0
Calceolarias, do. ..	6 0-	18 0	Myrtles .. do.	3 0-	9 0
Cyperus, do.. ..	6 0-	12 0	Pelargoniums, dble., per doz. ..	6 0-	12 0
Dracæna terminalis	30 0-	60 0	— Scarlet, do. ..	4 0-	9 0
— viridis, per doz.	12 0-	24 0	Petunia, per doz. ..	6 0-	9 0
Ficus elastica ..	1 6-	7 6	Roses, do. ..	12 0-	60 0
Fuchsia, per doz. ..	6 0-	18 0	Solanums, do. ..	6 0-	18 0
Gardenias, do. ..	12 0-	60 0	Spiræa, do. ..	12 0-	24 0
Heaths, in var., doz.	12 0-	30 0	Stock, do. ..	6 0-	9 0
Heliotrope, per doz.	6 0-	12 0			
Hydrangeas, per doz.	12 0-	24 0			

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, per ½-sieve	3 0-	4 0	Oranges, p. 100 ..	8 0-	12 0
Apricots, per box ..	2 6-	4 0	— Malta, per doz.	2 0-	3 0
Cherries, per box ..	2 0-	4 0	Peaches, per doz. ..	15 0-	24 0
Figs, per doz. ..	6 0-	12 0	Pine-apples, p. lb. ..	6 0-	10 0
Grapes, English, lb.	4 0-	10 0	Pomeloes, each ..	0 6-	1 0
— foreign, do. ..	..	..	Shaddocks, each ..	2 0-	3 0
Lemons, per 100 ..	8 0-	12 0	Strawberries, per lb.	1 0-	8
Nuts, Cob, p. lb. ..	..	..	Walnuts, p. bush. ..	16 0-	[illegible]

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, Fr., doz.	4 0-	..	Leeks, per bunch	.. 0	2- 0 4
Asparagus, English, per bundle	.. 5 0-	6 0	Lettuces, per doz.	.. 1	6- ..
— French, p. bund.	4 0-	15 0	Mint, per bundle	.. 0	4- ..
Beans, French, p. 100	2 6-	..	Mushrooms, per pott.	1 0-	2 0
— broad, p. ½-sieve	6 0-	..	Onions, young, bun.	0 4-	0 6
Beet, per doz.	.. 1 0-	2 0	Parsley, per bunch	.. 0	4- ..
Cabbages, per doz.	.. 1 0-	2 0	Parsnips, p. doz.	.. 0	9- 1 0
Carrots, French, do.	1 6-	..	Peas, per quart	.. 1	6- ..
Cauliflowers, spring, per doz.	.. ..16 0-	18 0	Radishes, per bunch.	0 2-	0 4
Celery, per bundle	.. 1 6-	2 0	Shallots, per lb.	.. 0	3- ..
Cucumbers, each	.. 1 0-	2 6	Salsify, per bundle	.. 1	6- ..
Endive, per doz.	.. 1 0-	2 0	Sprue, French, bund.	1 6-	..
Herbs, per bunch	0 2-	0 4	Tomatos, per doz.	.. 4	0- ..
Horse Radish, p. bun.	3 0-	5 0	Turnips, per bundle.	1 0-	1 6
			— French, p. bund.	1 6-	..
			Veg. Marrows, doz.	6 0-	..

Potatos, old: — Regents (early), 80s. to 120s.; best, 160s.; Flukes, 120s. to 130s.; and Victorias, 160s. per ton. New: Lisbons, 16s. to 18s. per cwt. Old Potatos nearly finished.

SEEDS.

LONDON: *June* 9.—Our agricultural seed trade, as might be expected, is now so inactive that it affords scarcely any subject for remark. Occasional export orders for Clover seed drop in, but at present there is no speculation in the article. It does not seem probable that much Trifolium will be saved in this country for seed; the offers of Trifolium which now come to hand from France are made at a considerable advance on those of a few weeks since. For spring Tares there is still some inquiry, but the supply is almost *nil*. Mustard and Rape seed are without quotable variation. Canary seed, having apparently seen its highest, and the demand having sensibly diminished, is now drooping in value. Hemp seed is firm, and white Millet, being scarce, is dearer. *John Shaw & Sons*, 37, *Mark Lane, E.C.*

CORN.

At Mark Lane, on Monday, the small quantity of English Wheat on the market prevented any pressure to sell, and, whilst purchases were very small, late rates had to be paid. The same remarks apply to foreign Wheat. Flour was very unsaleable, and American barrels rather easier to buy. Barley was without quotable change in value, and Beans showed an occasional reduction of 1s. per quarter. The late extreme rates for white Peas were not maintained, as supplies are coming to hand. Oats remained the same as on last Friday week, with a quiet trade. Maize was cheaper on the week, but met with very few buyers.—Wednesday's market was poorly attended, and little business was done in any class of produce. The supply of English Wheat was small, of foreign large, and sales could only be effected at some slight reduction. Barley was nominally unaltered, as also was malt; while Oats, Maize, Beans, and Peas were rather cheaper than otherwise. Flour remained dull.—Average prices of corn for the week ending June 5:—Wheat, 41s. 11*d.*; Barley, 36s. 9*d.*; Oats, 30s. 7*d.* For the corresponding week last year:—Wheat, 61s. 8*d.*; Barley, 45s. 8*d.*; Oats, 29s. 11*d.*

CATTLE.

The trade in every department at the Metropolitan cattle market on Monday was exceedingly dull, and lower prices had to be taken in most instances to effect sales. In the beast market the reduction was quite 2*d.* to 4*d.* per stone, the middling qualities being the most depressed. For the best the rates could not be quoted over 6s. as a current top price. On the foreign side a similar decline was noticeable, and also a slow dragging trade. The demand for sheep was extremely dull, and at a similar reduction to that quoted for beasts. Sales were difficult to close on the English side. 6s. 4*d.* to 6s. 8*d.* were extreme rates current, and on the foreign side 6s. was the top quotation. Lambs sold badly, and at 4*d.* to 6*d.* per stone decline. Calves were almost unsaleable, and prices were very irregular. Pigs met little or no inquiry. — Trade in beasts on Thursday was very dull, prices were lower, and a clearance was not effected. For sheep and lambs rates were lower, and a considerable number remained unsold. Calves sold at fully late rates, choice making rather more money.

HAY.

The Whitechapel report states that with a small supply trade was firm, and rather higher rates prevailed for hay. Quotations:—Prime meadow hay, 90s. to 120s.; inferior ditto, 55s. to 75s.; prime Clover, 100s. to 126s.; inferior ditto, 85s. to 95s.; and straw, 35s. to 38s. per load. — Cumberland Market quotations: — Superior meadow hay, 126s. to 135s.; inferior, 100s. to 110s.; superior Clover, 120s. to 132s.; inferior, 90s. to 110s.; and straw, 40s. to 44s. per load.

POTATOS.

The Borough and Spitalfields reports state that supplies were large and much in excess of the demand, so that prices were flat. Quotations: — Regents, 80s. to 115s.; rocks, 60s. to 70s.; Victorias, 80s. to 125s.; flukes, 120s. to 150s. per ton.—Last week the imports of Potatos into London consisted of 2962 bags from Antwerp, 4673 sacks and 731 tons Dunkirk, 1227 boxes Lisbon, 99 boxes Valencia, 67 casks 93 baskets Malta, 50 bags 40 packages Hamburg.

COALS.

The market on Monday was firmer than in the preceding week, previous prices being fully supported. On Wednesday house coals advanced 6*d.* per ton. Quotations:—Bebside West Hartley, 19s. 3*d.*; Percy do., 18s. 3*d.*; West Hartley, 19s. 3*d.*; Walls Ends—Lambton, 21s.; South Hetton, 21s. 6*d.*; Kelloe, 19s.; East Hartlepool, 21s. 3*d.*

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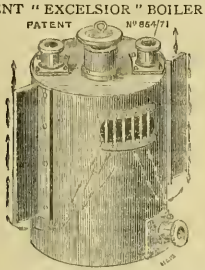

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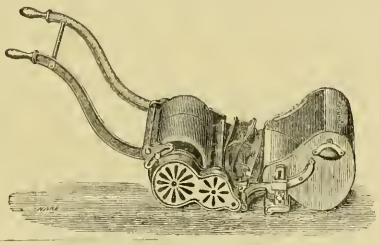

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" 10 "	" " " " ..	.. 3 10 0
" 12 "	Can be worked by One Person	.. 4 15 0
" 14 "	" " " "	.. 5 16 0
" 16 "	This can be worked by One Man on an even lawn	6 17 0
" 18 "	Can be worked by a Man and Boy	8 0 0
" 20 "	" " " " "	8 10 0
" 22 "	" " " " "	9 0 0
" 24 "	" " " " "	9 10 0

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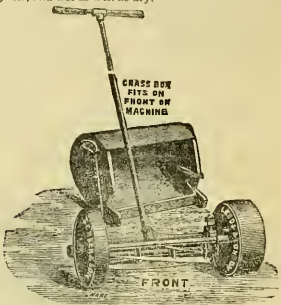

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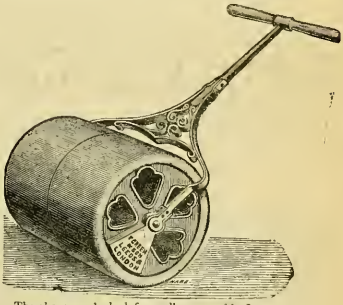

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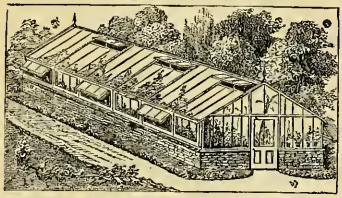

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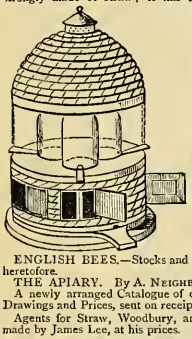

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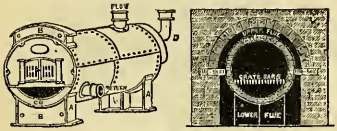

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TRENTHAM GREENHOUSE BOILER,

After long experience, has proved the most Simple, Economical, Effectual, and Lasting Boiler extant; recently much improved. For Illustrations, with full particulars, apply to the Sole Makers, F. and J. SILVESTER, Castle Hill Foundry, Engineering and Boiler Works, Newcastle, Staffordshire.

SIR J. PAXTON'S HOT-HOUSES for the MILLION are Simple, Cheap, and Portable. Illustrated Price Lists free.

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THE above and many other PATTERNS are made in materials of great durability. The plainer sorts are especially suited for KITCHEN GARDENS, as they harbour no Slugs or Insects, take up little room, and, once put down, incur no further labour or expense, as do "grown" Edgings, consequently being much cheaper.

GARDEN VASES, FOUNTAINS, &c., in Artificial Stone, very durable and of superior finish, and in great variety of design.

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ORNAMENTAL PAVING TILES, for Conservatories, Halls, Corridors, Balconies, &c., from 3s. per square yard upwards. Pattern Sheets, of plain or more elaborate designs, with prices, sent for selection.

WHITE GLAZED TILES, for Lining Walls of Dairies, Larders, Kitchen Ranges, Baths, &c. Grooved and other Stable Paving of great durability, Wall Copings, Drain Pipes and Tiles of all kinds, Roofing Tiles in great variety, Slates, Cements, &c.

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SILVER SAND, fine or coarse grain as desired. Prices by Post per Ton or Truck Load, on Wharf in London, or delivered direct from Pits to any Railway Station. Samples of Sand free by post.

FLINTS and BRICK BURRS for Rockeries or Ferneries.

KENT PEATS or LOAM supplied at lowest rates in any quantities.

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N.B.—Orders promptly executed by Rail or to Wharves. A liberal Discount to the Trade.

BELGIAN GLASS for GREENHOUSES, &c.,
Can be obtained in all sizes and qualities, of
BETHAM & SON,
9, LOWER THAMES STREET, LONDON, E.C.

B. & S. have always a large Stock in London of 20-in. by 12-in., 20-in. by 14-in., 20-in. by 16-in., in 16 oz. and 21-oz.

Under the Patronage of the Queen.

J. SMITH'S IMPROVED METALLIC LABELS.

The above Labels—which have just been adopted for the Royal Gardens at Windsor—are made of a White Metal, with raised black-faced letters, and are of various shapes and sizes. Samples and Price List free.

Sole Manufacturer: J. SMITH, The Royal Label Factory, Stratford-on-Avon.

TANNED NETTING, for Protecting Seeds and Fruits from Birds, in all widths, at lowest prices. Wholesale Priced List sent, post-free, on receipt of Trade Card.

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NETTING for FRUIT TREES, SEED BEDS, RIPE STRAWBERRIES, &c.

TANNED NETTING for protecting the above from Frost, Blight, Birds, &c., 2 yards wide 3d. per yard, or 100 yards, 20s., 4 yards wide, 6d. per yard, or 50 yards, 20s.

NEW TANNED NETTING, suited for any of the above purposes, or as a Fence for Fowls, 2 yards wide, 6d. per yard; 4 yards wide, 1s. per yard; ¾-inch mesh, 4 yards wide, 1s. 6d. per yard.

TIFFANY, 6s. 6d. and 7s. 6d. per piece of 20 yards.

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EDGINGTON'S GARDEN NETTING, the cheapest and most durable, at 1d. per square yard, or in quantities of 250, 500, or 1000 yards, carriage free.

EDGINGTON'S CRICKET and GARDEN TENTS are the prettiest.

EDGINGTON'S MARQUEES for Hire are the most elegant and capacious.

EDGINGTON'S RICK CLOTHS for 69 years have maintained their celebrity as the best.

TIFFANY, SCRIM CANVAS, and every other kind of NETTING.

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A quantity of good Second-hand Government TENTS for Sale, Cheap.

HARRY BUNYARD supplies:—

NETTING for FRUIT TREES, &c., 2 yards wide, 2d., 4 yards, 4d. per yard—in pieces 50 yards each.

SHADING CANVAS, 1 yard wide, 3d. and 6d.; 2 yards, 7d. per yard—only in pieces 140 yards each. Smaller quantities at an advance.

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Notice.

(*By Appointment to the Royal Horticultural Society.*)

To HORTICULTURAL IMPLEMENT MAKERS, NURSERYMEN, FLORISTS, and OTHERS.

ADAMS AND FRANCIS INSERT ADVERTISEMENTS in all Newspapers, Magazines, and Periodicals. List of London Papers on application.

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THE CULTIVATOR.—A Portuguese Monthly Agricultural Journal, which circulates in Portugal and her Possessions, and in the Principal Towns of the Brazils.

This Paper offers an excellent medium for Advertisements of every description of industry and of every article of consumption in the countries and places above mentioned.

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Ten per cent. Discount for six months; 20 per cent. Discount or twelve months, if paid in advance.

Address, The Editor of the *Cultivator*, St. Michael's, Azores.

"The Gardeners' Chronicle"

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PAXTON'S CALENDAR.

NOW READY, A NEW AND THOROUGHLY REVISED EDITION OF THE

COTTAGER'S CALENDAR OF GARDEN OPERATIONS.

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

OPINIONS OF THE PRESS.

"It has been carefully revised by an experienced gardener, and the lists of vegetables, fruits, and flowers have been corrected by the substitution of the most approved modern kinds, in place of those which were mentioned in the first edition, and many of which have ceased to be worthy of cultivation. It is a thoroughly sound, practical treatise; but it has been so long before the public, and so deservedly appreciated, that any special commendation of it now is unnecessary."—*Midland Counties Herald.*

"This is a handy volume, consisting of seventy pages of letterpress and illustration, containing much and varied information likely to prove useful to all cottagers, &c., who possess a garden. To all such who require a cheap and reliable book of reference, we heartily recommend it."—*Lloyd's.*

"The information conveyed in this little book is well adapted for all persons having small plots of ground. The necessary operations for each month are clearly laid down, and are of a thoroughly practical nature. The sorts of both fruit and vegetables are well selected, many of them being excellent in quality. To our readers who are interested in the cultivation of their flower and kitchen gardens, we can safely recommend this as being a most concise and useful work."—*Bell's Messenger.*

"We are quite glad to see this useful little book once more, and it is like a whiff of perfume from the heather in bloom to read on the wrapper 'two hundred and twenty-first thousand.' We advise all who are interested in the promotion of cottage gardening to sow this little book broadcast."—*Gardeners' Magazine.*

Price 3d., Post Free 3½d.

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WANT PLACES.

To Gardeners in Want of Situations,
WHOSE CHARACTERS WILL BEAR STRICT INVESTIGATION.

Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C.
Printed by William Richards, at the Office of Messrs. Bradbury, Agnew, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the County of Middlesex, and Published by the said William Richards, at the Office, 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—Saturday, June 12, 1875.
Agent for Manchester—John Heywood. Agents for Scotland—Messrs. J. Menzies & Co., Edinburgh and Glasgow.

THE

GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

No. 77.—Vol. III. { New Series. } SATURDAY, JUNE 19, 1875. { Registered at the General Post Office as a Newspaper. } Price 5d. Post Free, 5½d.

CONTENTS.

SALES BY AUCTION.

Established Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, June 21, at half-past 12 o'Clock precisely, a SMALL COLLECTION of ESTABLISHED ORCHIDS, including the following rare species:—

Odontoglossum sceptrum
Cypripedium Roezlii
,, Harrisianum
Pescatorea cerina
Cattleya Dowiana
,, Wagneri
,, aurea
,, Mendelii
Odontoglossum Roezlii
Masdevallia Veitchiana
Oncidium Weltonii
Miltonia Regnelli
Utricularia montana
Saccolabium guttatum
,, giganteum
Dendrobium Falconeri
Œoeclades guineensis
Phalænopsis grandiflora
,, ,, Schilleriana
Trichopilia crispa
&c., &c.

On view the morning of Sale, and catalogues had.

New Oncidiums.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on MONDAY, June 21, at half-past 12 o'Clock precisely, an importation from the United States of Columbia of many rare and choice species, including a few plants of an exceedingly beautiful new ONCIDIUM, O. CARDERI, just described by Professor Reichenbach, and now sent to this country for the first time; also a quantity of plants of the new ONCIDIUM ROSTRANS, just described, and now introduced for the first time: the new Golden ODONTOGLOSSUM, O. SPATHACEUM, which magnificent species produces on a single stem upwards of a hundred of its golden-yellow richly spotted flowers; O. NÆVIUM, a large quantity of O. LUTEO-PURPUREUM, O. CRISPUM, ONCIDIUM NUBIGENUM, a few plants of the handsome ODONTOGLOSSUM RAMOSISSIMUM, described by Professor Reichenbach at p. 396 of the *Gardeners' Chronicle* for March 27, 1875; ONCIDIUM ANNULARE, new, and offered for the first time, and various other choice sorts.

On view the morning of Sale, and Catalogues had.

Choice Imported East Indian Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, June 22, at half-past 12 o'Clock precisely, very choice EAST INDIAN ORCHIDS, including the best variety of the lovely Saccolabium amputalaceum, strong plants of S. curvifolium, S. Blumei majus, Dendrobium eburneum, D. formosum giganteum, D. capillipes, D. dixanthum, D. senile, D. crystallinum, D. thyrsiflorum, D. ciliatum, D. secundum, Aerides crassifolium, A. affine roseum, Vanda bicolor, V. Parishii, &c.; also strong established plants of Phalænopsis Schilleriana, P. amabilis, and P. Luddemanniana.

On view the morning of Sale, and Catalogues had.

Important Sale of Established East Indian and OTHER ORCHIDS.

MR. J. C. STEVENS begs to announce that he has been favoured with instructions from H. J. Buchan, Esq., in consequence of change of residence, to offer for SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, June 24, at half-past 12 o'Clock precisely, his valuable Collection of EAST INDIAN ORCHIDS, purchased during the last eight years from Messrs. Veitch, Bull, Williams, Rollisson, and others, and also selected from the best private collections; the sales held at these Rooms, comprising fine varieties of Aerides, Saccolabiums, Vandas, Cattleyas, Lælias, Cœlogynes, Phalænopsis Lowii, P. Schilleriana, P. grandiflora and P. amabilis, Dendrobium Wardianum, D. thyrsiflorum, D. crassinode, D. devonianum, and various other Dendrobes; Cymbidium eburneum, Anthurium Scherzerianum, Oncidiums, Odontoglossums, Pescatoreas, Dendrochiluns, also a number of other Orchids.

On view the morning of Sale, and Catalogues had.

Most Important Sale.—Liverpool.

MESSRS. BRANCH AND LEETE will SELL by AUCTION, on WEDNESDAY, June 30, and two following days, at 11 o'Clock each day, in the South Shed of the Windsor Ironworks and Foundry, Spekeland Street, Edgehill, Liverpool, the very valuable and most extensive STOCK of IRON MANUFACTURES of Mr. Isaac Dixon, of Hatton Garden, Liverpool, who, being about to remove his business to the extensive premises lately occupied by Hamilton's Windsor Ironworks, Limited, and also having decided to relinquish some branches of his trade, has had the stock removed to the above premises for greater facilities of inspection and sale. The Stock comprises about 50 Galvanized Corrugated Curved Iron Roofs, which are admirably adapted for hay and corn sheds, and all agricultural, manufacturing, and general purposes, and including all the materials necessary for erection; the spans will be from 15 to 30 feet, and lengths from 30 to 100 feet; 15,000 Galvanized Corrugated Straight Iron Roofing Sheets, 3500 Galvanized Corrugated Slates, large quantities of Painted and Black Corrugated Iron Sheets, Galvanized Flat and Black Flat Iron Sheets, Ridge Capping, Eaves Guttering, Rain-water Down Pipes, 20 Heavy Cast-iron Columns, about 1 ton of Sheet Zinc, Perforated Zinc, about 150 Wrought-iron Tanks, to hold from 20 to 400 gallons; 20 Galvanized Corn Bins, Pig Troughs, Cattle Troughs, Garden Engines, Garden Rollers, Lawn Mowing Machines, about 100 dozen Galvanized Buckets or Pails, Galvanized Chimney Tops and Smoke Curers, about 20,000 lineal yards of Galvanized Iron Wire Netting, Uprights and Straining Pillars, Continuous Fencing, Galvanized Fencing Rope or Strand, Field, Entrance and Garden Gates; Hurdles, Tree Guards, Rick Stands, Wine Bins, Garden Seats, Wheelbarrows, Mangers, Hay Racks, about 40,000 superficial feet of Roofing Felt, about 50 tons Bar Iron, about 2 tons Compound Metallic Paint, casks of best Jet Varnish, Galvanized Iron Hollow Ware of all descriptions, and some Tools and Machinery.

The Lots will be arranged to meet the requirements of Landed Proprietors, Agriculturists, Manufacturers, &c.

The place of Sale is within a very short distance of Edgehill Station of the London and North-Western Railway, in connection with the entire railway system of the kingdom. In the interval prior to sale Mr. Dixon will be happy to give every possible information, and any Iron Roofs, Corrugated Iron, &c., purchased at the Sale, he will gladly send men to erect on the most favourable terms.

The goods will be on view on Monday the 28th, and Tuesday the 29th inst., and Catalogues may be had a week prior to the Sale, post free, or on personal application to Messrs. BRANCH AND LEETE, Hanover Street, Liverpool.

Highly Important Sale of Orchids, collected by M. ROEZL in Mexico.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on TUESDAY, June 22, a consignment of ORCHIDS collected by M. Roezl in Mexico, nearly all adapted for growing in cool houses, and including the beautiful Lælia majalis, Oncidium tigrinum, Odontoglossum Rossii majus, O. citrosmum roseum, Oncidium Barkeri, Lælia autumnalis, many of the sorts in large masses and in very excellent condition.

On view the morning of Sale, and Catalogues had.

Worcestershire, in the far-famed Vale of Evesham.

PRELIMINARY ADVERTISEMENT.

MESSRS. CHESSHIRE AND GIBSON have received instructions to SELL by AUCTION, on THURSDAY, July 15 next, at the "Hen and Chickens Hotel," in New Street, Birmingham, at 6 o'Clock in the evening for half-past, in consequence of the death of the Proprietor, unless in the meantime an acceptable offer be made by Private Contract, a very excellent FREEHOLD ESTATE of 240 Acres, known as "Seaford Grange," situated at Peopleton, within 1½ mile of the Pershore Station on the Great Western Railway.

A considerable portion of the above has been laid out as Fruit Gardens, the Trees being of the choicest kinds, now in their prime, the produce finding a ready sale at Liverpool, Manchester and Birmingham, where a very lucrative business was carried on by the late Proprietor.

In addition to a complete set of FARM BUILDINGS, with COTTAGES, there is a very comfortable and desirable RESIDENCE, replete with every convenience, and the portion of the Estate not laid out as Fruit Gardens is occupied as a FARM, and comprises Arable and Pasture of excellent quality.

A Balance-Sheet, showing the profits for the last five years, has been prepared, and may be obtained of the undermentioned Referees.

Further particulars and plans will be issued in due course, in the meantime further information may be obtained of H. G. GOLDINGHAM, Solicitor, or A. BUCK, Estate Agent, both of Worcester; or to the Auctioneers, Messrs. CHESSHIRE AND GIBSON, 93, New Street, Birmingham.

Victoria Estate, Kansas, U.S.—To Farmers and OTHERS.

FINE STOCK FARMS of 640 Acres and upwards, to be SOLD, Freehold, from 12s. to 50s. per acre. Grass in its natural condition unsurpassed for feeding Sheep and Cattle. For PAMPHLET containing full particulars respecting this Property, apply to

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Freehold—28 Miles S.W.

TO BE SOLD, a beautiful ESTATE of 240 acres, with elegant Swiss Villa, and capital Stabling, Gravelly Soil, fine views, and extensive frontages, free from tithe and land-tax. Two thirds on mortgage. The Furniture may be taken at a valuation.

A Plot of about 50 acres, planted with fine Evergreens, Fruit, and other trees, would be Sold separately; also a Plot of 25 acres. Apply to

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TO BE LET, on Lease, for a term of years, with immediate possession, the MAISON DIEU NURSERY, Dover. Premises comprise Dwelling-house with Shop, Greenhouses, Forcing-houses, Potting Shed, and Garden Ground. Rent moderate. Apply to

Messrs. TERSON AND SON, Auctioneers, 27, Castle Street, Dover, Kent.

CHARLES HADFIELD, HORTICULTURAL AUCTIONEER and VALUER, 20, St. Mary's Gate, Manchester. TREES, SHRUBS, CONIFERA, ROSES, BULBS, and every other Horticultural requisite from all parts of Britain and the Continent, carefully prepared for SALE, CATALOGUED, and SOLD by AUCTION. Very reasonable terms, prompt payments, and good prices realized. Satisfactory reference given from Nurserymen in neighbourhood of Manchester, for whom large Sales have been made.

Prizes for Monro's Duke of Edinburgh Cucumber.

J. MONRO begs to say that the PRIZES offered by him (viz., £3 for the best brace, £2 for the second best brace, and £1 for the third best brace of the above-named Cucumber) will be competed for, by permission of the Council of the Royal Horticultural Society, at South Kensington, on July 21 next, the same day as the Fruit Prizes offered by James Veitch & Sons are competed for.

The Prize Money will be paid on the day of Exhibition, on application to the Secretary of the Royal Horticultural Society.

JOHN MONRO, Potter's Bar, N.—June 16.

NEW and CHOICE FLOWER SEEDS.

AURICULA, PANSY and POLYANTHUS, saved from a prize collection, 1s. per packet.

CALCEOLARIA, saved from 120 beautiful varieties, 1s. and 2s. 6d. per packet.

CINERARIA and PRIMULA SINENSIS, including fern-leaf varieties, 1s and 2s. 6d. per packet.

None of the above can be surpassed.

JOHN SCOTT, The Seed Stores, Yeovil.

BRISTOL, CLIFTON, and WEST of ENGLAND ROSE and STRAWBERRY SHOW, to be held in the Zoological Gardens, Clifton, THURSDAY NEXT, June 24.

Schedules of Prizes, with Rules and Regulations, may be obtained of the GATE-KEEPERS at the Gardens, or by letter addressed to the SECRETARY, Zoological Gardens, Clifton.

TUNBRIDGE WELLS HORTICULTURAL SOCIETY.—The ANNUAL GRAND EXHIBITION of FLOWERS, PLANTS, and FRUIT, will be held on FRIDAY, July 2, in the Grounds adjoining the Calverley Hotel. Prizes open to all England. Special Prizes for a single piece for Table decoration (for gardeners only), also Cottagers' Prizes for Gardens, and increased Prizes for Garden Productions.

Applications for Schedules to the Secretary, Mr. E. F. LOOF, Parade, Tunbridge Wells.

SHOW of HORTICULTURAL BUILDINGS, GARDEN FURNITURE, IMPLEMENTS, APPLIANCES, &c., at the MIDLAND COUNTIES GRAND HORTICULTURAL EXHIBITION, to be held at the Lower Grounds, Birmingham, JULY 1, 2, 3, and 5. LAST DAY for ENTRIES, THURSDAY NEXT, June 24.

Mr. H. G. QUILTER, Lower Grounds, Aston Park, Birmingham.

WEST KENT HORTICULTURAL SOCIETY.

President—The Right Hon. the EARL SYDNEY, G.C.B., &c.

The ANNUAL EXHIBITION of this Society will be held on SATURDAY, July 3 next, in Camden Park, Chislehurst. The Schedule includes Prizes in considerable value and number, open to all England, for Plants, Cut Flowers, Fruit, &c., and also for Dinner-table Decorations.

ENTRIES CLOSE, JUNE 19.

Applications for information, and for copies of the Schedule, to be addressed to the Hon. Sec., H. NEVILL, Esq., Chislehurst, Kent.

RICHMOND HORTICULTURAL SOCIETY.—President, H.S.H. the DUKE OF TECK, G.C.B. Under the Royal and Distinguished Patronage of H.R.H. the Duchess of Cambridge, H.R.H. the Princess Mary Duchess of Teck, H.R.H. the Duc d'Aumale, &c.

The FIRST ANNUAL EXHIBITION of PLANTS, FLOWERS, FRUIT, and VEGETABLES, will be held on THURSDAY, July 8, in the Old Deer Park, Richmond, Surrey. Two Military Bands will attend. A Subscription of £1 1s. entitles to Four Admission Tickets. Tickets and Schedules may be had of

ALBERT CHANCELLOR, Hon. Sec.

Richmond, Surrey.

NOTTINGHAM and MIDLAND COUNTIES GRAND ROSE SHOW and HORTICULTURAL EXHIBITION (open to all England) will be held at the ARBORETUM, NOTTINGHAM, on THURSDAY, FRIDAY, and SATURDAY, July 8, 9, and 10. The Mayor of Nottingham President; the Town Clerk Honorary Secretary. Prize List amounting to £750. Prizes for Roses upwards of £240. Space will be allotted for the exhibition of Horticultural Implements and Garden Furniture. Certificates of Merit awarded. Schedules are now ready, and may, with particulars, be obtained on application to

ALFRED KIRK, Municipal Offices, Nottingham.

MANCHESTER BOTANICAL and HORTICULTURAL SOCIETY.

EVENING FETES and EXHIBITION of ROSES, FLORAL TABLE DECORATIONS, PLANTS, BOUQUETS, &c., in the Gardens, Old Trafford, on FRIDAY and SATURDAY, July 9 and 10.

SCHEDULES are now ready, and may be had from

BRUCE FINDLAY, Curator and Secretary.

ALTRINCHAM and BOWDON UNITED FLORAL, HORTICULTURAL, and ROSE SOCIETY, Cheshire.

The Exhibition this year will be held on FRIDAY and SATURDAY, July 16 and 17, when TWO HUNDRED POUNDS will be offered in Prizes. Several classes of Roses open to all England. Schedules on application to

JOHN HAMS, Secretary.

HEREFORDSHIRE AGRICULTURAL SOCIETY.

HORTICULTURAL DEPARTMENT.—Days of Exhibition, TUESDAY, WEDNESDAY, and THURSDAY, July 20, 21, and 22. Schedules of Prizes may be obtained on application to Mr. H. EDMONDS, Secretary.

Seedsman, Broad Street, Hereford.

SHROPSHIRE HORTICULTURAL EXHIBITION.—A Grand Horticultural Exhibition will be held in the magnificent Quarry Grounds, adjoining the town of Shrewsbury, on the same days as the Agricultural Society's Meeting, viz., JULY 29 and 30 NEXT. Prizes to the amount of about TWO HUNDRED POUNDS will be given. Prize Lists may be had on application to

H. W. ADNITT } Hon.
Shrewsbury, June 9. WALTER W. NAUNTON } Secs.

WORCESTERSHIRE AGRICULTURAL SOCIETY.

Meeting at Worcester, AUGUST 10, 11 and 12.

President—The Right Hon. the EARL OF COVENTRY.

A Grand HORTICULTURAL EXHIBITION in connection with the above will be held in the Show Ground at Worcester, when Prizes amounting to £200 will be offered. Prizes are also offered to all Cottagers residing in Worcestershire. Entries close July 31. For Schedules of Prizes and Rules, &c., apply to

EDWARD T. GOLDINGHAM, Secretary, Worcester; or to J. S. HAYWOOD, Nurseryman and Seed Merchant, 26, Broad Street, Worcester, Hon. Sec. to Horticultural Show.

COVENTRY and WARWICKSHIRE FLORAL and HORTICULTURAL SOCIETY.—The SECOND SHOW of the Season will be held at Combe Abbey, AUGUST 17. Special Prizes open to all England for best collection of Fruit, eight dishes, £10, £5, £3; for three bunches of Black Grapes, £5, £2, £1; for three bunches of White Grapes, £5, £2, £1. Schedules and every information may be had on application to THOS. WIGSTON, Sec.

3, Portland Terrace, Coventry.

ROYAL BOTANIC SOCIETY OF LONDON.

SECOND SUMMER EXHIBITION, JUNE 16.

MEDIUM GOLD MEDAL.

Mr. J. Ward, Gr. to F. G. Wilkins, Esq., Leyton, for 12 Stove and Greenhouse Plants.
Mr. J. Ward, for 12 Exotic Orchids.
Mr. B. S. Williams, Nurseryman, Upper Holloway, for 12 Exotic Orchids.

GOLD MEDAL.

Messrs. Pearce & Son, Nurserymen, Cheshunt, for 9 Roses, in pots.
Mr. J. Carr, Gr. to P. L. Hinds, Esq., Byfleet Lodge, Weybridge, for 12 Stove and Greenhouse Plants.
Mr. Ward, for 9 Show Pelargoniums.
Messrs. Jackson & Son, Nurserymen, Kingston-on-Thames, for 9 Cape Heaths.

LARGE SILVER GILT MEDAL.

Mr. Geo. Wheeler, Gr. to Sir F. H. Goldsmid, Bart., St. John's Lodge, Regent's Park, for 12 Stove and Greenhouse Plants.
Mr. J. Ward, for 6 Stove and Greenhouse Plants.
Mr. B. S. Williams, for 6 Stove and Greenhouse Plants.
Messrs. T. Jackson & Son, for 12 Stove and Greenhouse Plants.
Messrs. T. Jackson & Son, for 12 Exotic Orchids.
Mr. J. James, Gr. to W. F. Watson, Esq., Redlees, Isleworth, for 6 Pelargoniums.
Mr. G. Wheeler, for 9 Cape Heaths.
Mr. J. James, for 9 Show Pelargoniums.
Mr. J. Ward, for 6 Cape Heaths.
Mr. D. Donald, Gr. to J. G. Barclay, Esq., Knott's Green, Leyton, for 6 Fine-foliage Plants.
Messrs. Veitch & Sons, Royal Exotic Nursery, Chelsea, for a Collection of Plants.
Mr. W. Bull, New Plant Merchant, King's Road, Chelsea, for a Collection of New and Rare Plants.
Mr. H. Heines, Gr. to F. A. Philbrick, Esq., 3, Avenue Road, Regent's Park, for 12 Exotic Orchids.
Mr. Denning, Gr. to Lord Londesborough, Norbiton, for 6 Exotic Orchids.

SILVER GILT MEDAL.

Mr. B. S. Williams, for 6 Exotic Orchids.
Messrs. T. Jackson & Son, for 6 Cape Heaths.
Mr. T. Sheen, Gr. to E. Brooke, Esq., Caen Wood Towers, Highgate, for 6 Stove and Greenhouse Ferns.
Mr. B. S. Williams, for 6 Fine-foliage Plants.

SMALL SILVER GILT MEDAL.

Mr. J. Child, Gr. to Mrs. Torr, Garbrand Hall, Ewell, for 6 Stove and Greenhouse Plants.
Messrs. T. Jackson & Son, for 6 Stove and Greenhouse Plants.
Mr. G. Wheeler, for 12 Stove and Greenhouse Plants.
Mr. G. Wheeler, for 12 Exotic Orchids.
Mr. E. Morse, Original Nurseries, Epsom, for 12 Exotic Orchids.
Mr. J. Ward, for 6 Exotic Orchids.
Mr. Charles Turner, Royal Nurseries, Slough, for 9 Show Pelargoniums.
Mr. J. James, for 6 Fancy Pelargoniums.
Mr. G. King, Gr. to R. Feen, Esq., Woolsey Grange, Esher, for 6 Fancy Pelargoniums.
Mr. G. Wheeler, for 6 Cape Heaths.
Mr. Robt. Parker, Exotic Nursery, Tooting, for 18 Hardy Herbaceous Plants.
Mr. B. S. Williams, for 6 Stove and Greenhouse Ferns.
Mr. G. Legg, Gr. to S. Ralli, Esq., Thornton Road, Clapham Park, for 6 Fine-foliage Plants.
Mr. B. S. Williams, for Group of Plants.

LARGE SILVER MEDAL.

Mr. G. King, for 6 Pelargoniums.
Mr. E. Morse, for 6 Cape Heaths.
Mr. G. Wheeler, for 18 Hardy Herbaceous Plants.
Mr. D. Donald, for 6 Stove and Greenhouse Ferns.
Mr. S. Strahan, Gr. to P. Crowley, Esq., Waddon House, Croydon, for 6 Fine-foliage Plants.
Mr. G. King, for 6 Scarlet Pelargoniums.
Messrs. Dobson and Son, for 9 Show Pelargoniums.

SILVER MEDAL.

Mr. D. Donald, for 6 Stove and Greenhouse Plants.
Mr. W. Mearing, Gr. to W. Whitley, Esq., Rydes Hill House, Croydon, for 6 Stove and Greenhouse Plants.
Mr. E. Morse, for 6 Stove and Greenhouse Plants.
Mr. J. Child, for 6 Exotic Orchids.
Mr. J. Child, for 6 Stove and Greenhouse Ferns.
Mr. D. Donald, for 6 Fancy Pelargoniums.
Mr. Chas. Turner, for 6 Fancy Pelargoniums.
Mr. Rob. Ritchie, Gr. to R. H. Prance, Esq., Frognal, Hampstead, for 6 Stove and Greenhouse Ferns.
Mr. John Catlin, Gr. to Mrs. Lermitte, Sen., East End, Finchley, for 6 Scarlet Pelargoniums.
Mr. Chas. Turner, for Collection of Cut Roses.
Messrs. Paul & Son, for Collection of small Pot Roses.
Mr. W. Bull, for Collection of Dracænas.
Mr. John Laing, Nurseryman, Forest Hill, for Collection of Ornamental Foliage Plants.
Messrs. E. G. Henderson, Nurserymen, St. John's Wood, for Group of Plants.
Messrs. Veitch, for a Collection of Roses in pots, and a Collection of Cut Roses.

SMALL SILVER MEDAL.

Mr. J. Carr, for 6 Stove and Greenhouse Ferns.
Mr. J. Ley, Nurseryman, Croydon, for Collection of Plants.
Mr. Robert Ritchie, Gr. to A. Prance, Esq., for 6 Exotic Orchids.

LARGE BRONZE MEDAL.

Messrs. Dobson & Son, for 6 Fancy Pelargoniums.
Mr. J. Herrington, Gr. to J. Price, Esq., Thornton Road, Clapham Park, for 6 Scarlet Pelargoniums.
Mr. A. Clarke, Gr. to W. Shuter, Esq., Belsize Park Gardens, Hampstead, for 9 Caladiums.
Mr. W. Bull, for Collection of Crotons.
Messrs. Rollisson & Sons, Nurserymen, Tooting, for Collection of Plants.
Mr. W. Mearing, for 6 Mosses.

BOTANICAL CERTIFICATE of MERIT.

Messrs. Veitch & Sons, Royal Exotic Nursery, Chelsea, for Asplenium ferulaceum.
Messrs. Veitch & Sons, for Alsophila hirta.
Messrs. Veitch & Sons, for Anthurium cordifolium.
Messrs. Veitch & Sons, for Davallia Youngii.
Messrs. Veitch & Sons, for Dracæna Taylori.
Messrs. Veitch & Sons, for Nepenthes rubra.
Messrs. Veitch & Sons, for Platycerium Willinckii.
Messrs. Veitch & Sons, for Zamia Wallisii.
Messrs. Veitch & Sons, for Betula purpurea.
Messrs. Veitch & Sons, for Purple-leaved Peach.
Mr. W. Bull, New Plant Merchant, Chelsea, for Sibthorpia europæa variegata.
Mr. W. Bull, for Kentia Moorei.
Mr. W. Bull, for Croton picturatum.
Mr. W. Bull, for Dracæna rex.
Mr. W. Bull, for Lomaria Doboroydensis.
Mr. W. Bull, for Dracæna triumphans.
Mr. W. Bull, for Lomaria capensis.
Mr. W. Bull, for Cibotium Menziesii.
Mr. W. Bull, for Dracæna rubella.
Mr. W. Bull, for Anthurium Scherzerianum album.
Messrs. E. G. Henderson, St. John's Wood, for Sedum californicum.
Messrs. E. G. Henderson, for Saxifraga notata.
Messrs. E. G. Henderson, for Zamia calocoma.
Messrs. E. G. Henderson, for Dracæna Princess of Wales.
Mr. B. S. Williams, Upper Holloway, London, N., for Pellæa ornithopus.
Mr. B. S. Williams, for Zamia Lindeni.

FLORICULTURAL CERTIFICATE OF MERIT.

Messrs. Veitch & Sons, Royal Exotic Nursery, Chelsea, for Gloxinia Madame Patti.
Messrs. Veitch & Sons, for Gloxinia Marquis of Lorne.
Messrs. Veitch & Sons, for Gloxinia Liséré d'Argent.
Messrs. Veitch & Sons, for Begonia Emperor.
Rev. A. Matthews, Gamley, Market Harborough, for Pelargonium Andrew.
Mr. W. Bull, Chelsea, for Double-flowered Ivy-leaved Pelargonium.
Messrs. E. G. Henderson & Son, for Golden Tricolor Pelargonium Enchantress.
Mr. Charles Burley, Paradise Nursery, Brentwood, Zonal Pelargonium Leveson Gower.
Mr. Charles Burley, for Geranium Boadicea.
Mr. Charles Burley, for Pelargonium Squire of Weal.
Mr. C. Turner, Slough, for Fancy Pelargonium Miss Baker.
C. B. Foster, Esq., Clewer Manor, near Windsor, for Pelargonium Lord of the Isles.
C. B. Foster, Esq., for Pelargonium Mountaineer.
C. B. Foster, Esq., for Pelargonium Alchymist.
C. B. Foster, Esq., for Pelargonium Viscount.
Messrs. Paul & Son, Cheshunt, for Rose Sultan of Zanzibar.
Mr. J. Gray, Eglinton Gardens, Irvine, Ayrshire, for Viola Lady Diana.

SATURDAY, JUNE 19, 1875.

THE WOOD SORREL.

AMONG the wealth of wild flowers which spring, however long delayed, is sure, sooner or later, to bring in her train, it is difficult to select a special favourite. It always seems to us as though spring flowers were fairer than those of the later seasons. They are not as brilliant as those of the summer months, or as rich in hue as those which autumn brings, but there is a freshness and delicacy of colour in them which we do not find in the more mature beauties of a later period, and this is enhanced by the tender green of the new clothed trees and shrubs. Anemones, Primroses, Cowslips, and Violets, the wild and the barren Strawberry, are all charming and typical; but none have more claim to admiration and consideration than the Wood Sorrel (Oxalis Acetosella), to which we will for a short space direct attention.

The Wood Sorrel may be taken as the British representative of the genus to which it belongs—a genus which comprises more than a hundred species, mainly natives of the Cape, and in many instances of very great beauty. Two other species are represented in Britain, one being the cosmopolitan O. corniculata, which is perhaps native in the South of England; and the other the American O. stricta, which is by some regarded as only a form of O. corniculata, and which is not an uncommon garden weed about London and in other places; but these can scarcely be considered as sufficiently general to be known to every one. Our Wood Sorrel, however, is common and widely distributed enough to be within reach of all, and, with its delicate pink or lilac-veined flowers and emerald leaves is, as we have already said, one of the glories of returning spring.

One or two of the foreign species deserve a passing notice before we settle down to the consideration of our English Wood Sorrel. Among them are certain South American species, which are of some value from an economical point of view. The Oca, as O. tuberosa is called in Bolivia, produces edible Potato-like tubers, and is cultivated on this account; and the fleshy roots of O. Deppei, a Mexican species, the leaves of which are formed of four leaflets instead of three, and remind us of Marsilea, are also eaten. O. crenata was even introduced into England as a proposed substitute for the Potato; but the tubers are too small to be of any considerable importance: it is a Peruvian species, and is cultivated about Lima for its leafstalks, which are very acid. It is known as Arracacha. An Abyssinian variety of O. caprina is employed in medicine by the Abyssinians on account of its anthelmintic properties. Most of the Cape species are also bulbous-rooted, and some produce bulbs in the axils of the lower leaves. Of these O. cernua is an example, a species with yellow flowers, which are produced in umbels on long succulent peduncles. This plant has become completely naturalised in the island of Malta, where it was first noticed in 1811. Mr. Duthie says it "has now become almost ubiquitous, and a pest to the farmer. Few spots appear uncongenial to its growth, for it may be found alike in the rich soil of the valley and by the sides of dusty roads, and on wall-tops." It is called in Malta "Haxixa ta l'Englisi" (the English plant), although why it should be so designated is not apparent.

Our English Wood Sorrel is by no means deficient in points of special interest. The writer of this notice in his very early botanical days grew a tuft of it in a pot, and was thus enabled to notice many of the phenomena which it presents—such, for instance, as the dimorphism of the flowers, and the ripening of the seeds produced by the inconspicuous summer blossoms of the plant. The abrupt discharge of these may fitly be termed startling even when one is prepared for it; and we confess to having been considerably surprised when it first came under our notice. This mode of dispersion is very remarkable in that handsome copper-coloured variety of O. corniculata which gardeners call O. corniculata rubra. If one sits down by the side of a border of this plant, such as is grown in "ribbon" borders, the miniature cannonading which is carried on by the opening seed-vessels is very amusing. The sensitiveness of the leaves of the Wood Sorrel was manifested very plainly in this cultivated specimen; if they were struck or roughly handled they would droop and fold up—slowly indeed, but perceptibly; and at night they closed with great regularity. Linnæus observed that the flowers closed before rain.

The Wood Sorrel is not one of the plants which rests its claims to popularity on its beauty alone; it is also useful, as it yields the "salt of Lemons" sold in our chemists' shops, and employed for the removal of iron-mould or ink stains. Mr. Hardy, in an interesting paper on this plant published in the *Border Magazine* for 1863, says of this production, which is more correctly designated superoxalate of potash, "This salt is seldom sold genuine; it is either mixed with cream of tartar, or cream of tartar and vitriolic acid are substituted for it. It, or the juice of the plant in its place, is employed to take iron-mould and ink stains out of linen. The salt is thus prepared on the Continent:—The juice is allowed to subside, after being slightly heated, and then clarified, by adding to it water, in which some fine clay is suspended. This clarified juice is next boiled, till a pellicle forms on its surface, and is then placed aside for a month to crystallise, the operation being repeated until the whole of the salt is obtained, when it is purified by a second crystallisation. It is an object of commerce for several cantons in the mountains of Germany and Switzerland. A hundred pounds of fresh leaves, in a good year, and well treated, can furnish five or six pounds of marketable salt; but the produce is very variable. Oxalic acid, in a concrete form, is sometimes kept to clean boot-tops, and has been frequently mistaken for Epsom salts, and acts as a virulent poison." The Wood Sorrel was formerly cultivated in English gardens as a salad herb, and was also used as a sauce, in which latter capacity it is still employed on the Continent. Lightfoot speaks of its use in fevers in the Isle of Arran, a tea being made from its leaves and administered in such cases; and, diluted with milk, it is employed in Russia in similar cases.

A variety of the Wood Sorrel having dark reddish flowers is occasionally, though not very frequently, met with, and when it occurs seems to be permanent. Varieties in which the whole blossom is suffused with pale pink are more frequent; and a blue variety is mentioned by some authors. The ordinary form is a plant of wide distribution, extending throughout Europe to the arctic regions, and found in Northern Africa, Siberia, the Himalayas, and North America.

The question as to whether the Oxalis is or is not the true Shamrock of Ireland has often been mooted, but would require too much space to be brought forward on the present occasion. It may, however, be observed *en passant* that it is certainly not the plant now employed in the Irish commemoration of St. Patrick's Day.

The names of the Wood Sorrel are both

pretty and varied. Such, for example, is "Alleluia," by which the plant is still known in Spain and Italy, and which refers to the blossoming of the plant at a time when, as Gerarde has it, "Alleluia was wont to be sung in churches;" *i.e.*, between Easter and Whitsuntide. It was called Stubwort, from growing about the stubs or stumps of old trees; the shape of the leaflets has gained for it the name of "hearts" on the Scottish border; in Cornwall it is called hare's meat, and in South Devon rabbit's meat. But its chief association is with the cuckoo, and that not only in England, but in other countries; this, indeed, is the case with many other spring flowers—indeed an interesting chapter might be written upon cuckoo-flowers alone. Gerarde quotes its old herbal name, "Panis cuculi, or cuckowes meate," and says it is so-called "bicause either the cuckowe feedeth thereon, or by reason when it springeth forth and flowereth the cuckowe singeth most;" he adds that it is called "in low Dutch coeckcoeck broot, in French pain de cocu." Mr. Hardy follows the name through various languages. "In French it is pain du cocu, pain de coucou; in Italian, pan cuculi; in old German, gouches-ampfera; in modern German, kukucksbrot; other German names are gauchklee, guckgauchklee, kukugsklee (cuckoo Clover), gauchbrot, guckgauchbrot, guchenlauch, and gauchlin; in Swiss, guggersauer; in Flemish, cockoucksbrodt; in Danish giogebrodt, giogemad, giogesyre; in Swedish, giokmat. It is the Anglo-Saxon gæces-sure and the Welsh suran-y-gog; the cuckowes meat of Turner's *Names of Herbs* [and of his yet earlier *Libellus*]. It is the English cuckoo Sorrel, cuckoo bread, cuckoo spice, the Scottish gowk's meat, the border cuckoo's meat, cuckoo Clover, cuckoo's sourocks [*i.e.*, Sorrel]; and the cuckoo Sorrel of the North of Ireland." To which already long list of cuckoo names we may add cuckoo meat, by which it is known in many districts; and cuckoo's bread-and-cheese, and cuckoo's "vittles," by which last title it is known in South Buckinghamshire. This general connection between the bird and this and other plants leads to interesting speculations, which, however, must be postponed for the present. Another pretty name for it is the Welsh "Fairy-bells."

It would seem that the Wood Sorrel had formerly some religious significance, possibly from its trifoliolate leaf. It frequently appears in the foreground of early Italian pictures, and is thus employed by Fra Angelico in his painting of the Crucifixion. *B. M.*

New Garden Plants.

Oncidium hebraicum, *Rchb. f., n. sp.**

A botanical curiosity, with very neatly wrinkled bulbs, whence the name is given, since the wrinkles may be compared to Hebrew letters. The flowers stand in a long, slender, short-branched panicle. They are yellow, middle-sized, with scattered, beautifully dark maroon-brown blotches. The lip has a small blotch on each auricle, and a similarly coloured field around and before the calli, with a rhomboid yellow field. The column is exceedingly peculiar, very slender, with a long beaked rostellum, and under the tabula infrastigmatica it is stalked. The plant came from New Granada, where it was gathered by Mr. Coradine. I have to thank Messrs. Veitch for it. *H. G. Rchb. f.*

Oncidium tectum, *Rchb. f., n. sp.*†

This is one of that endless herd of so-called "pluri-tuberculata," distinguished at once by the very broad base of its lip, so that it could likewise be placed at the end of "Basilata" near O. pergameneum, Lindl. Yet it appears to rank much better nearer the O. maizæfolium, Lindl. The pesudobulbs are pear-shaped, ancipitous, sulcate. The leaves rather narrow, linear, ligulate. Panicle perhaps very wide, with many zigzag branchlets. I am sorry to say I have only a small branchlet at hand, but succeeded in naming it by help of an older unnamed specimen. The flowers are yellow, spotted with rich maroon brown. The wings of column are acute on both sides, covering totally the anther: hence the name. I have to thank Messrs. Veitch for this species, discovered by Mr. Wallis in New Granada. My older specimen is also of Wallisian origin. *Toujours* Wallis! *H. G. Rchb. f.*

Batemania armillata, *Rchb. f., n. sp.**

For the last five or six years we have had in the Hamburgh Botanic Gardens a little glaucous epiphyte, named Cœlogyne Gardneriana, which, finally, giving but one bulb and not more each year, brought a new shoot and a little three-flowered raceme with green, white tipped flowers, at least one-third smaller than those of the old Batemania Colleyi, the smallest yet known in this genus. It has the genuine colour of it, and the lateral sepals are folded inside as in nearly all species. Though quite like B. Colleyi it has the transverse ring so conspicuous in all the species except B. Colleyi—thus giving evidence, at least for me, that they all belong together.

There are still several Batemanias nearly unknown, which collectors have come in contact with. A giant species, perhaps B. grandiflora, was found by my late friend Endres in Costa Rica. It came to England for sale, but appears lost. There are no dry specimens. Who knows whether it may be found before the ground may be invaded by Coffee planters—the foes of Orchid growers. Another species, rather a nice thing, was discovered by Sir R. Schomburgk in British Guiana. A third one was discovered in Ecuador by Mr. Wallis. I have at least sketches of these two. *H. G. Rchb. f.*

Epidendrum leucochilum, *Klotzsch; see Lindl. Fol. Orch. Epid.*, No. 158.

A rather tall plant, with beautiful coriaceous oval bluntly-acute leaves, which are quite ligulate in very young or very poor plants. The inflorescence rises from a green spathe, being a subcorymbose raceme; ovary nearly 5 inches long or so. Sepals and petals linear lanceolate acuminate, yellow or green; white lip trifid; side lobes cordate oblong, middle lobe linear acuminate. Calli of base upright, semi-ovate, with two projecting angles. Androclinium exsect (viz., cut out from the borders of column); column itself very large, and, according to our taste, much too stout for the slender sepals, petals, and lip. The smell in the living plant resembles that of sliced Cucumbers, but I have found it horribly feline, such as I have never experienced before, in the withered flower I have just obtained. The four species which form our group—viz., longiflorum, H. B. Kth.; lacustre, Lindl.; leucochilum, Klotzsch; spectatissimum, Rchb. f.—are all very easily distinguished by the calli and the androclinium.

Dr. Lindley called this a "very fine plant." Is it so for the botanist or for the amateur? I do not believe it is so for the amateur, but Mr. Bockett, of Stamford Hill, must know best, he having purchased the plant (at a high price, I hope) at a Lindenian sale, under the promising name of "Imperator" (viz., Catillus, Rchb. f. et Wewz.). We must refer to this enthusiastic amateur for his judgment, which may be more easily given than that of young Paris between the goddesses. *H. G. Rchb. f.*

ROOF CONSERVATORIES.

Country people, whose ground is not confined to the few square yards of earth on which their houses are built, would probably look with disfavour on any scheme that might be proposed to them for placing conservatories on the roofs of their residences; but with townspeople the case is very different. Many of the latter have spent their early days in the country, and the love for flowers and green leaves acquired there is never forgotten by them. This is exemplified by the dusty Southernwood in the proverbial spoutless teapot, which may be seen adorning the attic window-sills of many a lane and back street, and now that flat roofs are more common than they used to be, occasionally a few tolerably well-grown plants may be found on them; but few have thought of covering them with glass. For that bold and spirited idea we are indebted to Messrs. Barr & Sugden, who have erected on the roof of their newly-built establishment in King Street, Covent Garden, a conservatory 36 feet square, and in every respect worthy of the name (see fig. 162). It has a circular roof 18 feet in height, and besides the central portion, which is to be devoted to the growth of Palms and other tropical vegetation, there are two side wings, in which are to be grown bulbs and other plants that require less heat. The heating is effected by 4-inch pipes, connected by means of a flow and return pipe an inch or so in diameter, with a 4½ feet saddle boiler placed at the basement of the building. The King Street elevation represents that of a handsome house in the modern Italian style, and inside it is fitted up with every appliance requisite for the carrying on of a large plant and seed trade; each floor is heated by a separate coil of pipes supplied with hot water through small pipes connecting with the boiler just named. Taylor's ventilating apparatus has been used in connection with the hot-water pipes employed in the conservatory, and by means of this air, either moist or dry as may best suit the requirements of the inmates of the house, can be supplied from the outside, thus affording a constant and efficient means of ventilation, ample facilities for which have also been secured along the apex of the roof. The glass used is Hartley's rough plate in straight squares of considerable width and length; the ribs of the curved part of the roof are of tubular iron, and the colour being of light stone tint relieved with blue, the whole has a light and elegant appearance.

In a conservatory of this description all kinds of plants may be grown, even in our dusty cities, almost as well as in one erected in the country; on its roof might be trained all kinds of climbers for shade, and even Vines might be used for the same purpose. In short, there is no end to the uses to which such a house may be put. It was erected by Messrs. Fletcher & Lowndes, Great George Street, Westminster, and is the first really good roof conservatory that has been built in London. Let us, however, hope that it may be the forerunner of many others of a similar character. *Joseph Newton.*

THE BEDDING PANSIES AT CHISWICK.

Allusion has from time to time been made to the collection of bedding Pansies which has been planted at Chiswick this season, with a view to the selection of the most meritorious. A considerable extent of ground was devoted to them, whole beds being appropriated to each sort in cases where sufficient stock was forthcoming. On the occasion of a recent visit to Chiswick we found them to be blooming in a very satisfactory way, and the following is a transcript of notes then made, the names being arranged alphabetically.

All the varieties described below, where not otherwise stated, received First-class Certificates, at a meeting of the Floral Committee held at Chiswick on June 9, for the special purpose of examining these plants. In several instances the certificates awarded under less favourable conditions last season, were confirmed this year. The following may therefore be regarded as a group of the best of the bedding Pansies, selected in the main rather for their compact habit dwarfness, profuseness and continuity of bloom, and useful and effective colours, than for the size or shape of their individual flowers—selected, in fact, for the very points which give their value to Pansies as bedding plants.

Alpha (sent by Dicksons & Co.).—A very compact-growing, vigorous-habited, free-flowering variety; flowers large, bluish-purple, with a reddish flush, the eye yellow, with a bilobed dark spot in front; good.

Bedfont Yellow (Dean).—A free-growing, compact-habited sort; flowers large, bright golden-yellow, with pencilled eye; good.

Blue Bell (Dean).—A very showy variety, of compact, spreading, and free-blooming habit; flowers numerous, medium-sized, mauve-purple, with a small

* *Oncidium* (*Pentapetala macropetala*) *hebraicum*, Rchb. f., n sp.—Pseudobulbis oblongis compressis superne mirifice sulcatis et multijugosis; foliis cuneato-ligulatis acutis; panicula longissima brachyclada; sepalis ligulatis obtusis; isthmo valde elongata, lacinia antica angusta, emarginato biloba cum apiculo; callis in basi angulatis quinis parallelis, geminis antepositis; columna gracillima curva, rostello ornithorrhyncho, fovea profunde a lateribus exsecta, tabula utrinque tumida, medio utrinque emarginata, alis acutis minutissimis. — Ex Nova Granada.

† *Oncidium tectum*, Rchb. f., n. sp.—Artif., "Basilata;" natural, "plurituberculata maizæfolia." (Pseudobulbo compresso pyriformi diphyllo sulcato; foliis lanceo-ligulatis acutis angustis; panicula ramosa; sepalis tepalisque lineari-ligulatis obtusis angustis; labelli auriculis transversis triangulis laciniæ anticæ æqualatis; isthmo bene angusto trianguli ad instar exsecto brevi; lacinia antica reniformi biloba, antrorsum angustata, callo baseos velutino basi quadrilamellato, callis crenatis, angulis triangulis ternis antepositis; columnæ alis dolabriformibus utrinque acutis.

* *Batemania armillata*, Rchb. f.—Pseudobulbo tetragono; folio cuneato oblongo-ligulato acuto solitario apicali; racemo porrecto pauciflore (trifloro) laxo; bracteis cucullatis ovaria pedicellata dimidia æquantibus; sepalo summo oblongo obtuso, sepalis lateralibus ligulatis obtusiusculis latere interno implicitis, tepalis oblongis obtusis; labello cuneato assurgente, dein deflexo trifido; laciniis lateralibus parvis triangulis serratis, lacinia media ab isthmo elliptico apiculato, apiculo reflexo; carina minute denticulata inter lacinias, laterales; columnæ androclinio denticulato; anthera apiculata—Flores parvuli virides. Columna et labellum alba. Stirps elegantula originis omnino dubiæ in Hammoniæ horto botanico educata.

yellow eye pencilled with dark lines. The individual flowers are inferior, but the effect of the mass good, and it is a continuous bloomer. Awarded a First-class Certificate last year, which was confirmed on the occasion above referred to.

Blue Perfection (Westland).—Of compact, free-blooming habit; flowers medium-sized, of a deep reddish mauve with yellow eye; a fine effective self-coloured variety. The variety sent in as Purple Perfection proved to be the same as this.

Dicksons' Golden Gem (Dicksons & Co.).—A variety of dwarf spreading habit, and a free bloomer; flowers large, deep yellow with deeper eye, over which occur dark pencillings; good.

Dicksons' Queen (Dicksons & Co.).—A variety of free compact habit, an abundant bloomer, but rather later than some others; flowers large, white with yellow eye and pencilled lines. The First-class Certificate awarded last year was confirmed.

Dicksons' Snowflake (Dicksons & Co.).—A moderately vigorous sort, of free-flowering habit; flowers white with a yellow eye marked by a few faint lines. This was awarded a Second-class Certificate.

Dr. Stuart (Stuart).—Of dwarf compact habit; flowers mauve-purple, with small yellow eye, surrounded by a narrow dark ring; a neat and pretty flower. A Second-class Certificate was awarded.

Lilacina (Dean).—A charming variety, of dwarf compact spreading habit, free-growing, and very distinct; flowers of moderate size, the upper petals of a reddish-lilac, the lower ones bluish-lilac, with small yellow eye; an exceedingly pretty and taking flower.

Lily-white Tom Thumb (Dean).—A clumsy name for a very useful variety, of free compact spreading habit; flowers white, with yellow eye and dark pencillings; a fairly good white, but the flowers occasionally blotch in hot weather. The First-class Certificate awarded last year was confirmed.

Lothair (Dean).—A novel variety, with a dwarf compact habit of growth; flowers large, deep purple, with small yellow eye, and broadish bronzy spot just below it on the lower petal; a distinct and rich-looking flower.

Magpie (Dean).—An old, but still useful variety, striking in appearance from the strongly contrasted colouring of its flowers; vigorous, and of a hardy constitution, but rather tall-growing, and an abundant bloomer; flowers blackish-mulberry, with a large wedge-shaped spot of white at the tip of each petal; the spotting sometimes runs out, when for a time it becomes self-coloured.

Mulberry (Dean).—A dwarf-growing variety of compact but spreading habit, and free-flowering; flowers dark reddish plum-purple with very small yellow eye; the flowers are well displayed. The First-class Certificate of last year was confirmed.

Novelty (Cocker & Son).—A showy variety, of free-growing habit, but getting rather tall; flowers reddish or pucy purple, with yellow eye, showy; a pleasing variety amongst the self-coloured flowers.

Queen of Lilacs (Dicksons & Co.).—A variety of free bold habit, forming close vigorous tufts; flowers reddish lilac, paler at the edge, being freely produced; a soft neutral colour, considered to be novel and effective, and useful for grouping.

Sovereign (Dicksons & Co.).—Of close growing habit, dwarf, free, and prolific of blossoms; flowers moderate in size, bright golden-yellow, with a pencilled eye; very effective.

The Tory (Dicksons & Co.).—A variety of free and vigorous growth, blossoming abundantly and continuously; flowers large, deep bluish-purple, with white eye, and a bilobed mulberry spot in front of it; good. The First-class Certificate already awarded was confirmed. Under the name of Monarch was grown a variety not distinguishable from this in the colour of its flowers.

Tyrian Prince (Dean).—A handsome variety, awarded a First-class Certificate last year, but now ranked Second-class; of free compact stout-growing habit; flowers large, dark velvety mulberry purple, with small yellow eye.

White Swan (Dean).—A fine variety, of close tufted habit; flowers of moderate size, pure white with pencilled eye, of good substance, and very chaste looking; fine.

There were besides some rather striking flowers, which from their promise may be looked for again another season. Of these we may especially mention—The Shah, a dark plum purple, considered inferior to Cliveden Purple—the latter unfortunately not in the collection; Dicksons' King, a free blooming purple, but not equal to Alpha; Princess of Teck, a large pale lilac; Waverley, a purple in the way of Alpha; and Ormiston, a dwarf compact pucy rose. None of these latter were successful in gaining certificates. A very pretty variety, named Williams, which appeared to be an improved form of Viola calcarata, or perhaps the result of a cross with that species, seemed likely to continue blooming for a considerable period, but from its distinct character it scarcely fitted in with the sorts with which it was associated. The flowers were small, cornuta-like, mauve colour.

After the late refreshing rains the plants will probably remain in good condition, and perhaps go on improving, for some time to come. *T. Moore.*

THE RADISH: ITS CHARACTERISTICS AND CULTURE.

The Radish, as is well known, consists of several sorts or kinds, varying between long, round, and Pear or Olive-shape. The colour of the root is even more variable, ranging from pink to rosy red, crimson, and black. According to the sorts grown, so, to the accustomed eye, do the leaves also vary in size and form. The Pear or Olive-shaped varieties generally have the leaves longer and more jagged than the other sorts. The long-rooted varieties have their leaves more upright and serrated, but intermediate in form between the former and the round-rooted kinds, more commonly known as Turnip Radishes. I am not aware whether there exists any such an affinity between the roots of a plant and its leaves, but it is certain that the latter has leaves more like the Turnip; they are more pendent, or lie flatter over the roots, and are perhaps also more brittle. The Pear or Olive-shaped is the true representative of the original garden Radish, or Raphanus sativus—the long, small garden Radish being but a variety of the latter, and named Raphanus radicula sativus minor. The round or "Turnip Radish"—a term which always strikes one as having been unnecessarily applied—is, I believe, the original Raphanus orbiculatus. Our original garden Radish, R. sativus, is accredited as being originally a native of China.

In regard to the merits of these distinct forms, judged from an edible point of view, I must give the palm to the round or Turnip-like forms; and this because the roots are more solid, and, in consequence, less watery or indigestible. There can be no doubt, moreover, they are far more palatable and pleasant, being cooler to the taste when eaten. I am aware that our aristocracy, and those who can afford to secure the best of everything, give preference to the long-rooted forms. This I take to be owing to the fact that the round ones are more easily grown, and hence are supposed to be common. The long varieties, moreover, are sought after on all such occasions in an extremely small, young, and tender form, which greatly obviates the too immediate experience of their sharp or burning attributes. Round-rooted sorts when used equally young are, however, pungent in a less degree. As an edible root the Radish does not stand very high; though from its manifest heat it incites the stomach, and possibly aids the digestive organs if partaken of before or after substantial meals. They

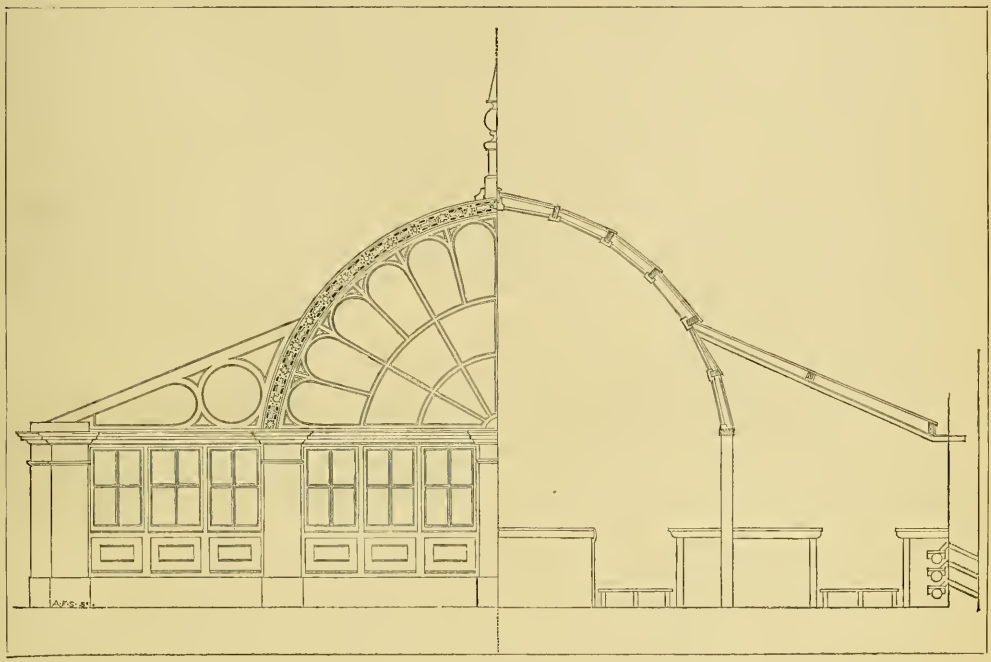


Fig. 162.—Messrs. Barr and Sugden's Roof Conservatory.

are, however, very indigestible when used along with the ordinary staff of life, being, perhaps, more so than meat; indeed our oldest authorities, such as Galen, say they are fit only for a sauce to any meat, possessing nourishment in a very low degree only. Pliny in his writings, and, I believe, Dioscorides, accord to Radish-roots certain medicinal or curative virtues, as they state that a decoction formed by steeping the roots in water is good against an old cold.

Coming to more modern times, we possess what are accredited as improved forms, although I fail to see any great advance in them. Stocks that are kept true and select, however, require of necessity some distinctive name, hence approval should be given to such appellations as "Wood's Early Frame," "New French Olive," &c., which are selections that should be secured by all who grow the roots for home consumption. Lately an innovation, in the form of a long white-rooted kind—large and coarse in size, &c.—has been introduced from California. As to its origin, it is not improbable that it had been carried by some "celestial," who had migrated from China to those parts, and hence, that it is one of the later improvements brought to us in a roundabout way, from the native country of the kinds generally. I say generally, because it is necessary to qualify these facts, by the suggestion that it is more than probable that the black-rooted variety, known originally as Raphanus pyriformis radice nigra, may have originated either in Spain, or from our own native weed, R. sylvestris.

The culture of Radishes is, in a general way, extremely simple, that is, in so far as committing the seeds to the ground and their subsequent germination is concerned. The greater difficulty consists in the practice required to keep up a constant supply "all the year round," to do which requires much forethought, study, and ingenuity; that is, in all instances where the necessary frames do not exist, to do so with ease and possible constancy. As a rule the seeds may be sown with a good expectation of successional crops quite nine or ten months in the year. The best time for the outdoor crop, and the best crop of the season, is during May and June, when they grow freely and form their edible roots in the least time possible. Indeed herein exists the whole secret of Radish culture, which is to sow and so grow, or let all collateral inducements be such, that the edible part be formed of the necessary size in the least possible time. Good Radishes, amply large enough as regards size, should be furnished for table use, with little else beyond the cotyledons or seed leaves having formed upon them, as the formation of the more permanent leaves invariably superinduces toughness of texture and objectionable heat. To insure this, two important facts, too frequently overlooked, must be borne in mind. They are these: the seeds must always be sown on an open fully exposed aspect, so that they have all the light and air possible; and they must only be sown just so thickly as to insure to each single plant immunity from being crowded by others. The latter, as will be seen, is but a furtherance of the former idea of affording light, air, &c., by insuring ample room to all. It is difficult, at all times, to sow as thinly as is necessary for the benefit of the future crop, owing to the need of procuring from frames of limited extent as large a crop as possible. All growers may, however, rest assured that the largest crop of useful stuff is got by thin sowing, and that owing to the quantity absolutely spoilt when the plants come up too thickly. Radishes delight in a free open soil, of a sandy nature, and such as has been greatly enriched a few months previously with good unctuous manure. They form large bottoms in stiff and cool soils, though they take much longer to grow, and are in such soils almost invariably much worm-eaten, which is no trifling objection.

For a succession there exist many contrivances, where, as we have said, no proper frames, &c., exist to grow them in. Early sowings may be made, commencing with the year, towards the end of January, upon a warm, sunny border, a moderate layer of new wheaten straw or Fir branches being placed over the seed-bed as soon as sown. These must be removed during very fine days, and be replaced during adverse or severe weather. In time a useful crop will grow thus. By the same means successional crops sown towards the middle of February, March 1, March 15, March 30, April 12, &c., may be had according to the demand; the latter sowings, fitting in happily with the return of of spring, should need no artificial protection. Outdoor sowings as above, continued in succession in warm sunny sites, until about July 15, should subsequently and until about August 20 be made, if practicable, upon a moist cool site, and somewhat shaded from the fiercer, and, as generally happens at that date, arid rays of the sun. The border at the back of a north or west wall would suit them well at such a time if—and this is important—they are not sown too thickly.

About the end of the third week in September resort should again be had to the warmer site and aspect, and a good large sowing made. Make yet other large successional sowings about October 12 and October 23, which, if properly looked after, &c., and provided with such winter protection as I have suggested above, should afford a supply to draw from until such as are sown early during the subsequent year are fit for use. Thus we band the year round.

It may scarcely be necessary to enter into facts on forcing Radishes along with Potatos, &c., because as a rule they are only secondary crops, which are treated in such a way only as the prior crop, whatever it be, demands. One fact may be added, however—light and air, in all possible abundance, are of the utmost possible importance, along with thin sowing, in regard to this as with other methods, natural or artificial. The round and Olive-rooted varieties, of whatever colour, are far the best for winter work.

The Californian Radish—a monster, so to speak, unfitted for sending to table whole—is useful during winter for slicing, to use as an addition to mixed salads, by those who appreciate salads so coarsely made. For my part, and I have some experience of good salads, I would never countenance Radishes in admixture with a salad, when, by any manner of means, I could do without them. They utterly destroy the crispness and the wholesomeness of ordinary good Lettuce, Endive, Cress, Mustard, and such like admixtures. To grow the "Californian," I should sow only towards autumn, or following the month of July; by sowing earlier, not only does the crop, where it can be grown to an edible size, become hot and ill-flavoured, but the probabilities are that all the plants will run to flower. By sowing, on the contrary, between July and the end of August, a crop may be assured of tolerably good size, and with roots anything but hot or stringy; this according to the large size attained. These roots, so grown, will subsist in the ground, fresh and crisp, throughout the winter, and may therefore be dug, used, and appreciated by all who may not be in possession of any kindred edible root at that season of the year.

One fact of interest in conclusion. Acres of Radishes are grown in market gardens and bunched for market, and I believe it is a fact, needing no confirmation, that women "bunchers" are universally employed, owing to the fact that they do double, and even more "bunching" per diem, than the hardiest of men. *William Earley, Valentines.*

A PLEA FOR MOSSES.—III.

It is not likely that mosses will be sought for by beginners now that flowers are in abundance. I shall, therefore, finish off on this subject for the present, with a few that are sure to come across one's notice even in summer. Hypnum triquetrum (triquetrous Feather-moss), a robust common moss, forms a most elastic seat, growing in dry thick masses, and although not in fruit is distinct, and not to be mistaken, from the stems being much thicker at the extremity. This is the moss one sees at fruiterers in little bundles dyed of a most unnatural green—it is of a yellowish green even in winter. Possibly growing among it is the well-known lichen, Peltidea canina (Dog's-tongue), rooting through the moss with long fibres: in winter the large pieces of grey leather-like substance curled up at the edges, which are then of bright gold colour, are very attractive—now it is dry and dull in appearance. On ashes where wood has been burnt, or where cinder-heaps for top-dressing are laid, is that interesting little moss, Funaria hygrometrica (hygrometric Cord-moss). In hot dry parching weather its setæ are curled up in a most distinct manner; when damped, they stand erect. It is a terminal moss, and the bright orange-red capsules look well on the pale green patches, and catch the eye when found on such burnt-up ground. On bare damp earth in the shade Marchantia polymorpha (polymorphous Marchantia) is now in full fruit, completely different from the conica. Its surface is studded with stout stalked little green tables, powdered, and with an edge around. Hypnum splendens (Glittering Feather-moss), from its shining appearance, is sure to attract in summer or winter; its capsules are not to be found; it loves a degree of shade, and is quite common, as is also H. velutinum (Velvet Feather-moss), a confusing moss, as it is so very like rutabulum: its being of smaller growth is not a distinctive distinction. H. cupressiforme (Cypress-leaved Feather-moss) is another Hypnum growing in similar situations, very common; and H. denticulatum (sharp Fern-like Feather-moss) which fruits in summer and is particularly silky, and of a beautiful light green. These last are all very common Feather mosses, and a handful plucked up at random off a bank may include them all. Long study must it have taken to be able, as I have seen Mr. Sadler when I have handed him a tangled tuft, to draw out at once an inch of H. splendens in its young state, and another morsel full grown—"this is H. sericeum, that is cupressiforme;" I consider I have made good progress when I feel certain and free from doubt, and that some half-dozen very similar Hypnums are any way not the same species. And here let me acknowledge my obligations to Mr. Sadler for his patient naming of the many mosses I have taken to him in my perplexity, and his obliging assistance, which therefore insures the trustworthiness of the names in these little notes.

Dicranum varium (Variable Fork-moss) and D. heteromallum (Silky-leaved Fork-moss) have their terminal fruit in autumn and winter. They are both much smaller mosses than D. scoparium, and very attractive from their close velvety appearance of dark (varium) and bright green (heteromallum). Didymodon purpureum (Purple Didymodon) is one of the most common small mosses, and its reddish fruit-stalks give quite a colour to the ground where it grows in large patches. It is one of the terminal mosses, and is in fruit now. Although so plentiful, one cannot resist gathering it, when seen with the sunlight through its red setæ on a turf-topped wall. Common on the wet moors is Bryum palustre (Marsh Thread-moss), distinct from the green tips of many of the stems; it seldom fruits, but summer is the time of year for its capsules. The green gemmæ or buds give quite a character to this Bryum, which it retains even when dyed. Hypnum loreum (Rambling Mountain Feather-moss) grows in long hard branches on the ground in dry woods, mixed up with other Hypnums. Trichostomum lanuginosum (Woolly Fringe-moss) one would take for a Grimmia. I only found it in small patches among stones, but it grows by the acre on the Highland mountains, "forming an elastic grey carpet."

Here I will stop. Having since commencing this paper been myself to Belvoir, to see once again the beautiful spring gardens, and going weekly to the rock garden at the Botanic Garden here, to try and catch the endless collection of plants as they come into flower, I find my own thoughts turning from mosses, for the time, and there is no doubt winter is the most likely season to impress a beginner with a love of such flowerless plants. For summer, seaweeds are perhaps the most tempting cryptogamic tribe, and very fascinating is it to dabble in the cool rock pools, and exciting to catch the tide as it "stands" for a few minutes before it turns, and your chance of some choice species to be found growing on the stalks of the tangle is over for another fortnight; or, possibly, a month, until next low tide. Allow me to recommend a taste of the algæ—olive, red, and grass-green seaweeds—during the hot months, which will prepare for a glance in autumn at the most evanescent branch of cryptogamia—the fungi. Such a plan reads like a wretched smattering of all, ending in nothing; but any one plant that is gathered with one's own hands, watched and studied, never to be forgotten, although its name may be, is a fact complete in itself if no further prosecuted, or a firm stepping-stone to an endless galaxy of facts if, as is most likely, "appetite will grow by what it fed on." And let not the earnest amateur shrink from being called a smatterer, but accept the title as another certain fact at once, and for life. *F. J. Hope, Wardie Lodge, Edinburgh.*

GREENHOUSE PLANTS.—XXI.

THEIR CULTURE AND MANAGEMENT.

Lasiandra macrantha.—There are two varieties of this plant, L. macrantha and L. macrantha floribunda, quite distinct, and both equally well worth growing, but for totally different purposes. They do not possess the intense colour of Pleroma elegans, but the flowers are much larger and produced in greater quantities. They are undoubtedly the grandest of all Melastomaceous plants. L. macrantha floribunda was introduced after L. macrantha, and is best adapted for specimen pot culture, being naturally of a bushy habit of growth, blooming profusely in the autumn and winter, when flowering subjects are much in demand and not over-plentiful. It is a free-grower, and will flower in a very small state, even in 5 or 6-inch pots; its large, rich, violet-purple blossoms are not of very long duration, like most other Melastomads, some two or three days, but are succeeded by others, the plant producing them in clusters from the points and axils of the leaves of the young shoots, giving a succession for several weeks. Young plants in 5 or 6-inch pots are the best to commence with; select such as have been stopped at the second or third joint above the collar, and are branched out into several shoots; it is necessary to begin with those that have been so treated, for if they have been allowed to run up without stopping it is difficult to afterwards get the base furnished. They should be moved into pots 4 inches larger in February, so as to make the growing season as long as possible; they will succeed in either peat or loam, the latter being, perhaps, the best: mix a fair amount of sand with the soil, as this plant with its

ample foliage requires, when in active growth, a good quantity of water. It will be much benefited at this early season by placing in a house where it can receive a little more warmth than the generality of greenhouse plants require—45° or 48° in the night will suit it well, and a little higher in the day. Through the spring give them plenty of light until the sun gets very powerful, after which, in the middle of the day, they will need a little shade; give a sufficiency of air during the early part of the day, but close the house with a fair amount of sun-heat, syringing the plants overhead at the same time; do not let them go short of water whilst in active growth, or it will have the effect of checking root-action, which would seriously interfere with the season's progress. Pinch out the points of the shoots so as to induce the formation of enough branches to furnish the plants well; it is one of the easiest managed subjects in this respect, but must not have this stopping neglected, otherwise it will entail cutting back of the strong upright shoots that are formed in the centre of the plant, the removal of which will be so much loss in size. By midsummer, if the progress has been satisfactory, the strongest plants will bear another shift into pots 3 inches larger, using the soil a little more lumpy, and containing as much of the decayed roots of the grass as can be obtained, potting quite hard where a good quantity of this fibre exists. In soil of this description, this plant will make rapid growth, forming a nice half-specimen the first year. After this summer potting keep them a little closer for a fortnight, using plenty of moisture in the atmosphere, and continuing to damp the plants overhead; keep the strongest shoots well tied out so as to balance their strength, allowing the weaker ones to assume an upright position, which will much increase their growth. About the beginning of August nip out the points of any that are taking the lead; but after this time do not stop any more, or it would interfere with their flowering. Through September withhold shade, give more air, and cease syringing overhead, to effect the ripening process in the growth and formation of flower-buds; by the end of the year, or sometimes earlier, these will be apparent, when the plant should be placed in a temperature of 48° or 50° in the night, to induce them to open freely, when they can be removed to the conservatory, for the decoration of which this subject is most suitable. The temperature here should be similar to such as the plant has been previously in, otherwise its flowers are liable to drop before opening; after blooming remove to a house where they will be kept about 45° in the night, if lower the leaves are apt to drop, seriously affecting the roots.

About the end of February cut the plants back moderately, if the object is not to get them large, and place them where the temperature is a few degrees higher, which will cause them soon to break, after which they should be turned out of the pots and a small portion of the surface-soil removed, giving 3 inches larger pots, using soil similar to such as hitherto recommended. Tie the strongest branches well out, and treat generally as advised for the preceding season in respect to syringing, shade, and air, with attention to stopping any shoots that are disposed to take the lead too much; but this year the plants will, in all probability, not show so much disposition to make unequal growth; they will not require a second pot this season, but must be subjected in the autumn to the slight ripening process, by withholding shade and a drier condition of the atmosphere. When the bloom-buds begin to swell considerably give them a similar temperature to that of the previous autumn, to open their flowers. The time of blooming may, if desired, be somewhat delayed by keeping the plants in a little lower temperature, but this must not be carried too far, by so keeping them either too cool or too long, or the result will most likely be the total loss of the flowers, for this is essentially an autumn and winter-blooming subject, and unless by some accident which gives it a check or treatment out of the ordinary course, it is not disposed to flower at any other season. After blooming the plants may be again cut back and treated in every way similarly to the preceding year, giving them a further shift of 3 inches, and removing a little of the old soil, without disturbing the roots much. After they have bloomed the next autumn it will be best to destroy them, unless where required very large, as young plants are in every way to be preferred, and from their quick and easy growth succession stock can always be brought on to take their place.

The other variety, L. macrantha, when first let out very much disappointed those who grew it, from its straggling upright habit, which no amount of stopping and attentive cultivation appeared capable of counteracting, and for this reason, in most cases, it was discarded as worthless. It frequently happens that a plant which is admirably adapted for some particular purpose gets a bad character by reason of its inability to conform to a process of culture opposed to its natural habit. Thus it was with this Lasiandra: its straggling habit, although rendering it unfit for growing into a compact bushy specimen, naturally suits it for the purpose of training up a pillar, wall, or rafter; grown in any of these situations in a structure, with a few degrees more warmth in the winter than the ordinary hard-wooded house, it is one of the finest flowering objects in existence, blooming for weeks in such profusion that no one, except those who have seen it so employed, can form any idea of the gorgeous effect it produces, forming large clusters of from a dozen to a score of flowers at the points of the shoots, which keep on opening in succession for weeks together; but to see it to perfection in such situations it should not be confined to a pot, but should be planted out in a well-drained bed of good loam, to which has been added a liberal admixture of sand, with the addition of a good sprinkling of charcoal or bricks, broken the size of pigeons' eggs, to prevent the soil getting sour.

In thus using this plant, as in the case of many others, there is frequently the mistake committed of turning them out whilst in a small state; so treated the soil becomes sour before the plant has enough roots to lay sufficient hold of it. On this point it may be, and frequently is, urged that plants in a state of Nature commence their existence, even from the germination of the seed, in an unconfined space, without the soil becoming unsuited for their well-being; but in the open air the conditions of the soil, in common with other things, are altogether changed; full exposure to the air and light prevents its becoming in such condition as is inevitable in the best ventilated and light-admitting structure, and in Nature's planting it must be borne in mind that all do not grow that come in contact with the soil—only such as happen to be placed under conditions of situation suitable to their requirements. Thus with plants that are intended to be turned out in borders, such as the one under consideration, I have always found, except in the case of extremely strong-growing subjects, that it was much the best way to grow them on for a time in pots until they had acquired considerable strength before turning out, with the precaution, at the time of planting, of always spreading the roots out so as to prevent the ill-effects of the spiral root-curve inseparable from pot culture. For the above reason it is better to grow this Lasiandra in a pot for the first season, treating it in every way as to soil, water, air, and shading, similar to what has been advised for L. macrantha floribunda; but in the selection of plants for this purpose it is better to have such as have not been at all stopped, but simply grown up with a single stem. Do not stop them until they have attained the height which will best adapt them for the position they are required for, after which it will be necessary to take out the points, so as to induce the formation of shoots to cover sufficiently their alloted space, when they will require nothing more than being kept tied loosely in, with sufficient use of the knife, after flowering, to keep them within bounds. In such situations this and other plants frequently get weakly, through the soil becoming impoverished, to prevent which every spring, before active growth commences, an inch or two of the surface-soil should be removed and new added, with an occasional application of manure-water during the growing season; so treated they will last many years.

Lasiandras are not plants particularly subject to insects. Red-spider will sometimes make its appearance if the syringe is not sufficiently used; in such case repeated washings with clean water will be the best remedy, the texture of the leaves being such as not to bear without danger or injuring them any application of the usual insecticides. Scale, either white or brown, will live upon them; yet the brown species is usually small and puny, but in such state it is not so easily destroyed as when upon a plant that suits it better, and on which it is found in that peculiar fat condition indicative of being well fed. Where it exists upon this plant, the best way to proceed is, after flowering, to shorten it back, cutting away all the leaves and then washing thoroughly with Fowler's Insecticide—5 oz. to the gallon—repeating this two or three times in the course of ten days; the plant, after this cutting in, being kept in a temperature of 50°, so as to induce it to break, for it often happens when any plant is headed back, if kept in a temperature too low to excite growth, that it either dies or breaks weakly—the roots, under such condition, generally suffering more than they otherwise would through the severance of the branches. If affected with white scale, it will require cutting back to the hard, mature wood, and dressing with Abyssinian Mixture, at 7 or 8 oz. to the gallon, washing the mixture well into the inequalities of the bark, repeating the dressing several times before the plants break into growth. *T. Baines.*

ROYAL HORTICULTURAL SOCIETY.

A CONFERENCE of horticulturists, convened by the Lindley Club, was held at the Charing Cross Hotel on Wednesday evening, to consider the position and prospects of this Society. Mr. A. F. Godson presided. After a brief introductory address, the Chairman said he should call upon Mr. Shirley Hibberd, who had proposed this conference, to open it by submitting proposals for their consideration.

Mr. Hibberd said: In order to save the time of the gentlemen present he would assume that they were all familiar with the more prominent facts of the question before them. He would not now enter into any of the numerous complicated arrangements that subsisted between the Society and Her Majesty's Commissioners, but proceed at once to sketch out a practical scheme, the adoption of which, he believed, render the Society respectable, powerful, wealthy, and useful—would, in fact, place it in the proud position in which the late Prince Consort wished and expected to see it when he devoted his great and good mind to its reorganisation and settlement at South Kensington in the year 1860. Revolutions were of necessity costly, and they were not always successful. If any section of the Fellows entertained desperate resolves, he would advise them to combine their energies to make the best of things as they found them—that is to say, in connection with existing charters, covenants, and agreements—before attempting anything so wild as a divorce of the Society from Her Majesty's Commissioners. They were tied up in a scheme which had failed from the first. But they could not sell their land to speculative builders; they had no available assets; they had, in fact, absolutely nothing they could carry into the open market; and they were bound by considerations of ordinary prudence to ask if they had hitherto turned their opportunities to the best possible account. In his (Mr. Hibberd's) opinion they had not. Here was a great open space in the most wealthy and fashionable quarter of the metropolis, and not a space simply, but a beautiful garden, so badly managed that those who possessed special and peculiar facilities for enjoying it did not contribute to the Society's funds sufficient to completely cover the expenditure its maintenance entailed. The local element had of late made itself manifest in energetic action, but it would have to do more to acquire a title to the special consideration it demanded in the direction of the Society's affairs. Now, he had no quarrel with the resident Fellows. It was no fault of theirs that the terms of membership were so arranged that they obtained the use of a beautiful outdoor lounge for themselves and a healthy and secure playground for their children at the expense of the country Fellows; for the £7000 per annum that this garden cost was very much in excess of the aggregate contributions of the local Fellows, and, in fact, it nearly equalled the entire income of the Society. As this garden constituted the main difficulty, it might be proper to prove that the cost of keeping it is in only a small part provided for by the resident Fellows. The revenue account for the year ending January 1, 1874, showed that the keeping of the Kensington garden cost the Society £2707. The interest on debentures, which were issued solely to provide funds for the formation of this garden, amounted to £1962. The establishment expenses amounted to £1809, of which we may fairly charge £1000 to the special account of Kensington. As a considerable number of plants are grown at Chiswick for the decoration of the conservatory and gardens at Kensington, a third or more of the total of £2091 incurred for the Chiswick garden may be charged to the Kensington account—say, £700 more. Now, it will not be unreasonable to charge Kensington an additional £700 in part payment of the costs of exhibitions and other miscellaneous matters that it is impossible now to particularise. The result of this view of the subject is that the South Kensington gardens cost the Society £7369 last year, and, as the admission fees and subscriptions actually paid (£174 6s., £7,281 15s., and £275) amounted to only £7,731, there need be no further difficulty in accounting for the Society's financial difficulties. The total outgoings last year for the gardens at Kensington equalled the whole of the Society's income, and yet there was no rent paid and no provision whatever made for those departments which stand apart from Kensington, such as the establishment at Chiswick, expenses of committees, and other matters pertaining to practical horticulture. The total outgoings in a year of injuriously small expenditure amounted to nearly £12,000, and the current account shows a debt of £4013. In the year 1876 there will be due for rent, the payment of which cannot be legally postponed, £2400, and if the present debt is carried on, and a debt of a similar amount again incurred, we shall close up the next year with a debt of £10,426. Minute particulars cannot now be taken into consideration. It is enough for present purposes to deal with round sums and general results. The source of the Society's weakness cannot be matter for doubt. The local Fellows contribute to the general fund very much less than their fair share, the formation and keeping of the gardens at South Kensington constituting the principal part of the heavy burden the Society has to bear.

In making proposals for improving the position of the Society, I consider it of the very first importance to honour existing covenants, to perform all duties and labours prescribed by the charter, to make the best of the lease, the best of the Society's relations with the Commissioners, and the very best of the local Fellows. I cannot recognise any possible repudiation of debt, but I would receive gifts of money, and, indeed, organise a fund to which the friends of horticulture might contribute, for the purpose both of paying debts current and also for the redemption of debentures. It will be observed that in entering into any project for the future we must speculate; in other words, we must make sure of expending money, while it will remain to be seen if the money expended will in a reasonable time return. We have fallen short of the great designs of the princely founder of the South Kensington scheme: let us endeavour to rise as nearly as we can to the height of his idea. To do this it is certain the London garden must be kept in the most perfect condition possible. I propose, therefore, to increase the expenditure thereupon from £2707, incurred last year, to £3500. Corresponding improvements should be made at Chiswick, raising the expendi-

ture from £2091, the cost last year, to £3000. As a matter of course, establishment expenses would have to be correspondingly increased, and we may raise the present figure of £1809 to £2500. Last year the special expenses in relation to horticulture were only £701, but we must allow in our estimate at least £2000. The cost of exhibitions last year was £2101; the least we can allow in future is £3000; but we might allow double that amount with perfect safety to the Society and great advantage to horticulture. We have now to add, for interest on debentures, £2000, and rent, £500, which is rather more than the Society is actually required to pay. The result of these arrangements would be an annual expenditure of £17,000.

It will be observed, however, that such an expenditure judiciously administered would render the Society respectable and attractive. It would exercise an enormous influence on the Society's status as a corporation specially charged to enliven the London season with fêtes and competitions. The question arises, How are we to recover the increased outlay? The answer is, by making a reasonable charge upon those for whose advantage more especially this increased outlay would be incurred. I have no idea of lowering the rates of subscription, but I have a firm conviction that, in one respect at least, the rates of subscription are too low to be safe, and ridiculously low as compared with what is ostensibly provided in exchange. A resident in the immediate vicinity of the garden may participate in every entertainment provided by the Council, and enjoy the free use of the garden the whole year round, for the absurdly small payment of two guineas annually. I propose as a condition of Fellowship for those residing within a mile of the garden at South Kensington the payment in advance of a subscription of not less than £10 10s. annually. In the event of the removal of a Fellow into or from the one-mile radius his subscription should be raised or lowered accordingly. In all other respects I would leave the rates of subscription as they are, for the fewer changes we attempt the better. Amongst many arguments that may be adduced in support of this proposal I shall be content to place before you only two. In the first place, then, those who reside in the immediate vicinity of the garden may, if they choose, obtain an abundant return in the way of health and pleasure for a subscription of ten guineas each. In the second place, we have a precedent for such a course of procedure in the case of those London clubs that charge their town members double the rate paid by those who reside in the country.

The question is, What would be the result of such a change? We must of course assume that these gardens have become immensely attractive, for a yearly outlay of £17,000 is to be incurred in the administration of the Society's affairs. The raising of the subscription would tend to enhance the value of the attractions by restricting the enjoyment of them to a select company. I find in the list of Fellows last published the postal letter W. affixed to the addresses of 1049. Those in the S.W. district number nearly as many. It may be assumed that fully 1000 Fellows would gladly pay ten guineas per annum, and the result would be from this source alone considerably more than the sum-total of all the subscriptions now received. The carrying out of the plan I submit to you would result in raising the Society's income from subscriptions of Fellows alone to £20,000, which would leave an ample margin for redemption of debenture debt. But we will set down the income from subscriptions at £10,000; that is to say, only £2269 in excess of the total of last year. We should have in addition the usual fifteenth of life compositions, £800; we may estimate the exhibitions to produce £2000; admissions to the gardens, which produced last year £594, would probably produce £3000; and miscellaneous receipts, now amounting to £1384, would surely be no less; but we need only estimate them at £1200, and we have a return in full of the expenditure of £17,000, which appears to be the very least necessary.

I will, therefore, conclude by remarking that as the garden at Kensington should be made abundantly attractive to the residents in the district, a skating rink and an aquarium are things to be desired, provided only they can be carried out in a creditable manner and with advantage to the revenue. Gardeners might be admitted as Associates for a small subscription—say, of a guinea a year—which should entitle them to admission to the gardens at Chiswick at all times, and to the gardens and exhibitions at South Kensington some time in the forenoon only. And there might be instituted in connection with the Associates a system of life assurance and annuities, the profits resulting from which would still further augment the Society's income. For the present, however, we must find the means to increase both the income and the expenditure; for while horticulture is starved the Fellows obtain literally nothing more than vexation for their money.

Dr. Denny agreed in principle but not in detail with Mr. Hibberd's proposal, and suggested a five-guinea family ticket for resident Fellows. He commented on the dead-lock occasioned by the four members of Council, who, after intimating publicly their intention of resigning, still continued in office.

Mr. Wooster wished it were possible for the local Fellows and the horticulturists to work together.

Mr. S. H. Godson suggested an appeal to the Fellows for the means to extinguish the debt.

Mr. Hibberd concluded by submitting the following resolution which was carried *nem. con.*, and ordered to be forwarded to the Council:—"That in any scheme which may be promoted with a view to the restoration of the Royal Horticultural Society to its original high position the annual subscriptions of Fellows residing within one mile of the gardens at South Kensington should be fixed at a minimum rate of ten guineas, and that the Fellows tickets should be used only by resident members of the families of Fellows."

The meeting concluded with the usual vote of thanks to the Chairman.

—— Allow me before relapsing into silence to say a few words on the propositions submitted by the Council to Her Majesty's Commissioners and their replies. These, coupled with Lord Bury's explanatory remarks, teach us some things which it is very important for us to know. They tell us, in the first place, that we need be under no uneasiness as to the ultimate payment of the debenture debt by the Commissioners. They themselves have said nothing, but it is impossible that his lordship could have expressed himself as he has done regarding this without having ascertained that if the worst came to the worst they would meet it, and it is now generally known that it is so. In the next place, we learn that in the existing position of affairs (both theirs and ours) the Commissioners desire not to have to undertake at present either that liability or the cost of maintaining the gardens. Such a feeling supplies them with powerful inducements to support the Society, and their acceptance of the first proposition made by the Council as a basis from which to treat is a proof of their desire to do so. The preliminary qualification which they annexed, that the Council should show them that if an arrangement were come to they would be able to carry on the Society, was surely a most natural and proper one. To what good was it to adjust a new agreement if it was to fall through next year? The Council admitted the fairness of the requirement by complying with it. How they did so we do not altogether know, for they have not allowed us to see the estimates which they supplied to the Commissioners. All that we know is that they were rejected as illusory, and I do not see how it is possible that they could be otherwise if they showed or pretended to show that they could carry on the Society. They have already declared in open court that further reduction of expenditure was incompatible with efficiency, and we know their standard for what they call efficiency. The present year is not half done, and they already talk of bankruptcy. Do they expect that that announcement will have a favourable effect upon next year's receipts? They have never told us the number of resignations during the last two years—at what do they estimate them for next year? It must have been plain to the Commissioners, if not to them, that unless something important were done to put the Society on a new footing it must come to an end. Its rehabilitation was not to be effected by reduction of expenditure but by increase of income, and what was the Council's expedient for obtaining such an increase? Nothing but the skating rink. It is true that after the Council had been prompted by the Commissioners they produced two schemes for remodelling or readjusting the payments and privileges of the Fellows, and Lord Bury has bequeathed us a third of his own; but none of these contain any glimpse of a thought or idea for imparting new life or attraction to the Society, for increasing its usefulness, or for adding to its funds, with the sole exception of the skating rink; and few will think that the Commissioners could hold the Society to be in a sound condition if its existence depended upon £1000 a-year drawn from the uncertain tenure of a fashionable amusement continuing in vogue. For myself, I like the skating rink very well if it is kept in its proper place—*i.e.*, an accessory relaxation or amusement for the younger members of the Society, which should be heard no more of, and occupy no more important a place in our aims than croquet, although it might occupy a more important place in our accounts; but I utterly protest against the Society being turned from a horticultural society with a skating ground into a skating society with horticultural shows. Horticulture must stand well to the front; it must occupy the foreground, the middle distance, and most of the background; a corner may be spared in the distance for croquet, and another for skating, but that is all: and such a view is what none of the schemes of the Council give us. Lord Bury's own scheme, indeed, has not been before them; but seeing that it is a mere readjustment of payments and privileges, without any new and only diminished old inducements to any one to avail themselves of them, it is wanting in the most pressing necessity of the moment. But even although this were provided for, and in the way that would be most favourable to the views of the Kensingtonians, it would not benefit them. Suppose that separate budgets were provided for horticulture and for the South Kensington garden—that the Kensingtonians exerted themselves, and increased their subscriptions so as to be able to maintain the garden—that the horticulturists did not, and that horticulture went to the wall. Could the Kensingtonians then hug themselves in security, tell horticulture to take care of itself, and suppose that they would be allowed to retain the garden for the use of their section? If that is any part of his lordship's expectation, he has made very little use of his opportunities of studying the Commissioners. If there has been one thing standing out plainer than another in all their dealings with the Society, it has been a straightforward determination that the benefits of the property in their hands shall go either to science, or the public, or both; and surely Lord Bury must have found out by this time that any attempt to draw wool over their eyes is a very hopeless speculation. He may depend upon it that in any lease or arrangement which the Commissioners may make they will take especial good care to insert the most stringent provisions for the determination of the lease the moment it ceases to be directly used in the promotion of horticulture. I should be sorry to do his lordship injustice, but his scheme certainly seems open to the imputation I have suggested. However, it will soon be known, for if I am right we shall see his interest in the double budget scheme quietly go to sleep as soon as he finds that the Commissioners see through his proposition. Can, then, Lord Bury and his friends do nothing to assist the Society to recover its position? They can complete their resignations, and dismount from their positions on the shoulders of our poor Sinbad. It is plain that they can do no good by remaining. His lordship has quite misunderstood the special qualifications of his councillors. To those standing outside, and who have not been privileged to behold the unity in which they dwell, they have seemed to be Atés stirring up strife. Certainly whatever the apology may be the fact remains, that without counting their own internal quarrels—which, despite their vouched-for harmony, report says have not been few—in the short space of two years they have alienated Royalty, estranged the Court, fought with the Commissioners, and sought to pain them by ill-founded imputations and impolitic insinuations, irritated the old Council and their many friends by gratuitous and objectless abuse, offended many of the Fellows by thoughtless and overbearing behaviour, hurt the nurserymen in their dearest interests by mismanagement, disappointed and restrained the Fellows of many of their lawful pleasures and their enjoyments, driven the gentlemen's gardeners into open rebellion—bitterly angered many of their masters, and generally disgusted the outside public and the Press by their undisguised attempts to exploit the Society for their own interests: their empire has obviously not been peace. Received popularity from such a source is not to be expected, and it is needlessly weighting the Society in this race for it to insist on seeking it under their auspices. Let them relieve their brethren from the odium attaching to their proceedings, and at least give them a chance. And here let me say that I allude only to the Kensingtonian party. I was very sorry that Mr. Hume felt it his duty to follow their lead. The Council once purged of all this perilous stuff can then face the question with a better chance of success. I have no desire to say a word in anticipation of their decision; I only remind the Fellows that no scheme that does not aim at increased usefulness and increased means will be of any good. We are not without such schemes, which might be fitted on to our present arrangements. We have Mr. Strickland's, shadowed forth in the last number of this journal; and we have Mr. George Wilson's of guinea country Fellows with country Boards and affiliated societies. Past Councils have for long been nibbling at this idea, it falls to the present to put it to execution. Let them take a leaf from Sir Henry Cole's book. I remember him once saying, "I do not take any credit for originality in this—you have all thought of it—the credit I claim is that you have only thought of it, but I have done it." "What will they do with it?" will be the next question.

The mention of Sir Henry's name leads me to add that I have written on the assumption that the Society is to work out its own salvation. Of course, if, as suggested by him, Government could by any means be induced to come in like a *Deus ex machinâ*, and relieve us all from our difficulties by taking the gardens out of the hands both of the Commissioners and the Society, it would be a very pleasant and delightful solution of the dilemma. That some such termination lies in the future I do most powerfully and potently believe, but I am afraid the Pear is not yet ripe. At any rate it is clear that the more we can make our usefulness and value as a scientific body felt and recognised, the better will our chance be of protection and support from any Government. *Andrew Murray.*

BRITISH GARDENERS.—XX.

Daniel Judd.

This worthy gardener, whose portrait is annexed, was born at Edmonton, Middlesex, in October, 1815. At the age of seven years his father, who was gardener to Charles Campbell, Esq., of Bury Street, procured for him from that gentleman, who was a trustee of a grammar school founded by Edward Latimer, Esq., a presentation to this school, where he remained until he was fourteen years old. During that time young Judd's father made him spend all half-holidays—the Wednesday and Saturday afternoons in each week, also the Christmas and Midsummer holidays in the garden—cleaning out stokeholes, and in doing any job that fell in the way under any of the men, in each of the departments, from the lowest grade unto the highest. "Well," he says, "do I remember how proud I was when I could prune and nail a Peach tree tolerably well, and build a Cucumber bed some 4 feet high at back and 3 feet in the front, with somewhat short dung, on which to place a three or four-light box. The dung in those days used to be worked and turned some six weeks before using to get it tolerably sweet, and to be able to keep these beds upright and square was considered a specimen of good workmanship: this was my great aim. So particular was my father in these matters that he would even take the fork out of my hand and show me how to take the dung up with it and place it on the bed so that it could not slip off, trying to instil into my mind the utility of combining theory and science with daily practice. He would try to make me study angles and parallels in all my operations, more especially when nailing and at new ground-work. I could accomplish these jobs pretty well before I left school."

Mr. Judd speaks with just pride and veneration of his father, to whose practical lessons and grounding in the science he attributes his subsequent success as a gardener. "It was my lamented father," he observes, "who before I left school taught me the secret of root-pruning. Those fine Blenheim Pippins which the Horticultural Society had modelled in wax, presenting him with one of the models, were grown by the aid of root-pruning. I well remember looking on as he told his foreman where to dig for a strong root, and the spot—generally in the same direction and directly under a strong branch—was generally the correct one; in fact, I never knew him wrong. The trees were orchard trees, or, more correctly, 12 to 15 feet high bush trees. His practice was to cut one or two large roots every alternate year for a few years, and then to allow the trees to rest for a time, say five or six years. So that root-pruning is of much older date then some people imagine." There are several communications on practical gardening by Mr. Judd's father in the early volumes of the *Transactions of the Horticultural Society*.

"My father," continues Mr. Judd, "was a great admirer of the late Thomas Andrew Knight, Esq., and Sir Joseph Banks; and, being a Fellow of the Horticultural Society, he occasionally would ask leave of absence for me from school on Tuesdays, in order to take me with him to the meetings of the society, then held at 21, Regent Street, to see the plants, &c., exhibited, and to hear the discussions thereon. Many a useful lesson I learned in this way; one in particular impressed my young brain. The great Mr. Oldacre exhibited two Pine-apples, the one grown in a house with a wooden roof and the other under an iron roof, and showing how the different juices or acids under the excessive heat produced under the iron roof had run together. The fact was that fermentation had commenced. This was at a time when iron roofs were in their infancy, and ventilation but imperfectly understood.

"After leaving school I spent six months under my father, and was put to assist in laying-out a small place he took charge of, and that gave me an insight into new groundwork, in fact he made me a kind of foreman of the job under his guidance. Honoured be his name, for to him I owe the groundwork of the feeble efforts I have been able to make in the pursuit of horticulture, and in making my position in the world as a practical gardener.

"My first start in life was to Brockett Hall, in Hertfordshire, the seat of Lord Melbourne, at the time he was Secretary of State for the Home Department. Mr. Dawson, sen., his gardener, who was considered in those days a 'great gun' and a very good gardener, was very strict, and not over considerate with young men. I cannot say much for the comforts we experienced there. The bothy was a wretched place, situated between and joining two stokeholes—one miserable room at the back of the houses, and looking out on a high grassy bank about 10 feet distant, the roof covered with the old-fashioned pantiles, without any ceiling, so that when there came a drifting snow it found its way to us as we lay in bed. I remained there between two and three years, and spent many happy days with one of my master's sons to share with me all the hardships we had to undergo.

"The Royal kitchen garden at Kew was my next venture; there it was my lot to serve some three and a-half years in the several departments. The degrees to pass through, and the rules to observe in that place were of a strange character, such as being chained up before the hothy fire, and going through a process of being branded with the letters K. G.—Kew Garden, while the constable of the garden read over the rules to be observed, and woe betide the young fellow who attempted to resist the tomfoolery.

"Although there were certain stages to pass through, such as wallman, Melon-groundman, and day fireman, before reaching the houses and bothy, I was not long in getting to the top of the tree; and when that eminence was reached, plenty of hard work was found, also much scope for reflection for an active mind. The style of gardening was very loose. Forcing was carried on in the true sense of the word—both day and night; Pines had not time to form fruit for want of rest—report said that some of them were seven years old, and certain it was that I found some there when I went, and I left the same plants there when I left, with fine long legs and well furnished with bug. I looked upon it more as a place of 'all work' than a school for young gardeners. The young men had to carry all the coals into waggons from barges moored off Kew Bridge, and from the waggons into the stokeholes, and make heaps of them at the back of the houses, some 60 tons per day. I myself have had 118 sacks on my back in one day. We also had to dig and wheel the loam from the park across the ha-ha opposite Sion House, that divided the towing path from the park, into barges moored in the river, and such adepts were some of the men at navvying that occasionally one or two went off the plank along with the barrows into 6 or 7 feet of water. What would the present race of young gardeners think if they were asked to perform such work? I fear they would look upon it as degrading. We in those days looked upon it as a lark, obeyed orders and were happy over it. It is well that young gardeners should know what was expected of their class in years gone by. At the present day their ideas appear to be that they ought, to a certain extent, to be fine gentlemen, and they fancy if they can only get into the 'houses' for a time they will become gardeners 'ready dressed;' a grand mistake, for without intelligent study and close persevering observation, they will no more make gardeners worthy of the name than would have been the case in days of yore.

"The one thing done well at Kew was forcing Cherries; some fair Peaches and Nectarines were also grown.

"My next adventure was at Gunnersbury, under the late Mr. Mills, whom I served as foreman for twelve months. There I got my first ideas about forcing Figs, and which have proved a lasting boon to me; there also I saw the foundation laid for those famous Providence Pines that he grew, and some of which he cut unripe to send over to Frankfort to the then Baron Rothschild, the possessor of Gunnersbury. Mr. Mills was a good gardener, and his was a good school for a young gardener.

"From this I went to the Duke of Devonshire's garden at Chiswick, and after a time was appointed foreman, which post I filled three years. During that time my old friends the late Robert Fish, then of

Tattersall's, Hyde Park Corner, and John Caie, then gardener to the Duchess of Bedford, at Bedford Lodge, Campden Hill, formed the Mutual Instruction Society for young gardeners at Hammersmith; of this I became a member, and gathered some very useful lessons from the papers read, and the discussions that ensued.

"On February 3, 1840, I entered the service of W. H. Whitbread, Esq., Southill Park, Bedfordshire, as head gardener, and remained with him upwards of seven years, during which time I used all the means in my power to make myself a gardener.

"On February 16, 1848, I was engaged by the late Earl Spencer, Althorp Park, Northampton, and remained with him ten years until his death, and with the present Earl five years. Here my motto was—"Onwards," and I succeeded in growing some Figs, which much pleased his lordship (he being very fond of that fruit), and took several prizes at the Horticultural Society's garden at Chiswick with them, as also with Peaches, British Queen Strawberries, Melons, &c. But the greatest triumph I achieved at Althorp happened in the year of the termination of the Crimean War. On January 1 of that year I placed new and old Black Hamburgh Grapes on the table for dessert, and so good were they that the guests (amongst whom was the late Earl Cardigan) paid me a very high compliment, as they did not think such a thing could have been accomplished.

"I claim no credit for this achievement further than that of having taken advantage of Nature's teachings. In the June of the year preceding, the Vines in my early vinery were as bare of leaves and as dormant as any Vines could be in mid-winter; I pruned them the first week in June (they did not bleed), closed the house, and treated them exactly as I should a spring crop. The result was, a good crop of Grapes; so much so, that a brother gardener who came to see them told the late Mr. Forbes, of Woburn, that the worst bunch in my house was better than the best in his, he having some at the same time which were making a great noise in the gardening world.

"This state of things was brought about by continual early forcing, which caused the Vines, as it were, to gain a season; and so soon as I saw Nature determined to assert her rights I used all my efforts to assist her. Such should be the object of all young gardeners, and if it were we should by that means get far better men.

"For the present Earl, at Althorp, I laid out a new flower-garden, a portion of which consisted of one of those fanciful foolish polychrome gardens, with monograms, butterflies' wings, &c., planned by Mr. Thomas, the landscape gardener. Certainly there is no accounting for taste, but it is a delusion to think that broken bricks, slates, &c., can vie with or harmonise with the beautiful colours Nature has implanted in flowers, or produce such pleasing and softening influences.

"On March 1, 1864, I entered on my present situation—Hawkstone Park, Shropshire, and very recently have had to lament the death of one of the best of masters, the late Viscount Hill. He loved Nature in all her doings, and was passionately fond of his garden. From him I received every kindness, and in return my utmost endeavours were exercised to please him. Learning from him that he was fond of Figs, I lost no time in procuring him some, greatly to his satisfaction. It has pleased the present Viscount Hill to ask me to remain with him, and sincerely do I hope he will prove as good a master as was his lamented father.

"I have all through my life worked for the love of gardening, and done my best to make others love it; and I hold my honoured father's name in reverence for giving me so thorough a groundwork and such wise counsel."

Of his practice at Hawkstone Mr. Judd has said but little, but we may say we have nowhere seen a better example of thorough practical gardening. Everything is handled with the skill of a master. Amongst what we should call the specialities of Hawkstone gardening we must give the first place to the Pines, which are admirably grown, and we should be glad to lay before our readers an outline of Mr. Judd's practice. Poinsettias, again, are superbly grown, and in such quantities as are seldom, if ever, met with elsewhere; while at the time we had the pleasure of seeing the gardens at Hawkstone, a short time before the death of its noble proprietor, the crops in the kitchen garden—the foundation of a gardener's reputation—were among the finest we have ever met with, Celery and Broccoli being amongst the prominent examples at that season. We only do justice to the subject of our portrait when we say it represents the genial face of one of the best of British gardeners.

CEYLON.

COLOMBO TO KANDY.—To avoid the hot season in the low country in Ceylon all who can, leave Colombo for the hills. For some miles the road crosses the marshy plains that lie between the river and the sea. So long as it runs within a moderate distance of the sea the groves of Coco-nut trees continue to surround every hamlet, but on turning more inland these gradually disappear and are succeeded by the graceful Arecas (A. Catechu), which are the invariable features of the native gardens, being planted near the wells and watercourses as they rejoice in moisture. Of all the tribe the Areca is the most graceful and delicate, rising to the height of 40 or 50 feet, without an inequality on its thin polished stem, which is dark green towards the top, and sustains a crown of feathery foliage, in the midst of which are clustered the astringent nuts for whose sake it is carefully tended. Mixed with the Arecas there now appears the Kitool or Jaggery Palm. This Palm (Caryota urens) is chiefly cultivated for its sap, which is drawn, boiled down, and crystallised into a coarse brown sugar. From its pith, also, a farina scarcely inferior to sago is extracted, whilst the black fibre of the leaf is twisted by the Rodiyas into ropes of considerable smoothness and tenacity. Half-way is the picturesque rest-house of Ambessusse, after leaving which the road crosses the spurs of the hills which descend from the mountain zone, and the aspect of the country gradually changes from maritime plains to the ruder and less cultivated Kandyan highlands. Instead of broad inundated paddi-fields, Rice is grown in the moist crannies of the hills and dry grain is cultivated on their slopes. The woodcut (fig. 165, p. 789) represents the scenery at Kaigalle, fifty-one miles from Colombo towards Kandy. Here the majestic crowns of the Talipot Palm begin to

appear near the villages, and graceful Bamboos wave their feathery plumes in every hollow. This Talipot, or Talpat (Corypha umbraculifera), is the most majestic and wonderful of the Palm tribe, the stem of which sometimes attains the height of 100 feet, and each of its enormous fan-like leaves when laid upon the ground will form a semicircle of 16 feet in diameter. The tree flowers but once and dies. Elaborate fans are made from the leaves of the Talpat; but the most interesting use to which its leaves are applied is as a substitute for paper, both for books and for ordinary purposes. Here and there also may be seen the beautiful Palmyra (Borassus flabelliformis), whose physiology, culture, and uses have been so accurately described in Mr. Fergusson's monograph. But what most excites the wonder of the stranger are the flowering trees which adorn the landscape—the Murutu (Lagerstrœmia reginæ) with its profusion of lilac blossoms, and the gorgeous Imbul (Bombax malabaricus), whose crimson petals thickly strew the ground when making way for the oblong pods that contain the silky cotton for which the tree is prized. The carts by the side of the road are bandics, barbarous two-wheeled waggons, with coverings of plaited Coco leaves, in which a pair of strong bullocks will draw from 5 to 10 cwt., according to the nature of the country, and with this they will perform a journey of 20 miles a day on a level. The oxen thus employed, laden with coffee from the interior or carrying rice and stores for the supply of the plantations in the hill country, are estimated at upwards of 20,000 on this single road.

The forests become so dense that troops of monkeys venture in sight, and flocks of plum-headed parroquets (Palæornis Alexandri) romp and scream amongst the branches.

The houses instead of groves of Coco-nuts are surrounded with a fence of Coffee bushes with their polished green leaves and wreaths of Jasmine-like flowers, and everything indicates the change from the low-country and its habits to the hills and their hardier peasantry. We have no space to mention the other wonders of the Singhalese flora—orchideæ, festoons of flowering creepers (Ipomœas and Bignonias), the Guilandina Bonduc, with its siliceous seeds, the powerful liana (Bauhinia scandens), and the yet more extraordinary climber, the powerful jungle rope (Bauhinia racemosa) whose strong stays, resembling in form and dimensions the chain cable of a man-of-war, lash together the tall trees of the forest. Another tree, the Del or wild Bread-fruit, is indigenous to the forests of this province. The Del (Artocarpus pubescens), whose leaves are prominent in the foreground of the cut, affords a valuable timber not alone for architectural purposes but also for ship-building.

Natural History.

Wasps.—It is true enough, as your correspondents assert at p. 723, that queen wasps abound in plenty this season. With the view of diminishing their number hereabouts, and to avoid the somewhat clumsy process of nest taking, I offered in early spring 1*d.* each for all caught about our grounds, and the result, to my astonishment, is up to this date a capture of 559. Now assuming, as we are told, that each queen represents 50,000, we have reduced their number prospectively 27,950,000. While paying some of these pence the thought suggested itself to me, are they a universal evil? I think not, for I have noticed them actively employed during the summer months in clearing trees from scale and greenfly, and also, to my great delight, busily feeding on that pest of all pests of gardeners, the mealy-bug. *Y.*

—— Your last two impressions have contained notices of the very large and unusual number of queen wasps which have been seen this spring. Although I have always noticed this as preceding an extraordinary fruit crop, it is somewhat remarkable this year, from the severity of the past winter. I have for years adopted the suggestion of "J. M." and given 1*d.* for each wasp brought to me before June 1. I think it has been stated by an eminent naturalist that on an average one queen will produce 700 broods. My gardener last month took from a canvas blind in my window the commencement of a nest containing seventeen cells. *H. K. Mayor, Winchmore.*

—— So many observations have lately appeared relative to queen wasps, or the date of the first nests, that it may be worth observing that it is now full time for the commencements to be found. When the winter sleep of the queen is terminated (which this year happened a good many weeks ago) she has to seek a spot for the future nest and construct its beginning, and also wait the development, as far as I have observed, of the eggs contained in herself from the embryo state in which they have remained during the winter; but the operations are coincident, and the nests are probably now well begun.

At present the small beginnings of comb in the light paper shells will in all cases probably only contain the eggs of the workers, which will assist the queen in enlarging her dwelling, presently to contain the males and females, whose cells are distinguishable by size from each other and from those of the neuters.

In their later stages wasps' nests are easy of observation, requiring nothing but a little prudence and dexterity in moving and refixing, to place them where they may remain in safety and comfort to their owners (whether the observed or observers), but in their early state this is not so easy. One wasp, instead of hundreds or thousands, does not give room for the casualties likely to happen, and I have never succeeded in watching the first weeks of construction, which would be interesting, as involving so much removal as well as addition of material. With the advance of summer I would recommend a wasps' nest or two as a most interesting study, not only for personal view of the well known minutiæ of construction, but for the observation of less known or exceptional points. With a little care, and a good magnifying glass, the larvæ may be clearly seen spinning themselves into their cells, and the substitution of earth for paper (when some re-roofing is made suddenly necessary on a large scale in wet weather), the papering up of obnoxious substances, and many other applications of instinct diverted from its usual channels, may be watched at ease and leisure. With regard to destroying the queens in spring, as far as I have found in a long course of years of observation, the number of nests does not at all necessarily depend on the number of mother wasps seen early in the year. During the time intervening between the conclusion of their hybernation and the formation of their new homes, they are exposed to every sort of danger from attack and weather, and in the course of the natural sequences it is so very likely that what has been unusually favourable to their preservation during the winter will be followed by cold, wet, or something very much the reverse of previous influences, that the appearance of many queen wasps in the spring gives no certain indication of many nests in summer.

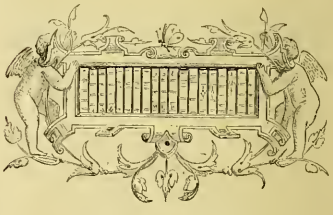
In the cases coming immediately under my notice the destruction of the queens in spring did not appear to affect the subsequent numbers at all, and, if I understand rightly in the note on the subject, given at p. 755 of your last number, in the case where queens have been steadily destroyed for ten years they are now more numerous than ever, the largest previous amount noted being 234 killed, and in the present year "nearly 700."

A great prevalence of wasps in the fruit season is a decided evil, and an appreciable money loss to fruit growers, but in due proportion (as with the smaller birds) it appears at least doubtful whether their presence is not really much to be desired. If the natural balance is destroyed on either side, whether the scale rises or sinks, the effect of the change has to be made good. Where a fair supply of wasps is absent, speaking from my own experience only, flies congregate during the autumn fruit season so as to be a perfect pest, and are sometimes as injurious and, from their numbers, even more disagreeable than the wasps themselves.

With the hornet, the Vespa crabro, the case is different, the great size and deliberate fierce attacks of these insects when irritated make them dangerous, and also as they, at least occasionally, hybernate close to one another and the nests are of comparatively rare occurrence, a well conducted search where one queen hornet is found may destroy the whole sisterhood which otherwise would have been an annoyance to the neighbourhood. *O.*

—— It has been the practice here, from time immemorial I was about to say, but at all events for a great many years, to pay to the men employed in the gardens the sum of one penny for every wasp or hornet they may capture up to the end of the month of May. It has been part of my duty for the last twenty-eight years to count the slain, and this duty has never before been so onerous as it has been this season, as on the first of the present month no less than 2566 dead bodies were brought in, and the sum of £10 13*s.* 10*d.* paid for the same. About 5 or 6 per cent. of this number may have been hornets, but whether all were queens, and capable, had fate spared them, of establishing a colony of some 50,000 or thereabouts, I am unable to say; but if so, the advent for good or evil of some 128,300,000 wasps and hornets has this season been prevented. The number captured during former seasons has varied from 500 or 600 to the unprecedented number of the present season. I think it is to be regretted that the practice of paying for the destruction of these insect pests is not more general than appears to be the case, as, were the system adopted in most garden establishments, it would certainly soon have the effect of materially diminishing their numbers; and this is doubtless very desirable, as most people know how very difficult it is to protect fruit of any kind from their ravages as soon as it approaches to a ripening condition. And whatever the mission of the hornet and the wasp may be in the scheme of creation, one thing is certain, viz., that few people hesitate to disturb the balance of the same by destroying as many of them as they possibly can, whenever an opportunity of doing so presents itself. The hornet appears to be regarded with even more dread and aversion than he actually deserves, as he is without doubt a bold, fearless insect, who only condescends to use the fearful weapon with which Nature has furnished him in cases of dire necessity, so that we seldom hear of any one being stung by a hornet, and still less are we likely to find any one who may have had the misfortune to be so stung and who does not retain a vivid recollection of the circumstance. Although the hornet and the wasp appear to work amicably enough together while engaged in the destruction of ripe fruit, &c., the former nevertheless appears to prey upon the latter, and the hornet may be frequently seen to seize upon a wasp and instantly divide his victim in the middle, select the thorax, which, when he has divested it of head, legs, and wings, he carries off with him. *P. Grieve, Culford, Bury St. Edmunds.*

Habits of the Cuckoo.—Last year, in the kitchen garden here, a quarter where the Gooseberries were planted in was frequented early every morning by some cuckoos. I afterwards found out that they were feeding on the Gooseberry caterpillars, which infested the bushes in legions. I therefore took care to disturb the cuckoos as little as possible, and the bushes are this year, up till this period, comparatively free from the caterpillars. One cause for this immunity from their ravages this year may be in the paring off the old soil below the bushes, and filling up the spaces with old tan. This I have no doubt has cleared away the larvæ buried in the old soil, and the old tan would be free from them. I see, however, that the cuckoos, having no Goosebery caterpillars to eat this year, have taken to feed on the caterpillars which infest the Oaks. In the young Oak plantations here, where the trees are thickly planted, these caterpillars have made some of the trees quite bare of foliage, and the rooks, starlings, and cuckoos are feasting on the grubs in greater quantities than I ever observed them before. *William Tillery.*



Notices of Books.

Twelve Months in Madagascar. By Joseph Mullens, D.D., Foreign Secretary of the London Missionary Society. (James Nisbet & Co.)

Dr. Mullens and the Rev. J. Pillans were deputed to visit the Government and churches of Madagascar by the Missionary Society, which so many years ago first introduced Christianity into that distant country. These two gentlemen visited an extensive portion of that country, seeing in all their length and breadth the two central provinces of the island, Imérina and the Betsibo, as well as the Sihánaka province, and they left the island by the north-west route and the port of Majunga. Unlike his predecessor, Mr. Ellis, Dr. Mullens is more geographical and geological than horticultural, and he has contributed to science the discovery of a wide volcanic region hitherto undescribed. Here is a piece of coast scenery:—

"There is no road, properly so called, along the coast; we just followed a path more or less broad over the grassy glades, through patches of wood, or across the bare sand. Cocoa-nuts, Plantains, a few Palms, the Fir and the Pandanus, were the usual trees—familiar friends to me of years gone by—but many trees were quite new. Passing through the village of Hivondro, we crossed the river, which here cuts the sand belt, and flows into the sea. Traversing fine open glades, the bordering banks of which were beautifully curved, we came out upon the beach, and for a long way toiled over

the dunes, or trod the firm wet sand upon which with ceaseless roar the long waves poured out their hissing foam. The coast was lined with the Filao, a Fir-tree closely resembling the Casuarina, which grows well in Bengal, where it is known as the Sumatra Fir. The Filao is, however, native to Madagascar; its feathery hair hangs gracefully over its gnarled and knotted branches, and with the strong winds makes pleasant music. Fine clumps of these graceful trees continued all the way."

Speaking of one of the lagoons, he says:—

"The water was not very deep, but it was full of small Water Lilies, the leaves of which, on their under side, were a crimson-pink in colour. The flower also was crimson. [Nymphæa Lotus, var. rubra, probably.] The water at first had a brilliant red tint, but ere long it became deeper, and it seemed to us all as if we were sailing on a river of blood. As the lagoon ended, the colour changed to a rich red gold." "Landing once more we travelled to the clean village of Vavony, over a piece of country which had all the appearance of a beautiful park. It contained sloping banks crowned with Fir-trees. Here stood the Tree Fern, and there the Bamboo Palm: here were fine specimens of the Indiarubber tree with its glossy leaves; there tall, thick Badamiers with their leaves of crimson; and there the path was arched by the Pandanus.

"From some lofty trees hung huge black bees'-nests: the trunks of others were adorned with the Angræcum Orchids with their long spray of twelve white flowers; and from the strongest hung enormous creepers. Everywhere winding in and out among the trees was the open grassy glade, on which a fine herd of red cattle was grazing."

"Near Andevoranto both sides of the river have great swamps, in which we saw growing many hundreds of the noble Arum Lily [Colocasia? and] the Astrapœa Wallichii, with its thick trunk and broad scolloped leaves. Further inland we came upon a row of the plants bearing the first flowers of the season."

The travellers next reached the Mahela River, "rich with tropical vegetation. The Ferns covered the slope of the hill in thousands, and were plants of the finest kind. The fronds of the Hart's-tongues were a yard and a half long. The wild Raspberry was common, and the men gathered capfuls of the fruit."

At the capital, "Antananarivo," the weekly market, or *zoma*, is well supplied with vegetable and farinaceous food.

"Rice abounds of several kinds, and is sold both cleaned and in the husk. Potatos are provided more for the English families than for the natives generally, and, with green Peas, are usually brought to their houses. Yams and sweet Potatos are abundant, and also Indian Corn. Green vegetables are not common; some twelve or fifteen kinds are known and eaten by the people, but they do not form so decided an element in their food as in England. Rice is all-in-all to the Malagasy. There is a good supply of fruit in the market; the Bananas, large and small, are good: Pine-apples are abundant, good and bad; also green Lemons, large red Tomatos, Mulberries, wild Peaches, and a little round fruit, the Cape Gooseberry. There is plenty of honey; also of Tobacco, of native growth. The Tobacco is sold in leaf, stalk, and powder—with little snuff mulls made from bamboo; and the people do not smoke nor smell, but suck and eat it!"

On the journey to Majunga on the north-west coast Dr. Mullens relates of their most pleasant march through the solitudes of this lone land: "Our course lay up long valleys, over first one pass and then another; or over hard clay ridges, sprinkled with quartz gravel, and then along some clear stream bordered with fresh green wood. The valleys were simple and open and very green. The Rofia Palm grew more abundant: there were varieties of the Acacia with their pinnate leaves; with a few specimens of the Bamboo Palm; and of the Dábo, a coarse Fig tree. The Bamboo cane was common with its tall stalk from 15 to 20 feet high, and its soft white feather at the crown; there was the wild Citron also."

When they reached the tidal portion of the river Betsiboka at Mahabo, "at sunset, we passed along the east side of a large island; wood and jungle were rich; the mud banks were evidently fertile; the Mangrove was thick with its matted roots, and again we saw vast quantities of the Via, the great Arum Lily, which we had admired so on the east coast."

At Mojanga, "below the Hova town, the hill is richly covered with wood; indeed, there is quite a forest of Tamarind, Mango, Palm, and Cocoa-nut trees, many of which are noble specimens of their class. The Talipot* Palms also were strong and massive, and there were ten or twelve specimens of the Baobab. Of the great Baobab I obtained a good photograph; the tree is over 60 feet high, and the trunk near the ground is 40 feet in girth."

Should the Talipot be indigenous to Madagascar as well as to Ceylon, it would supply a missing link as to the existence of a submerged continent formerly connecting the two islands, and to which some naturalists have applied the term "Lemuria."

It is much to be regretted that Dr. Mullens' botanical acquirements lead him to repeat such solecisms as "Arum-Lily," and leave us so often in doubt as to what plant is really meant.

* Corypha umbraculifera (?)

Apiary.

AMERICAN SWARM SIGNAL.—Nothing gives us so much pleasure as bringing before our many friends any novelty that may from time to time be introduced to the public. It may be questionable, however, if this novelty will ever come into general use in our English apiaries, because in hundreds of cases it would be useless, for the bee-stand is often either beneath the window or close by the door, when owned by cottagers, so that a swarm seldom makes its appearance without being speedily noticed by one of the family. In other instances the gardener is never very far away at the time of day when swarming takes place. Our American friends have introduced the swarm signal, which is now placed before our readers—the illustration (fig. 164) will convey a more perfect idea of the instrument than any mere verbal description. It consists of a wire cage, F, about a foot in length; this, when placed over the mouth of the hive on the edge of the bottom-board, is firmly held by the weight E, resting upon a thin iron plate marked O, which is fastened to one corner of the cage; the signal, K, is attached to a string beneath the weight E. When fixing to the hive, just before a swarm is expected, it must be so placed that only about three-fourths of the entrance is covered by the cage, thus not interfering with the workers; this can be managed by sliding the hive gently to the edge of the bottom or floor-board. On the sharp point of the signal, K, a gun-cap is fixed, and so hung that when freed by the weight it should drop on a brick

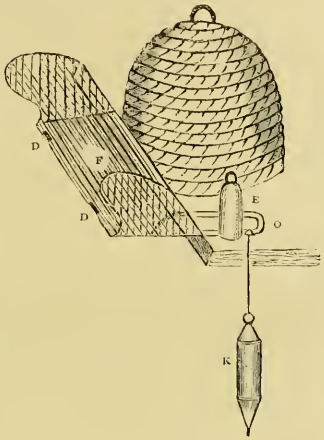


FIG. 164.—SWARM SIGNAL.

placed beneath the signal on the ground; when the swarm is leaving the hive they crowd into the cage in their haste to escape, so that by the weight of the bees in the cage F, the signal is liberated and falls on to the brick, thus apprising the happy bee-master of his good fortune. Small holes are made in the cage at D D, to allow the workers to escape, for it often happens, even before swarming, that many bees become prisoners; if the report made by the explosion of the gun-cap is not sufficiently loud to be heard, the signal should be bored and a small charge of gunpowder inserted to communicate with the cap. *R.*

THE SWARMING SEASON.—No part of the bee-keeper's year is so much prized as the swarming season, which ranges in England from May to July. Not only is it prized but it is also an anxious period; for this reason, there seems to be no certainty as to the exact time when a swarm will issue from the parent hive. We have known many young bee-masters who lost much valuable time from being constantly on the watch, from fear lest they should lose a stock by not being on the spot when they left.

Although there may be much uncertainty about the particular day when a swarm may venture forth, there can be none as to the part of the day when it issues; it is true we have had swarms from 7 A.M. to 7 P.M., but we never knew a first swarm later than 12 A.M. The first swarm is led by the old reigning queen, and she has got too old a head on her shoulders either to emigrate when rain is falling, or in the after part of the day when she may have but little time to select a favourable spot for her future home—*i.e.*, if the first place is unsuitable which may have been selected by the scouts. She also takes good care to choose a fine and warm morning. So far as the second swarm is concerned, we may judge almost to a day when a swarm will leave by the peculiar piping of her majesty.

The first swarm is only rightly named "swarm," the second is called a "cast," and the third is often nick-named a "colt;" whilst a fourth, by way of distinction from the third, is called a "filly." A swarm from a swarm is justly named a "maiden swarm."

In many villages it is customary when swarming takes place to make a horrid noise with tin cans, kettles, or ringing with a key on a frying-pan. Sometimes this is carried to great lengths. It is not unusual to observe some half-dozen females busy as possible, trying which can make the greatest noise. It is, however, scarcely needful now to remind all our intelligent readers that this is really unnecessary. If anything will bewilder the queen, who, to a certain extent, guides the swarm to the selected bough, it must be this intolerable nuisance. We have for several years noted many apiarian customs with extreme care and jealousy in this matter. We have observed that the queen is not, in nineteen instances out of each twenty, lost, when the tanging is discarded; but in numerous cases of ringing we have known the swarm to return to the hive, showing us that the queen was either lost or had never left the hive. We have been unmercifully condemned as a heretic and unbeliever by all the good old maiden ladies of the village in which we reside, merely because we have opposed this needless work, or rather task of ringing the swarms, and would never allow it to be used in our garden. In everything beside we can gain their goodwill, but here we have failed, so we are given to understand, by their constantly asserting "your bees cannot prosper."

We now stay to inquire why it was first introduced by our forefathers. Like many other customs, which at first were really useful, and originally valuable for their intended purpose, it has been corrupted, or become useless. In days long since passed, when stones even were quite a sufficient guide as landmarks, and as such were honoured, bees then were far more valuable than now, because of their scarcity. Their owners, when swarming was perceived, at once gave timely notice to all the neighbourhood, by tanging or ringing, that the swarm was the right and property of the person so occupied in ringing. By thus giving notice he was allowed the privilege of following, or what we should now call trespassing, on his neighbour's land to claim his swarm. We also believe they had another object in view in thus giving notice, viz., for the neighbours to come forward, in a friendly way, to aid him in securing the swarm. We are aware another reason has been assigned for this custom, which we scarcely credit as trustworthy; it has been stated that the tanging was intended to drive away evil spirits, and prevent them having any influence over the bees. Church bells have been rung to drive away thunderstorms, &c., but this can have no connection whatever with swarming.

WHAT IS SWARMING?—Why it is simply this: the old hive becomes over-peopled by its industrious inmates, so, not having sufficient room for storing and breeding, they are compelled to emigrate. When the hive becomes thus overstocked, we observe them hanging out at the entrance in a large cluster, not unlike an immense bunch of Grapes in appearance. This is the first sign of a prime or first swarm. Mark! We have known them under these circumstances, if it should fortunately happen that the bees observe a small opening in the floor-board sufficiently large for them to creep through, at once commence making combs beneath the stand, for bees do not like being idle—they make hay when the sun shines.

NADIRING SYSTEM.—Many intelligent apiarians recommend this system, especially for inexperienced bee-keepers. One author advises his readers to purchase a large quantity of American cheese-boxes, and after making a slight opening in the lid to place them beneath the hive; by so doing he, curiously enough, intimates to all respectable labourers, who are "wise enough" (?) to take in everything they see in print as facts, to be sure they will make at the very least £100 per annum. We knew one poor fellow so led away by this reasoning as to give up a good situation to attend to his bees, quieting his better-half by assuring her he should make a good living by it, but the result in the autumn rather rudely shook his faith when he found himself a heavy loser. But this nadiring most certainly, if adopted in time—always providing the bees take to the boxes—will stop swarming, but it is no advantage. Let us always set it down as a fact, and we shall not go very far wrong, that the nearer we manage our stocks so as to resemble the operations of Nature the more profitable it will be in the end. Some of our readers may say, "Well, you do not advise us to ever super the hives so as to provide a little good and pure honey." We most assuredly have said nothing to the contrary; we say, "follow Nature," and Nature says bees never do so well as when we allow them to swarm. *R.*

HORTICULTURAL EXHIBITIONS, 1875.

June.

29.—West of England Rose Show at Hereford. Hon. Sec., Rev. C. H. Bulmer, Credenhill Rectory, Hereford.
30.—Royal Botanic Society, Regent's Park. Exhibition of Fruit and Cut Flowers. Sec., W. Sowerby.
30.—Wisbeach Rose Show and Horticultural Exhibition. Hon. Sec., Charles Parker, Wisbeach.
30.—Maidstone Rose Show. Sec., Hubert Barsted, Maidstone.

July.

1 and 2.—Spalding Horticultural Society's Exhibition. Hon. Sec., George F. Barrell.
1, 2, 3, and 5.—Horticultural Exhibition at the Lower Grounds, Aston, Birmingham.
2.—The Tunbridge Wells Horticultural Society's Exhibition. Sec., E. F. Loof, The Parade.
2.—Thirty-second Anniversary Festival of the Gardeners' Royal Benevolent Institution.
3.—Southgate Horticultural and Cottage Gardeners' Society's Exhibition. Hon. Sec., J. Mills, Esq., Southgate, N.
3.—West Kent Horticultural Society's Exhibition in Camden Park, Chislehurst. Hon. Sec., H. Nevill, Esq.
6 and 7.—Grantham and South Lincolnshire Horticultural Society's Exhibition at Grantham. Sec., Thomas Lyne, Jun., Grantham.
6 and 7.—Brentwood Horticultural Society's Summer Exhibition. Hon. Sec., R. Everthy.
7.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees. Cut Rose Show.
7 and 8.—Leicester and Leicestershire Floral and Horticultural Society's Show. Sec., W. C. Marris, 8, New Street, Leicester.

THE

Gardeners' Chronicle.

SATURDAY, JUNE 19, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

Monday,	June 21—	Sale of Orchids, at Stevens' Rooms.
Tuesday,	June 22	Kingston and Surbiton Royal Horticultural Society's Exhibition at Norbiton (two days). Lewisham Horticultural Society's Show (two days).
Wednesday,	June 23	Sale of Indian Orchids, at Stevens' Rooms. Fareham and South Hants Horticultural Society's Show.
Thursday,	June 24	Royal Horticultural Society of Ireland's Great Summer Show. Bristol, Clifton, and West of England Rose and Strawberry Show at Clifton. Alexandra Palace: Great Rose Show.
Saturday,	June 26—	Crystal Palace Rose Show.

WHAT infatuation is it that leads men of reputed honour and position to stultify themselves, and injure the cause they are bound to protect? We had an illustration of this the other day, when the President and Treasurer of the Royal Horticultural Society not only refused to pay what we consider "debts of honour," but went out of their way to insult and abuse the men of all others whom it was their duty, as officers of the Society, to conciliate and encourage. We attributed this at the time to infatuation, and it was the most charitable course we could adopt. But what are we to say now, when, after a formal leave-taking, a last dying speech, and an affecting farewell, the Kensingtonian members of the Council are so destitute of a sense of honour, so blind to the equivocal position in which they place themselves, that they, as we are informed, refuse to carry out their expressed intention to resign! It is to be hoped, for all our sakes, that we have been misinformed; for if the statement be true it adds another disgrace to the Society, and intensifies the sense of weariness and disgust with everything connected with it, in its present state, that loyal horticulturists must feel.

Nothing could well be plainer than the words in which the President, the Treasurer, and Sir Coutts Lindsay expressed their intention to resign their office, while a letter from Mr. Burnley Hume to the same effect was read to the meeting. With reference to this last-named gentleman, it must be remarked that he became a member of the Council as the nominee of the horticulturists; but from the manner in which he has identified himself with the section which has shown itself so hostile to horticulture, we are bound to say he has betrayed his trust as a representative, and that in common decency he should at once place his resignation in the hands of those to whom he owed his election.

It is not easy at first to see what the motives are which can induce men of position and character to endanger their reputation in this way, and it is a most invidious thing to be obliged to discuss them. One explanation we believe to be, as we have already hinted, that the South Kensington section of the Council will endeavour not to formally complete their resignation unless they can succeed in nominating in their place others of the same view as themselves, but even more opposed to, or indifferent to, the objects for which the Society was expressly founded. Again, without wishing to be offensively personal, we cannot ignore the fact that the Assistant-Secretary is stated to be nearly connected by marriage with the President, and in any case it is notorious that when the office of Assistant-Secretary was vacant, men of known position and capacity for the office were passed over in favour of a gentleman with no special competence for the post, and whose tenure of office might possibly be endangered were the President to resign.

It is with extreme reluctance that we mention these matters, but a sense of duty to the Society in the present crisis impels us to make them public. If they are, as we believe them to be, substantially true, they afford sufficient ground for insisting on the resignation of a section who have publicly confessed their incompetence, who have insulted those whom they should have protected, and who have shown themselves utterly indifferent to the objects for which the Society was founded. We cannot wonder that the Commissioners reject proposals put forward by such a body. Knowing what the relations of the Society and the Commissioners are, we should wonder if it were otherwise.

It is exceedingly vexatious and dispiriting to have to write in this strain, and to have continually to draw the attention of the Fellows to the discords of the governing body. It might almost seem to those at a distance that no horticultural work was done now-a-days in the Society, but this would be a great misconception. Our columns testify to-day to one branch of horticultural work very successfully—considering the circumstances—carried on at Chiswick; while the records of the Scientific Committee ought to furnish a warning to Potato growers as to the outset of a disease which threatens to be even more disastrous than the Potato murrain itself, seeing that it almost entirely prevents the formation of tubers. The investigation of such matters, and the making public the researches and observations of its Committees, is surely of far greater national importance that is the maintenance of a town garden and a fine conservatory for the delectation of the wealthy residents of the neighbourhood.

Whatever scheme be ultimately adopted, the local residents, who have the almost exclusive use and enjoyment of the Kensington garden and its beautiful conservatory, if they would retain these advantages, must pay accordingly. As matters are at present they pay considerably less than the residents in the best London squares, which latter are destitute of the attractions furnished by South Kensington. That is one way by which the greatest incubus of all (so far as current expenses are concerned) may be made to pay its due proportion of the charges upon the Society. Another way is to largely increase the horticultural element by adopting a lower fee for genuine gardeners, and by a strengthening and reconstruction of the various committees so that they may organise and direct the horticultural work of the Society, insure the co-operation of local horticultural societies throughout the kingdom, enter into relations with foreign societies and with the Government, and so justify the existence of the Society as a national institution deserving of public support. The present South Kensington faction appear incapable of appreciating such things. They have proclaimed their own incompetence. Now let them go—and go at once.

No better situation could be selected for studying the Distribution of Plants as Affected by Soil than the coast between Hythe on the west and Walmer eastward on the Kentish shore. The upper chalk rises from the low level land about Deal to the noble cliffs on which Dover Castle stands. Beyond that, going westward, the lower chalk without flints forms a magnificent sea-wall along the coast almost the whole way to Folkestone. At the foot of these cliffs is a pictural waste of rugged ground not far inferior in wildness and picturesque beauty to the undercliff in the Isle of Wight, and offering even greater attractions to the naturalist. This wild district, where mounds of verdure-clad chalk are, as it were, tossed about in wild confusion, owes its peculiar characteristics to the fall of huge masses of chalk by the action of frost, and specially to the circumstance that beneath the chalk a thick layer of tenacious, slippery clay, locally termed gault, exists. Beneath this gault crop out, in successive layers, the beds of greensand which form the cliffs between Folkestone and Hythe, where they tend inland, and are replaced seawards by the alluvial flats of Romney Marsh. So much of geological description is requisite to understand the relation of the indigenous flora to the soil; more we need not say, unless to add that the coast section is one of the grandest and most instructive possible. Each formation is full of its characteristic fossils, those of the gault being especially perfect and beautiful, though apt to perish on exposure. From our point of view as horticulturists we have a dry compact limestone soil in the case of the chalk, sometimes (in the lower chalk especially) covered with a thin capping of decomposed ironstone soil, giving a glorious red foil to the white chalk and the blue of the sea and sky; then we have in the gault a thick cledgy waterlogged bluish clay, with little or no lime in its constitution; and in the several greensand beds we have layers of coarse sand, large tabular masses of ragstone intervening in more or less horizontal layers.

The indigenous flora of this interesting region presents, as may be expected, some marked characteristics. On the chalk, to mention only a few cases, the cliffs in early June were yellow with the wild Cabbage, Brassica oleracea, and Hippocrepis comosa and Diplotaxis tenuifolia. The rare Silene nutans is scarcely conspicuous enough to form a feature at a distance, but it is noticeable from its rarity, and from the fact that it is confined to the chalk. Iris fœtidissima occurs sparingly on the chalk, as also Chlora perfoliata, Antirrhinum majus, Cheiranthus Cheiri, and the common Madder.

Orchids, again, are among the choicest and most interesting natives of the chalk downs, including the Bee, the Drone, the Early Spider, the Late Spider, Orchis ustulata, and others. The Sea Buckthorn, Hippophaë rhamnoides, and the Elder form large bushes, under which Eupatorium cannabinum and other herbs thrive. While the flora of the chalk is rich both in species and in individuals, that of the gault is poor. Coltsfoot, Rushes, and Equisetum abound, but of the characteristically chalk plants, either none are found, or so scanty in numbers as to be by no means characteristic.

From the greensand cliffs the wild Cabbage is absent, its place being filled by the common Charlock, while, quite peculiar to these cliffs, are Medicago denticulata and others of its allies. The Thrift, Armeria vulgaris, clothes the banks with a sheen of pink; its near ally, Statice Limonium, and its variety, S. bahusiensis, do not occur off the chalk. The Stinking Iris, to which we have already alluded as rare on the chalk, is very abundant on these sandy cliffs.

We do not pursue this subject further now, our object being simply to call the attention of those of our readers who may visit this attractive coast to sundry features which give additional interest to a district which has so many charms for the lovers of fine scenery, and for geologists and naturalists. It furnishes a little bit of wild Nature, where the battle of life among plants, and the circumstances influencing the combat, may most advantageously be studied, the more so as for the most part little or no interference has been or is likely to be wrought by human agency. The lessons it teaches are not likely to be overlooked by the thoughtful horticulturist.

—— WE have at sundry times called attention to various CURIOSITIES OF GRAFTING, being impelled to do so, not only from the direct practical importance of the subject, but also from the light they throw on such cardinal questions as the currents of the sap, the growth of wood, the development of leaves, flowers, fruit, &c. In a recent number of the *Revue Horticole* we find another illustration worthy of being added to the series we have already given at various times. The facts of the case, as given in the French journal above cited, are as follows:—M. CARRELET selected in the spring of 1866 two four-year-old Pear trees, both grafted on the Quince, trained spindle-wise, and each between 5 and 6 feet in height. One of the two, a Beurré d'Aremberg, was left in the ground, and made to act as stock; the other, a Poirier de Charneu [Fondante de Charneu], was taken up with the greatest care, so as not to injure the roots. It was then grafted by approach (inarched) on the Beurré d'Aremberg, but in a reversed position, that is to say, the roots were allowed to grow upwards while the leader was directed to the soil. In this way, when the operation was completed, there were two Pear trees united by their leaders, but the upper one was reversed, with the roots completely exposed to the air; grafting wax was applied to the union, and the results were duly watched. During the first year the graft (Poirier de Charneu) grew but little, it only produced rudimentary leaves and no flowers, but in the course of the summer the body of its roots emitted several Quince buds, which attained a length of 8—10 centimetres. The stock (Beurré d'Aremberg), on the other hand, grew well, flowered, but did not ripen fruit. In the autumn the leaves fell at the same time as from neighbouring trees. The exposed roots of the graft were not at all protected during the winter, and the graft was entirely exposed to the action of the winter of 1866-67. In the following year the stock developed perfectly; it flowered, but ripened no fruit. The scion developed buds, flowered and ripened two fruits, and the Quince shoots produced from its roots attained a length of 20—30 centimetres. On four of these Quince shoots M. CARRELET grafted four different varieties of Pears, of which two took perfectly and lengthened into leaf-bearing shoots. The tree was, therefore, thus constituted:—Below in the soil were the roots of the Quince stock, on this was grafted a Beurré d'Aremberg; on this again, but head downwards, was a graft of Charneu Pear, from whose exposed roots Quince shoots sprang, and on two of these latter were grafted as many varieties of Pears. We are sorry to use the past tense in speaking of this tree, but, most unluckily, the grub of some beetle (Scolytus) bored into the graft (Beurré Charneu) and, as it was not at first discovered, the tree perished. Assuming the facts as here stated to be correct—of which, indeed, we have no doubt, as other cases of a similar character have been previously published—we have sufficient proof that the old notion still religiously believed in by most gardeners, of an ascending current of sap going up, up, up, and a descending current going down, down, down, requires very considerable modification to make it fit the facts. Such a case, also, requires to be carefully considered by those who maintain that root and stem are separate and distinct organs; if so their distinctiveness does not preclude the one from assuming the properties and fulfilling the functions of the other in case of need.

—— Among evergreen shrubs that do well on the south coast we may specially call attention to PITTOSPORUM TOBIRA. Its lustrous foliage and sweetly-scented flowers render it no bad substitute for Orange blossoms, and it appears to bear the climate of the south-eastern coast as well as Euonymus japonicus, Evergreen Oak, or Tamarisk. Escallonia macrantha may also be named as a grand plant, both in flowers and foliage, for walls by the sea.

—— In the *Comptes Rendus* for April of the present year M. PRILLIEUX has a paper on the AMERICAN BLIGHT INSECT, Aphis lanigera, which is well worth the attention of horticulturists. The insect is described as piercing the under side of the shoots, the woody layers of which become, consequently, transparent greenish, soft and pulpy. The bark at first is not much affected. The true wood-cells, instead of presenting their usual elongated appearance, retain the characters of ordinary cells as in the tissues, which are concerned in the production of "gumming" in the case of fruit trees. These cells and fibres divide and subdivide, and the vessels become isolated and as distinct as if macerated purposely by the anatomist. Near the circumference of the tumour produced by the puncture of the insects some fibro-vascular bundles may be seen, almost intact and forming a network over the surface. Over this network may occasionally be seen a zone of growing tissue, which also may become hypertrophied in consequence of the puncture of the insects. Generally, however, the hypertrophy of the woody system is quite local, and the bark splits, exposing the swollen tissue which fills up the chink, and which is thus directly exposed to the reiterated attacks of the insects. At the end of the summer vegetation is arrested by the cold, the young and tender cells of the swelling dry up and perish, and thus a deep cavity is formed which penetrates from the exterior to the very heart of the branch. When vegetation begins again in the spring a circular swelling forms around the edges of the wound, as usual in such cases. The young tissue thus produced is available for the food of the young aphides, which have passed the winter in the cracks of the old tumours and in the pits of the bark. Into this young tissue the insects plunge their proboscides, and thus originate fresh growths, which in the course of their development press on, but do not amalgamate with one another. In this manner are produced those large swellings in the interior of which the aphides find

FIG. 165.—VIEW AT KAIGALLE ON THE KANDY ROAD, FIFTY-ONE MILES FROM COLOMBO, CEYLON.

shelter in the winter, while the new growths, annually reproduced, furnish to successive generations of aphides an ever renewed feeding-ground.

—— Among the contents of the *Journal of Botany* for the present month are articles on DEIDAMIA THOMPSONIANA, the type of BROWN's genus Thompsonia, by Dr. MASTERS; note on a new moss from Tasmania by Dr. LINDBERG, and which is stated to be as interesting to muscologists as Welwitschia or Rafflesia to general botanists. As it seems to be only a lateral-fruited phascoid plant, the analogy seems rather far-fetched, but we are promised further details which may bring to light something more intrinsically important than mere position. Professor CHURCH furnishes some useful and suggestive notes on plant chemistry; and Mr. BALL continues his enumeration of Morocco plants.

—— Cut flowers of NEW CLEMATISES have been received within the last few days both from Messrs. G. JACKMAN & SON, of Woking, and Mr. CRIPPS, of Tunbridge Wells. Mr. JACKMAN's is a new double-flowered sort, of A 1 quality. It is referred, along with Fortunei, one of its parents, to the florida type, and has ternate leaves, with rather small ovate leaflets. The flowers are rather over 4 inches across, with very much the same build and character as those of Duchess of Edinburgh, having about eight rows of sepals, which are obversely lanceolate acuminate, narrowed below into a short stalk-like base, but forming a close rosette about 3 inches in depth. The colour is a decided but exceedingly delicate mauve or silver-grey, the innermost sepals having here and there a bar or dash of reddish-lilac, which, however, is scarcely apparent. A small tuft of stamens occupies the centre, the filaments of which are white, and the anthers cream-coloured. The uppermost or bracti-form leaves are simple, variously formed, and more or less coloured, as often occurs in these double flowers. It is an exceedingly fine acquisition, and is, we believe, to be called Belle of Woking. Mr. JACKMAN sends another flower, apparently of the lanuginosa type, which has pale mauve or lavender-coloured flowers, a good deal mottled throughout, especially towards the centre of the sepals, with bright purple, and having purple anthers. This is a six to eight sepalled variety, measuring somewhat over 6 inches in diameter, with ovate-elliptic acuminate close sepals overlapping to the base, so to close in in the centre. As a novelty this will be a pleasing variation if constant to its markings, in reference to which it is proposed to call it C. picturata. Mr. CRIPPS sends a flower of Madame Van Houtte, now pretty well known as a large-flowered white lanuginosa; and also an unnamed seedling, which was exhibited on Wednesday last under the name of Grand Duchess. The flowers are reported to have measured 10 inches across when fresh gathered, the colour being a pale lilac on first opening, and changing as it gets older to a still paler shade, but not bleaching to white. These latter sorts both bear striking and handsome flowers, but we have now so many really fine sorts in cultivation that we can afford to be exceedingly critical, and to require fine form as well as large size and pleasing colours. The narrow-sepalled sorts, which do not close up in the centre, are therefore rather at a discount. In some of the modern eight-sepalled sorts the four inner sepals alone suffice to meet around the stamens, and such flowers are of course of far higher merit than those which, however large, have narrow sepals which do not close up. This defect attaches to Mr. CRIPPS' Grand Duchess, and to others of the same type, as Symeiana, Duke of Richmond, Gloire de St. Julien, &c., though, leaving such critical questions out of view, these are all fine and showy varieties.

—— The attention of the President of the General Committee of Management for the forthcoming INTERNATIONAL HORTICULTURAL EXHIBITION AT COLOGNE, having been called to a letter from Mr. WARNER, which appeared in this journal on April 17 (p. 502), he has addressed a communication to that gentleman, the satisfactory nature of which will be gleaned from the following extract, sent to us for publication by Mr. WARNER:—

"I beg to tender you my best thanks for sending me the extract from the *Gardeners' Chronicle*, which I have perused with great interest, and whose contents have my entire approval. The committee has also partly foreseen the grievances mentioned therein, and at its instance the Ministry of Agriculture has put at our disposal six large medals of State, which the jury will have to award for the best horticultural, &c., contributions to the exhibition; moreover, Her Majesty the Empress Queen has graciously promised a special prize of honour, and undoubtedly His Highness the Crown Prince will do the same.

"You would put me and the committee under great obligation by bringing the above to the knowledge of the British public—perhaps it will help to promote the nterest in our undertaking."

—— A very curious Malvaceous plant, PAVONIA WIOTI, is figured and described in the April number of *La Belgique Horticole*. In habit and foliage it presents nothing different from familiar types of this family; it is in the flowers that we find an unusual development and colouring of the different parts, approaching in some respects those of Goethea strictiflora. The calyculus or outer calyx here consists of two whorls of narrow slender bright red bracteoles, the outer whorl shorter than the inner, which equal the closed corolla. Both the latter and the calyx are of a dull "red-black." From the mouth of the erect tubular corolla the bright red staminal column protrudes about an inch, and bears numerous blue anthers. The plant from which the figure was taken was about a foot in height. It is a native of Brazil, and was imported by Messrs. JACOB-MAKOY, of Liège.

—— At a meeting of the Edinburgh Botanical Society, last week, Dr. BALFOUR read notes of experiments he had been making on DIONÆA MUSCIPULA and allied plants. These experiments painfully confirmed the suspicions entertained by ELLIS, CURTIS, HOOKER, and DARWIN that the Dionæa is a carnivorous, and, it may be added, a most brutal plant. Dr. BALFOUR classified the facts he had observed in regard to it under the heads of irritability, contraction, secretion, digestion, and absorption. The irritability, it seems, is resident in certain delicate hairs, so placed on the surface of the leaf that no insect can avoid touching them in crawling over. Dr. BALFOUR touched with a needle every other part of the leaf, and no response followed; but no sooner was the point applied to one of these hairs than a contraction of the leaf ensued. Chloroform dropped on a hair caused the leaf to close like a winking eye, but water had no such effect. It was only when the object seized was capable of affording nutrition that the contraction continued for any considerable length of time. A piece of wood was soon released, and so was a dried fly; but when a live fly or caterpillar or spider was enclosed the contraction lasted, on an average, for about three weeks. The leaf at the same time gave out a viscous acid secretion. This appeared to be only the case when an insect was captured, and it was always present on such occasions; but whereas with a fat spider it was abundant, with a shrivelled fly there was very little. The notion that any nourishment was obtained from insects so enclosed has been controverted; but Dr. BALFOUR pointed significantly to the facts, that young plants of Dionæa under bell-glasses had been found not to thrive so well as those left free, and that while a piece of leaf wrapped in another leaf became putrid, a piece enclosed by the Dionæa remained perfectly inodorous, but soon lost its red colour, and was gradually disintegrated more and more till it was reduced to pulp. This statement, showing the greediness and ferocity of the Dionæa, created quite a painful sensation among the members of the Botanical Society, and the Chairman, while recommending a continuance of the experiments, wisely suggested that they should be completed before the Anti-Vivisection Act comes into operation, since otherwise Dr. BALFOUR may get into trouble. *Pall Mall Gazette.*

—— The committee of management of the forthcoming HORTICULTURAL EXHIBITION AT THE LOWER GROUNDS, ASTON PARK, Birmingham, on July 1 and following days, announce in another column that the time for sending in entries has been extended to Thursday next, the 24th inst., complaints having been made, especially by Rose growers, that the required fourteen days' notice is too long.

—— We have much pleasure in calling the attention of our readers to the following liberal PRIZES FOR FRUIT, offered for competition at the Royal Horticultural Society's show on July 21 next by Messrs. JAMES VEITCH & SONS. The competition for these prizes is quite distinct from that for the "Veitch Memorial" prizes, and is limited to the *bonâ fide* gardeners of Great Britain. Entries are to be made, as usual, at the Royal Horticultural Gardens, South Kensington.—On July 7 Messrs. CARTER & Co.'s £50 cup, for the best twenty-four dishes of vegetables, will be competed for; and on the same date Messrs. SUTTON & SONS and Messrs. HURST & SON offer several prizes for Peas.

—— The ORCHID-HOUSES AT GUNNERSBURY PARK, ACTON, have been very gay with Odontoglossums, among them some fine examples of O. vexillarium. One plant bore two spikes, one of which had nine and the other seven flowers of great size and beauty, some of the flowers measuring quite 4 inches in depth. A pale form of it, which might be denominated album, is very inferior in character. A young plant of this Orchid, with two large bulbs, and throwing out numerous growths all round, bids fair to become one of the finest plants in cultivation. O. Alexandræ, for which Gunnersbury is famous, has been very fine also, and has shown considerable variety. There is a very fine spike of Cypripedium Parishii, bearing five handsome flowers; this is thought to be one of the finest plants in the country. It appears to be scarcely possible that Orchids could be in better condition than those under the care of Mr. J. RICHARDS. Calanthes are making a wonderfully vigorous growth, planted in loam and cow-dung and a little charcoal. Mr. RICHARDS has entirely dispensed with peat, believing that it engenders poverty, and causes the points of the leaves to go brown. The genus Phalænopsis, represented by Schilleriana, amabilis and grandiflora, is in the most healthy condition, with thick, leathery, vigorous leaves. They are in small baskets suspended from the sides of the house, crocks and charcoal at the bottom, and but very little soil, and putting forth a fine root-growth which appears to like to find its way outside the baskets. The baskets are dipped in water about once a day. Orchid cultivators should make a point of visiting Gunnersbury, to inspect the fine collection of these splendid plants.

—— Excellent standard plants of VARIEGATED IVY-LEAVED PELARGONIUM L'ÉLÉGANTE can be obtained by grafting it on to a stem of the old crimson Ivy-leaf. Some plants of this, recently exhibited by Mr. J. KINGSBURY, Bevois Valley Nursery, Southampton, were remarkable for the fine development of their heads, and they prove capital objects for conservatory decoration.

—— While cordially welcoming new additions to garden plants, the great value of some of the older ones should not be lost sight of. As a FORCING PINK, or as suited for growing in beds to cut from, what can compare with that fine variety, Lord Lyons? It is among the earliest in cultivation, and it is so remarkably free of bloom that it is somewhat difficult to get pipings with which to propagate it. The flowers are large, full, and handsome, of a pale rosy purple colour, the petals having a maroon blotch on the base. It supplies a great number of beautiful flowers. It was raised by Mr. JAMES CLARK, Bury St. Edmunds, who also produced that fine variety Derby Day, recently shown by Mr. C. TURNER.

—— The DOUBLE PURPLE SENECIO is one of the most effective bedding plants used in the flower garden at Gunnersbury Park, Acton—the plants raised from cuttings, not from seed. The plants so obtained make but a spare growth, and flower with great profusion throughout the summer. It also supplies an extremely pleasing and effective hue of colour.

Home Correspondence.

Pinguiculas.—I visited the other day the splendid collected of alpine plants, at Todmorden, belonging to the Messrs. Stansfield, and, after looking out the little matter of business that I had come for, I took a hurried glance at the rare rock plants and alpines for which this nursery has been so long famed. Three generations of gentleman botanists are to be seen alive, and to these the stock is intelligible without the name pencilled on a label. But this is not the point in hand, which is, "Have we any proof that Pinguiculas are able to eat insects?" Seeing some of these plants rather dry in a cold frame I took the liberty to ask the gentleman that conducted me about if he had ever seen any evidence of Pinguiculas eating anything belonging to the animal kingdom. I paused, anxiously awaiting this experienced plants-man's reply, and while I gazed on the plants I saw the edges of the leaves cupped a little, as they are reported to be when they are about to prey upon the subjects of the sister kingdom. The dog raises his bristles and the cat's tail gets to the form of a bottle brush when either of them are on the point to slay, and the Pinguiculas certainly looked threatening. Mr. Stansfield replied, and his reply levelled the poetic idea down to the veriest everyday prose, for, suiting the action to the word, he rubbed off some living Aphides from the leaves of the Pinguiculas, and calmly said, "I wish the insects would not eat them." *Alex. Forsyth.*

Wireworms and Vines.—It may please Mr. Pearson, and it will not affect me, to stand upon his dignity in dealing with "persons who do not sign their names to their communications," particularly when his observations are called in question; but I may remind him that the Editors generally know something of their correspondents, as in my own case; that not a few of the important original and other articles which appear in the *Gardeners' Chronicle* are by "persons" of this kind, and that in a public journal they meet on common ground, whether on "disputed subjects" or not. While the writer is prepared to vouch for his statements, if necessary, I do not see that his identity is of the least consequence, though it is often made an excuse for want of a better argument. I related my experience candidly about the wireworm, and in a way not likely to "mislead," and I may yet be able to refute Mr. Pearson's notions on the subject conclusively. I found the wireworms in the sods in which the Vines grew; and in one of the latest attacked, as indicated by the leaves flagging,

I found the wireworm beside the eye, when the sod was broken through by myself to discover the cause. This may not be positive evidence, but it is equal to that furnished by Mr. Pearson. He may be correct in his opinion on this subject, and I hope he is, but if it is not founded upon better data than his recently advanced opinion about Vine bleeding being harmless, though it may go on "badly" or for "many days," he may expect his observations to be called in question, without an apology, by those who probably know as much about Vines as he does, and yet do not pretend to know everything. *J. S. W.*

Spring Frosts.—There is scarcely a day in the year I believe on which we may not in England have a frost. I should almost think that Mr. Tillery must remember a July 2 about twenty years ago (I think that it was in 1854, but am not quite sure) when there was a frost in Nottinghamshire which killed all the branches in the park at Osberton, and no doubt elsewhere, completely to the ground. *C. W. Strickland.*

Blue Primroses.—I fear I cannot give your correspondent a clean pedigree for my blue Primrose. Some years ago I crossed a white-stalked Primrose, using the pollen of the old blue, which, though itself sterile, bears fertile pollen. The seedlings were violet, with a decided tinge of the blue, and preserving other resemblances to the pollen-parent. They were fertile, and produced many seedlings much like themselves; finally, they were mixed up with my general stock. Last year I sowed seed from the best of my lot, and the plant in question came up amongst them. It is just a case of old blood coming out after many generations, hardly to be called atavism, which is applied to another and distinct phenomenon in the animal kingdom. The plant is bearing seed. My new double is just the old double lilac on stilts, but with a larger and somewhat handsomer flower. I shall feel happy in corresponding with "J. M.," or in any way assisting him in such matters.—*R. Trevor Clarke, Welton Place, near Daventry.*

The Canon Hall Muscat.—Doubtless the Canon Hall Muscat Grape is one of the finest and best Grapes in this country. As you observe, it is also the worst to set in cultivation. If we examine the organic structure of the plant, we have convincing proof of cause and effect. One defect is prevented by planting in proper soil. As organography shows us one defect, so physiology brings out another; we find the sexual organs are imperfect. This is obviated by horizontal training, and a careful regard to the temperature of the soil. If a few lines on the subject will be of any service to your correspondents, I shall be happy to supply them in time of need. Twenty-six years ago I felt the necessity. *W. Prestoe.* [Please do.]

Early Peas.—Mr. Miller's remarks on early Peas have induced me to offer a few words on the same subject. I was somewhat surprised to see Laxton's Alpha first on his list for pulling, a sort which I discarded after the first trial, on account, as I thought, of its deceptive character. The pods to all appearance seemed ready to burst, but when opened scarcely a Pea had formed. I may have been too hasty in my decision, but I at once said I would never grow it again. Eastes' Kentish Invicta has always been a special favourite of mine, a good cropper, and quite as early as any of them, coming in same time as Kingleader and Emerald Gem, which are the two earliest with which I am acquainted, with one exception, viz., William the First—a sort perhaps not so well known, but I think all who have given it a fair trial will endorse my humble opinion that it is a first-class early Pea in every point; its productiveness is really good, as is also its flavour—two good qualities which most people can appreciate, but which few of the early sorts possess. In proof of its earliness I may say I gathered from a row sown across the open garden on February 12, the same time I gathered from Dickson's First and Best and Kentish Invicta, sown three days earlier on a south border; this, I think, is sufficient to justify me in pronouncing it one of the earliest Peas, and I am fully convinced it is superior both in flavour and productiveness. Another excellent Pea is Multum in Parvo, an abundant cropper and of delicate flavour, but not quite so early. Maclean's Blue Peter is another good dwarf Pea; may be sown very closely together, its average height being only 9 inches—a good Pea for small gardens. *E. Morgan, The Butts, Harrow-on-the-Hill.*

Hailstorm.—On Friday, June 11, about midday, we had a very severe thunderstorm, with heavy rain and hail; in a short time the hail covered the ground to about an inch deep, causing great destruction amongst the tender foliage. In the woods the Lime trees look as if they had been riddled with grapeshot, and in the kitchen garden the leaves of the trees upon the walls facing the blast are completely riddled. Lettuce and Celery look as if a flock of sheep had been pasturing amongst them, they are so cut up; and Peas fit for pulling look as if they were well hammered. Fortunately we had no glass broken with the hail, but along the front of the hothouses the hailstones could be collected in quantity for some time after; and from what I can learn from a certain distance round this locality, the farmers' field Beans and young Turnips have suffered severely. *J. Miller, Clumber.* [We have received letters from different parts of the country, complaining of the great amount of damage done by the hailstorm on the 11th, and especially in the neighbourhood of Dorking and High Wycombe. EDS.]

Pedigree Seedling Potatos.—Under the head of "Potatos from seed an antidote against the disease," you were so good as to publish my remarks in your issue of August 8 last, and I trust you will allow me now to continue my observations on the subject, acquired from practical researches and results since then. In that communication I mentioned that I was pursuing a system of raising annually from seed a consecutive race of seedlings which, after passing through five or six generations in such way, it was my firm belief, will become wholly free from disease, and the progeny therefrom afterwards continue so. A single generation, I therein stated, would not produce the desired effect, having repeatedly tried it from an early period, and always found the offspring as liable to its attack as the parent. My crop last year was obtained from the second generation of seed, and certainly it afforded me every encouragement to continue the process, for I could not discover among the entire crop produced, taken up in August and September, above one or two in the slightest degree affected, whereas several appeared so among the old sorts grown by me; and after they were stowed away the former remained perfectly sound, while a good quantity of bad ones were picked out from the latter. However, I do not mean to say that these seedlings are disease-proof. In order to try what the effect would be if left in the ground for some time after their coming to maturity, I allowed a row to stand undisturbed till the end of November, at which period the earth was completely saturated by the heavy rains that had previously fallen. When taken up the stems of all were entirely decayed, that is to say in a hard, woody state, and among the tubers I found a considerable portion in various stages of corruption, some of them completely decomposed, but, so far as I was able to judge, no indication of Peronospora was discoverable. They were puffed up with water, and not blackened inside, as occurs when it (Peronospora) is present. In fact, they displayed precisely the same appearance as those stated in my communication to you last July, p. 48, headed "Potato disease artificially produced," when I also sent you a sample of the rotted tubers for investigation, relative to which you informed me that neither yourself nor Mr. Worthington Smith could detect any trace of Peronospora. In like manner, for the edification of others as well as myself, I have now taken the liberty to forward to you by rail several of the rotted tubers before alluded to, taken indiscriminately, and shall feel exceedingly obliged by your kindly favouring me with a report thereon, to confirm or refute my allegation. As those formerly sent got into such a mass of corruption when they reached you, I have thought it better to dry what are now forwarded, and trust my having done so will not prevent your being able to determine the question. Assuredly the true malady does not prevail to the same extent in the present day as it did at first, and, therefore, the expectation entertained by many persons at the beginning, that it would wear itself out in the course of time, may probably be realised eventually, though it has taken so many years for its accomplishment. It is the usual custom of nearly every grower of Potatos to attribute to the attack of the real disease all the tubers they find in a decomposed state among their crop, which undoubtedly is an entire mistake, because in unfavourable seasons a vast number more perish from excess of wet than from it, the Potato not being an aquatic plant; and therefore a wet season, I say, is infinitely more to be dreaded than the much talked of and written about "Potato disease," let it be Peronospora infestans or any other ailment. Indeed, judging from my rotted seedlings taken up in November, and artificially affected ones as abovementioned, I very much doubt if wet actually does tend to increase the true disease, according to the general opinion; but this point you can decide, far better than I can, from the samples now sent and those you formerly received from me. Experience has afforded us this undeniable evidence, that it (the disease) appears even in the finest of seasons, whereas the wet rot does not at all exist under such circumstances. It may be asked, Why did not the wet rot occur previously to 1845 (the year the disease commenced) as well as in the present day? I am not myself old enough to know, from personal observation, what happened antecedently to that period, but an amateur gentleman horticulturist residing in this neighbourhood, now on the verge of fourscore years of age (who it was suggested to me in 1870 the seed system I am still continuing), tells me that he perfectly remembers the crop being frequently destroyed by wet before then, just the same as now; but the rot occasioned by it not being of a hereditary character, as he considers the Peronospora to be, it did not affect the succeeding crops, and, therefore, created little notice. The year 1816 or 1817, he says, he recollects was a most disastrous one for cereals as well as for Potatos, the reapers in some localities cutting the corn in October, in the midst of deep snow, and the latter were so affected with rot that they were scarcely worth digging up; nevertheless, the following season proving to be a dry one, there was not then the slightest vestige of rot or any kind of disease among them. Again it may be inquired, Why did not the present prevailing epidemic appear before 1845? That question, of course, neither myself nor any one else can answer. We find that both animals and vegetables are attacked now with diseases that were formerly quite unknown, and I see no reason why the Potato should be exempt from a like visitation. In conclusion, I feel quite convinced in my own mind that the real Potato disease may be entirely got rid of by frequent raisings from seed; but no one, of course, can control the weather, and therefore the crop will always be subject to its influence, according as it may prove to be favourable or otherwise. All danger from frost being now apparently over, I have begun to-day (May 28) to plant out from the pots my present year's seedlings, these forming the third successive generation. They are fine, strong, healthy plants, with tubers attached already the size of Peas, some of them bigger, and will produce this season Potatos sufficiently large for table use. The experiment is not conducted on a very extensive scale, but amply so for the purposes intended. After the crop has been secured, I shall, with pleasure, give you a detailed account of the results, should you like to receive it. *J. L. Whitland, Carmarthenshire.* [We shall have something to say on this matter in a future issue. EDS.]

Pine-apples.—Twelve months ago, when we were forecasting some alterations amongst our Pine pits, the Pines in several of them were planted out to fruit upon the "Hamiltonian system," but unfortunately the heating medium was sadly below par for doing much good with fruiters during the winter months. I selected the strongest of the suckers, and potted them according to their size into 9 and 11-inch pots, using a fresh sandy turf torn into pieces by hand with plenty of half-inch bones and wood charcoal, ramming the compost pretty firmly round the suckers into the pots. The suckers, being short and stiff, looked pretty much like old plants. They were plunged in leaves and tan in slide pits, with hot-water pipes for top and bottom heat, and during summer they soon filled their pots with fine healthy roots; with occasional waterings of liquid manure the plants grew vigorously, and by the autumn I determined to fruit them in spring in the pots they were growing in. As the days shortened we lessened the quantity of water for their roots and left off syringing, and through November, December, and January they were nearly as dry as dust, and kept during the severe winter at a very low temperature. In February I had an old flued pit of thirty-six lights reglazed, the bed for the leaves deepened and filled with best Oak leaves, and as soon as fermentation got above 80° I selected fifty-five of the most likely to fruit, and plunged them into one half of the pit, the bottom-heat ranging been 85° and 90°, the top-heat about 60° or 65°, until I perceived them beginning to move, while water was carefully given until the fruit was almost in sight, warmed to about 90°, with little or no stimulant, but when the fruit came fairly in sight rich stimulants were frequently given in order to support their roots in the small pots. At one time I intended to have repotted them into larger pots; no doubt the plants would have become larger, and in time would have produced larger fruit, but at the same time running the risk of being six months longer in showing fruit. As it is, with one or two exceptions they all showed fruit in about ten days' time, the temperature being raised to 70° at night and a corresponding higher temperature during the daytime; and now the fruit is about three parts swelled, with shining, clean, broad pips, and looking likely to average nearly 4 lb. each, and with very few exceptions they appear to be going to be a very even lot. They get plenty of air and liquid manure, and no shading. The smallest of the plants in the adjoining division got an extra shift into larger pots, and they look as if they would produce much heavier fruit, but will take longer time to do it. In various quarters it is questioned as to the profit of cultivating Pine-apples in this country, but as most places have a family name, cultivators must act accordingly. On a late occasion I had a visit from a distinguished and high authority; he informed me that no foreign Pine-apples came up to a well-grown English Pine. *J. Miller, Clumber, June 7.*

Judging Grapes.—In Mr. Forsyth's articles on judging Grapes he alludes to the Grape judging at the Pomona Palace, and wishes to know how we came to put Mr. Hunter behind Mr. Upjohn, the

Earl of Ellesmere's gardener. I am glad Mr. Forsyth has given me the opportunity of explaining the reason, as many of the lookers-on might think we had not used Mr. Hunter fairly, because he had got the largest bunches, not having the advantage of examining and testing their other merits in the same way as the judges. The Worsley collection was finer in berry, denser in colour taking the collection through, with thicker and fresher bloom and perfect ripeness; in fact I never tasted the Gros Colman and White Lady Downe's so well up in flavour as those. Some of the bunches in the Lambton Castle collection were past their best, the interior and points of some of the bunches were shrunk both in berry and stalk, and were comparatively flavourless in comparison with the other. Even allowing that the sorts where chiefly the large coarse-growing varieties, we could only get two points, that is, size and symmetry in bunch, over the Worsley collection; so we considered the fine qualities of the latter were indicative of higher merit than the large size in the Lambton collection. I always consider perfect ripeness the leading point in judging all sorts of fruit, and size with compactness in bunch the next point. Colour is deceptive in Black Grapes, if they are not tasted, for in the class for two bunches of Black Grapes we sorted out three dishes for 1st, 2d, and 3d: the finest in appearance were two beautiful bunches of Gros Colman, but on being tasted they proved quite sour and unripe, while both the Lady Downe's were perfectly ripe, and so close a match in appearance that we had to decide the honour by the flavour. Not only in this instance have I found colour a deception, but I have seen a beautiful house of Black Hamburghs, grown without fire-heat, perfection in appearance, but on tasting them they were as sour as if they had been green. This is how judges are often condemned by the lookers-on, because they have no means beyond appearances of testing the real qualities. Yet in judging Grapes there is one thing to be kept in view, that a large bunch of Grapes requires a great deal more skill to bring it to perfection than a loose open bunch; so that the latter should not ride over the other because it happens to be a little better in point of ripeness. *James Smith, Waterdale, St. Helens.*

Primula japonica.—Some discussion appeared in these columns some months ago as to the hardiness of this fine Primula, and if it would prove suitable for outdoor decoration. From a plant in bloom with me in 1872 I saved a quantity of seed, which, as soon as gathered, I sowed. In about three months after I had hundreds of fine seedlings; many of these were the spring following planted out, and have now stood two of our cold northern winters without injury save to the larger leaves. They are at present in fine bloom, some of the strongest throwing up ten to twelve spikes, and from 15 to 18 inches high. *R. F., Fyvie, June 12.*

The Elms in Windsor Great Park.—Visitors to this magnificent park are startled to find notices staring them in the face, warning them to avoid the Elm-trees, because of the danger that is likely to arise from the sudden falling of branches. The warning is thoughtful on the part of the Ranger, and evidences of its necessity are here and there apparent, huge limbs lying on the ground having snapped off within a few feet of the main stem, and displaying a weight that would have crushed human life to a frightful death. It is well to ask whether the prominent displaying of such a notice is all that the authorities are capable of doing under the circumstances, and whether they are powerless to arrest the decay and destruction that must inevitably come. There are no grander features in Windsor Park than the long lines of fine Elms that skirt in a quadruple row the Long Walk, or border on each side the long grassy glade known as Queen Anne's Ride, but if these trees are so far suffering from decay as to have become absolutely dangerous, it is only too certain that unless some strong remedy is applied it may not be many years before such gaps will have been made as to entirely mar the beauty of these avenues, and probably lead to their entire disappearance. Every one acquainted with the Elm knows how deceitful is the appearance of large trees; apparently healthy and vigorous externally, but too often rotten at the core. When trees reach this stage, having reared their enormous heads high in the air, and spread out their immense branches to the wind, it is not to be wondered at if some sudden tempest should hurl branches or even entire trees to the ground with terrific force, as their grip is but a rotten one. If a ship under press of canvas has her masts dangerously strained, there is no resource but to shorten sail, and thus avoid the calamity of a total smash; and it is a fair illustration of what ought to be done in the case of these dangerous trees, as if now carrying more top-hamper in the shape of branches than the trunk is capable of sustaining, common sense indicates that the stems should be relieved of much of the superincumbent weight, and therefore, although it may seem to indicate an act of vandalism, it is worthy of consideration whether a judicious lopping of the heads of these fine trees would not be a desirable course to adopt. If any one will now take the trouble to compare the terminal growth in the large branches with that immediately beneath where a limb has been cut or broken away, they will perceive how weak and meagre is the first, and how healthy and robust is the latter. If, therefore, all these fine Elms were to be carefully headed-back—not pollarded, but the branches simply shortened in to a reasonable length—there would be at once such a renewed growth as would not only quicken root-action, but would also endow the trees with comparatively a new lease of life, and convert their present dangerous state into one of robust health and comparative security. *A. D.*

Tropical Travelling Dress.—Herewith I send you a photograph (fig. 166) of the travelling dress usually worn by botanical collectors (in fact by all travellers) in the tropics of South America. Doubtless many of your readers will be interested in knowing the use of such a peculiar costume. When travelling for Mr. Bull I found a good light coloured felt hat resisted the intense rays of the sun (the heat being something considerable) better than the native Palm hat; and the cape, as here shown much superior to a coat, as the circulation of the breeze (when one can get it) is more regular over the body. The cape is, moreover, an excellent shade to the shoulders and arms. The leggings are quite indispensable, and as a rule they are made of macintosh, but some of the skins of the wild animals, being very wide, they are brought into use, and allow a free circulation. If in the rainy season one is smothered with mud, which is very often the case, the clothes can be thrown off with the greatest ease,

Fig. 166.—Tropical travelling dress.

after unbuckling the bottom strap, which partly holds up the spurs. These latter I must admit are as formidable and as ticklish to the mule as are the ticks and other noxious insects to man. One of these insect pests dives into your toes, and requires the use of a lancet for its removal, and if neglected you are certain to ultimately lose your toes. *E. Shuttleworth.*

Conifers.—Mr. Murray has happily anticipated my reply to the objection raised by him against the assumption that all the plants in this or any other country whose leaves bear the characters lately attributed by me to Picea magnifica and P. nobilis respectively are of similar parentage respectively. But I cannot agree with him in thinking that the only way left us to prove it is to wait until "the plants in question have borne cones;" it must be argued out in another way. There are a few large plants here that I know to have been raised from seeds extracted from a cone similar in every character to the one illustrated in your journal; and as their leaves are structurally different from the leaves of thousands of plants that I know to have come from seeds extracted from home-grown cones of P. nobilis pure and simple, I consider that these few plants of P. magnifica will do to judge the questionable sub-tetragonal-leaved nobilis plants by, referred to by Mr. Murray; and if he will kindly send me leaves of a few of them, I will have pleasure in making the comparison and in reporting the result. The section of leaf of P. nobilis figured in last week's *Gardeners' Chronicle* is evidently from near the base of the leaf, for all the nobilis leaves that I have seen were sub-tetragonal near their points; and even very old leaves—say eight or nine years old, their extreme age—generally assume a sub-tetragonal outline towards their base, but without ever losing their peculiar gorge-like groove; so that it is highly probable that the plants referred to by Mr. M. may be P. nobilis after all. But it is not so much a question of angle or no angle as it is of groove or no groove; and I hold that the leaves of nobilis are grooved towards their base, while those of magnifica are not. *George Syme, Elvaston Nurseries, Borrowash.*

Strawberry Culture in Pots.—Under the above heading I see your correspondent "W. P." says the all-sufficient remedy for a good supply of water to Strawberries in pots is a simple wooden trough shelf. I am surprised to read that a practitioner of fifty years' standing should still recommend so cumbrous a method of pot culture, or, indeed, anything allied to the old and properly discarded saucer system. I read with some interest the advocacy of some gardeners who I thought had buried their saucers in oblivion long ago. I can understand in some measure people who grow say two or hundred plants in pots, and who can afford a small pit in which to place their plants from start to finish, imagining that there is some virtue in their turf shelves; but I am at a loss to understand how people who force a couple of thousand plants in vineries and Peach-houses could possibly adopt the turf or saucer system. I am expected to keep up a supply of Strawberries from the middle of March until fruit are gathered from the outside, without a Strawberry-house, and I am afraid if I adopted "W. P.'s" *modus operandi* I should very often find myself in difficulties, if vegetable life be in any way allied to animal life. I don't think any of us would like to be propped up in a water-barrel to imbibe its contents whether we wanted it or not. Long before I became a head gardener, some of my ablest masters placed their saucers on the shelf; this was in the days when we used to strike Tom Thumb Pelargoniums in bottom-heat. How, I ask, are amateurs to draw a line between such conflicting theories as we have had propounded in the different journals on Strawberry forcing lately? The sum total of my practice I will give in a very few words. I have my own pet varieties, and take means to procure runners as early in June as I can; the plants are liberally treated during the summer months. Bear in mind they must make no second growth. In autumn the plants are plunged amongst leaves in small pits specially erected for the purpose before the heavy autumn rains set in; frames will do as well. They must be subject to no drying off, nor stewing. About the middle of November or the 1st of December we start the first batch with the early vinery and Peach-house; they are not hurried until the fruit are fairly set, after which time they are pressed according to circumstances. When the fruits begin to change colour they are taken to a cooler and drier atmosphere to insure flavour. One word as to watering; the "careless chap" is not tolerated in the forcing houses—he gets a spade or a barrow, which he is not likely to injure. A good 6-inch pot packed with healthy hungry roots will want a quantity of manure-water, but we are careful not to administer any overdoses. All the turf trays, saucers, &c., which "P. W." may use, will never make up for what must be stored up in an embryo state the previous autumn, and using saucers is a very good plan for losing all your bottom roots. *W. Hinds, Gr. to Sir Thomas Edwards, Moss Bottom, Liverpool.*

The Royal Horticultural Society.—The report of the meeting at South Kensington on the 4th inst. holds out a hope that the Society may be put on its legs again, and that it is very desirable that those who wish to see the Society take its proper place amongst the fostering societies of arts and science should do their best to get the Society into a sound and healthy position again. There are about the country many hundreds of floral societies, who hold one or more exhibition every year, and a great number of whom have a good balance in hand. Connected with these societies are invariably some who are known in the gardening world, and if an appeal could be made to these societies, backed up by proper local influence, that money grants should be given from their funds in hand or from their forthcoming exhibitions to help the Royal Horticultural Society out of their present temporary difficulties, I feel that something would be done. I have just referred to the report of the first International Exhibition, in 1866, at South Kensington, and I find that Glasgow, Bradford, Manchester, Coventry, Doncaster, Chelmsford, and other towns, contributed good sums of money in support of that exhibition. Could not a somewhat similar organisation now be put into operation to help the Royal out of its troubles? I think that if some of our practical nurserymen could be on the committee—men who are thoroughly conversant with the working of a large business which must be made to pay—they would soon pull the Society through. It is sheer nonsense to say that there would be too much trade influence on the committee, or that selfish interests would predominate. With such an offer as Mr. William Paul's, and such liberal help as Mr. Bull's, and others who have practically shown that they have the interests of

the Society at heart, ought not these men to have a greater voice in the management of the Society's affairs? Cannot one or more great fruit and autumn flower exhibitions be arranged for the Society's benefit this year—say one in London, and another at Birmingham, which Mr. Quilter might perhaps be induced to take in hand, and Mr. Findlay another at Manchester? Liverpool and Leeds would be great centres for others, if arrangements could be made with the local societies; and if Mr. Kerr, of Liverpool, and his coadjutors, took up the matter, I am sure that success would follow. I am old enough to remember what the Horticultural Society was thirty years ago, in its Chiswick days, and I want to see a "going back" to the practical doings of those days, when the Society commanded the respect of all who took any interest whatever in good gardening. *D. W.*

—— We cordially agree with your suggestion that at the present crisis in the affairs of the Royal Horticultural Society "the whole body of horticulturists, amateur and professional, should stand shoulder to shoulder in support of their craft," and that no better earnest of their resolve to do so can be shown than in holding a great show, the spontaneous effort of the whole body. We therefore shall be most happy to co-operate heartily in carrying out your suggestion of holding a great show on July 21 next, and we sincerely hope that our brother nurserymen will likewise come forward and give practical effect to the suggestion with a unanimity that shall secure a grand success. *James Veitch & Sons.*

Pyrethrum Golden Gem.—Under this name I have now growing a new golden form of the Pyrethrum that has a different habit of growth from the old Golden Feather, but I have doubts as to whether it will ever displace that well-known variety. Seedling plants of the Golden Feather flower but little the first year, and then not usually until the autumn, when about one pinching saves the plants for the season. Golden Gem, on the contrary, starts off to flower at once, and has also a loose leggy habit; its leaves also, although very handsomely cut, are not sufficiently dense to produce that rich golden hue so much desired in a bedding plant. I find Golden Gem to be simply the variegated duplicate of a green variety common enough in gardens, and which I should imagine must be pinnatifidum, as the leaves are so deeply cut. The old Golden Feather, Pyrethrum Parthenium aureum, is the very best golden-leaved bedding plant we have, and it will take a remarkably good thing to displace it. *A. D.*

Green Maize.—I have to thank Mr. Alexander Dean, of Bedfont, for his account of the younger Mr. Cobbett's experience in the cultivation of Maize in this country. Mr. Cobbett and the writer are evidently on separate tacks. I do not care so much about the ripe corn as he does, for reasons which I will name by-and-bye, but must say to every practical gardener that green Maize will have to be provided for the table of the gentleman, whether the gardener be agreeable or not, for public opinion will not be put off without giving it a fair trial, as the whole affair appears so feasible; but it is necessary to correct one or two statements that have hitherto been held as guides in the cultivation of Maize. The time of sowing, or rather of planting Kean's Forty-day Maize, should be about the last week in May or first week in June, and not in April—at all events in the midland and northern counties. The nicety in point of time, when half-hardy plants may safely be trusted out-of-doors, has been long settled by dearly bought experience. Another statement, that Maize will not bear to be transplanted like bedding plants, but must be sown where it is to remain, is likewise "inexact," for the variegated variety of Maize is bedded-out like any other denizen of the flower garden. Mr. Dean, speaking of Cobbett's corn, says some were dibbled like Cabbage plants, in dripping weather. Surely, then, gardeners may lengthen the summer by growing Maize in pots to be afterwards planted out; but a better plan would be to sow the Maize in a cold frame on turf, and cut the sods with a set on each, and thus plant them out honestly—not with the dibber but with its modern representative, the half-circular planting trowel, not forgetting to give the sets a sound watering. The small growing kinds or varieties of Maize, as "Kean's Forty-Day Maize," and "Cobbett's Improved," are the only kinds yet known to come to perfection in our climate, and when gardeners have got so far as to supply the table with green ears of Maize as easily as they supply green Peas now, the treatment for ripe corn grown in fields will not long lag behind. Mr. Cobbett, sen., called the Potato "the accursed root," because in his political philanthropy he reckoned that the peasant who could not afford to live upon anything better than Potatos was far too low in the social scale. No doubt he was so, and no doubt he is so still, but the Potato, the favourite of young and old, of rich and poor, never had any share in the peasant's degradation. The Maize differs from all corn plants and grasses with which I am acquainted in the extraordinary natural protection with which its seeds or ears are provided which almost sets the weather at defiance; for whilst Wheat, Oats, Barley, and hay are all liable to be spoiled by foul weather in harvest time, the Maize may be delayed, but as it is done up in wrappers by Nature, it seems designed to meet the exigencies of our changeful climate. The advocates of field culture for ripe Maize must bear in mind that Maize meal is never likely to be relished in this country, and that it would only rank with that of Peas or Barley, however nourishing it might be; and this fact kept in view will help to moderate our ideas about following the elder Mr. Cobbett's advice to try to grow Maize in Ireland instead of Potatos. There can be no doubt that plants 6 inches high in pots, &c., can be successfully planted out in gardens up to the middle of June, and produce a crop of green Maize for the table—a delicacy declared by good judges to be fit for a prince. *A. F.* [We find that Maize never starts growing in earnest till real summer weather sets in, and then it goes away rapidly. Hence there is no advantage in planting early. EDS.]

Frost.—Mr. Tillery complains of frost so late as the end of May. We should be glad if May would terminate the frost in Aberdeenshire, for now, while writing (on the evening of June 12), we have had about a half-hour of a steady hailstorm; ground white, and some of the pieces three-eighths of an inch in diameter—the largest I have seen in mid-winter. The only damage I see as yet is the Gooseberry trees a little thinned, and Potato leaves riddled as if by shot; but I am apprehensive of frost, and covering with tiffany some of the more select 3*s.* 6*d.* a lb. sorts, because last year about this same time (June 14) French Beans, Potatos, and a few other tender things were blackened on that evening. Four years ago, on June 17, the same occurred; but upon the whole this season has been very fine, and till now more than usually free from frost. While speaking of Potatos, I may mention another American sort of recent introduction, and not in Hooper & Co.'s list in to-day's *Gardeners' Chronicle*—viz., Compton's Nonsuch. It is well spoken of in America, and a rich cropper, but so recently brought over I can say little about it. *R. F., Fyvie.*

Reports of Societies.

Leeds Horticultural: *June* 9, 10, *and* 11.—This Society has now for a number of years stood in the front rank of provincial societies. This, the twelfth annual show, was the best, taking it altogether, that the Society has had. Stove and greenhouse, flowering and fine-foliaged plants, were not only produced in fine condition, but in such quantities as to make a grand display. Orchids were forthcoming in large numbers and in the best possible order, occupying the whole of one side of the centre stage of a very large tent. The rich treat the lovers of these plants enjoyed will be understood when we state that in addition to the fine collections staged by Mr. B. S. Williams, Holloway; Mr. Dixon, Beverley; and Mr. Toll, Manchester, in the nurserymen's class, several of the leading private growers from the Manchester district mustered in strong force, including Mr. Hubberstey and Mr. Mitchell, in addition to those growers in the neighbourhood of Leeds, making altogether an exhibition of these most attractive plants well worth seeing. Ferns also were magnificent, the groups staged by Mr. Hubberstey, gr. to O. O. Wrigley, Esq., Bury, Manchester; and Mr. Thornber, gr. to T. M. Shuttleworth, Esq., Howick House, Preston, were such that it would be impossible to match in the country; they received deservedly equal 1st prizes. Pot Roses, as might be supposed, from the season being so far advanced, were past their best. Cut Roses were staged in considerable numbers and fine condition. Pelargoniums were well shown and very attractive, almost filling a large tent. There was not a great display of fruit, but some of the Grapes shown were very good.

The show was held upon the grounds of the Leeds Horticultural Garden Company, a place well adapted for the purpose. There are several essentials necessary to the success of horticultural and kindred societies, the two most important of which are a thoroughly efficient committee of management, and the attendance of the public in sufficient numbers to afford the requisite support. Nothing short of the determined perseverance of the committee, and the immense numbers of the people in the northern counties, who will go to a flower-show in anything short of an incessant downpour, could have enabled this Society to have held their present position under the remarkable recurrence of bad weather that almost yearly accompanies their shows; the present was no exception, for after an unprecedentedly dry period down came the rain all the three days.

In the open class of twelve STOVE and GREENHOUSE plants Messrs. E. Cole & Sons, Withington, Manchester, were 1st with a fresh, clean grown, and well-flowered lot, the most meritorious of which was a magnificent example of Erica Massoni major, 4 feet through, in the finest possible health, and profusely bloomed; Darwinia tulipifera, a complete sheet of flowers from the base to the top, 5 feet through; a good example of Anthurium Scherzerianum; the Willow-leaved Ixora, I. salicifolia; Azalea Criterion, finely flowered and well coloured; and other good plants. Mr. Cypher, Queen's Road Nursery, Cheltenham, showed a smaller group very well bloomed, and nicely arranged as to colour, conspicuous amongst which was Allamanda grandiflora, Ixora Williamsii, with very large trusses of flower; Statice profusa, indispensable for its colour; Darwinia fuchsioides, Azalea Duchesse de Nassau, the true variety of Aphelexis macrantha rosea, and Stephanotis floribunda. Mr. Stevenson, Lark Hill, Timperley, Manchester, also exhibited in this class, and, amongst others, had good examples of the charming white Erica obbata, Dracophyllum gracile, a good Aphelexis, and a well-flowered Pimelea mirabilis. In the class for six flowering stove and greenhouse plants (amateurs) Mr. Thornber, gr. to T. M. Shuttleworth, Esq., was well 1st with large finely-grown plants. He had a good Pimelea mirabilis, 5 feet through, beautifully coloured; Azalea Iveryana, and a large Erica depressa in good bloom. Mr. Fox, Lidgett Green, Bradford, was 2d, with a nice well-grown lot, in which was Dracophyllum gracile, Darwinia tulipifera, and Allamanda grandiflora; Mr. H. Oxley, Weetwood, Leeds, was 3d, his best being Statice brassicæfolia, and Erica ventricosa magnifica. Nine ornamental-leaved plants (open): Messrs. Cole & Sons took the lead with good examples of Phormium tenax variegatum, a grand Cocos Weddelliana, Cycas revoluta, large and fine, Astrocaryum rostratum, and other well-matched plants; Mr. Dixon, Norwood Nursery, Beverley, was 2d, with smaller plants, amongst which were Pandanus Veitchii, Dracæna Hendersoni, and a beautiful Croton majesticum; Mr. J. Sunley, gr. to J. Kitson, Esq., Headingley, Leeds, was 3d. Six fine-foliage plants (amateurs): Mr. Thornber was 1st with an excellent collection, comprising, amongst others, a fine coloured Croton undulatum and Cycas circinalis; 2d, Mr. Stevenson; 3d, Mr. Oxley.

ORCHIDS were in great force, all the classes being well-filled. In the nurserymen's twelve, Mr. Williams, Holloway, was 1st, amongst others having a remarkably large finely bloomed Cypripedium barbatum superbum, Masdevallia Harryana, Saccolabium guttatum, Anguloa Clowesii, Lælia purpurata, large and fine, and a good Cattleya Mossiæ. Mr. Dixon, who was 2d, had Odontoglossum Alexandræ, O. citrosmum, Anguloa Clowesii, Aerides odoratum purpuratum, and A. Dayii. Mr. Toll, Hullard Hall Nursery, Manchester, was 3d; in his group was a remarkable fine dark variety of Lælia purpurata, Oncidium Weltoni, a Cattleya Mossiæ and C. Mendelii. Six Orchids were extremely well shown by Mr. Hubberstey, gr. to O. O. Wrigley, Esq., his plants being large and beautifully-flowered. Odontoglossum Bluntii was here, with a dozen finely coloured well-developed spikes, Masdevallia Harryana, grandly done; Saccolabium præmorsum, with seven good spikes, and Odontoglossum hastilabium, in splendid condition. Mr. Mitchell, gr. to Dr. Ainsworth, Broughton, Manchester, was 2d, with a smaller but excellent six, his best being Aerides Lobbii superbum, with five large branching spikes; Saccolabium guttatum, equally well done; a magnificent Aerides Schroderii, having four fine branching spikes. Mr. Goddard, gr. to W. Hadwen, Esq., Fairfield, Manchester, was 3d. His most remarkable plants were Oncidium crispum, Aerides Fieldingii, in fine order, and Cattleya Warneri. For three Orchids Mr. Hubberstey was also 1st, with beautiful examples of Saccolabium ampullaceum, Odontoglossum Alexandræ, and Masdevallia Harryana. Mr. Mitchell, 2d; his best plant here was Aerides Lindleyanum, the largest spike of which had three side branches. Mr. Hubberstey also staged an extra group of Orchids, which received an award; amongst them was the lovely Odontoglossum vexillarium, with three good spikes; two distinct examples of Odontoglossum Roezlii, Dendrobium Bensonæ, Odontoglossum Pescatorei, a large pot of Cypripedium niveum, Masdevallia Harryana, and a large profusely-bloomed Dendrobium Devonianum, still one of the finest Orchids grown.

AZALEAS were very poor, the principal prizes being withheld. It is surprising how comparatively few growers at the present day bring these easily-grown plants out in the condition in which they are capable of being produced.

STOVE and GREENHOUSE FERNS were quite a feature; the collections staged by Mr. Thornber and Mr. Hubberstey were grand examples of skilful plant-growing, and were deservedly placed equal 1st: so nicely balanced were these two lots that it is a difficult matter to point to the best plants amongst them. Each showed three Gleichenias, the same varieties in both collections—G. flabellata, G. Speluncæ, and G. rupestris. Mr. Hubberstey had besides a marvellous plant of Davallia Mooreana, Cyathea dealbata, and Nephrolepis davallioides. Mr. Thornber had in addition to his Gleichenias a grand Cibotium Schiedei, 12 feet across, and as green as a Leek;

Cyathea dealbata and Dicksonia antarctica. Mr. West, gr. to Mr. G. Joy, Esq., Headingley, Leeds, was 2d, with a large and well-grown lot, including Thamnopteris Nidus, 6 feet high and as much through; a splendid Dicksonia antarctica, and the elegant drooping Goniophlebium subauriculatum. For three Ferns, Mr. Thornber took 1st, with Gleichenias microphylla, semi-vestita, and Speluncæ, in perfect condition, averaging over 5 feet through. Mr. Eastwood, gr. to F. W. Tetley, Esq., Weetwood, Leeds, was 2d, with three good Tree Ferns, Dicksonia squarrosa, Cibotium Schiedei, and Cyathea dealbata. Hardy Ferns were well and numerously shown. For twelve Mr. Thornber was 1st with a well-grown large even lot; Mr. Frankland, gr. to J. Barran, Esq., Chapel-Allerton, Leeds, 2d, with smaller but nicely grown plants; Mr. Dixon, 3d. Six bardy Ferns: Mr. Stevenson 1st, with a good six, the kinds distinct—a point not always sufficiently considered by exhibitors of this class of plants; Mr. Thornber 2d.

LILIUMS.—For these Mr. Eastwood was 1st, with well flowered but pale varieties of auratum; 2d, Mr. T. Dale, gr., Armley Lodge, Leeds.

ROSES in pots were past their best, except the small plants. The season being too far advanced the leading growers from the South were not able to put in an appearance. For twelve Mr. H. May, Hope Nurseries, Bedale, was 1st, as also for twenty in 9-inch pots; Mr. Wright, gr. to G. Talbot, Esq., Leeds, 2d; Mr. Dale, 3d. The plants in these collections were nice and fresh, averaging some half-dozen or over good flowers on each. For six in the amateurs' class, no restriction as to size of pots, Mr. Wright was 1st, Mr. Eastwood 2d, and Mr. Sleightholm, gr. to Mrs. Wood, Armley, Leeds, 3d, with fair examples of moderate sized plants.

PELARGONIUMS were an exhibition in themselves, filling the centre stage (raised in tiers) of a large tent, effectively divided down the middle by a row of tall Fuchsias. There was a close run between Mr. May and Mr. G. Edward, York, for twelve show varieties, Mr. May taking 1st honours, Mr. Edward 2d. In the winning group were finely-flowered examples of Emperor, Captain John, Belle of the Ball, Queen of Whites, Mary Hoyle, Pericles, and Rose Celestial. Mr. Edward had, remarkably well done, Congress, Royal Bride, Mrs. Harvey, Desdemona, Heirloom, and Queen Bess. Mr. Eastwood was 3d. For six, in the amateurs' class, Mr. Eastwood was 1st, with moderate-sized, well-grown plants; Mr. Winterbourne, gr. to W. L. Joy, Esq., Weetwood Mount, Leeds, 2d. Six fancies (open): For these Mr. Eastwood was also 1st, showing an even, well-flowered six; Mr. Edward 2d, his plants being a few days short, or the tables would have been turned between 1st and 2d; Mr. Winterbourne 3d, his plants also insufficiently open. Zonal Pelargoniums were large and profusely bloomed. Mr. Winterbourne was 1st, with a splendid flowered lot, but containing too many red kinds; Mr. W. Winterbourne, gr. to T. Simpson, Esq., Weetwood, Leeds, 2d, with a better assortment of colours, not quite so profusely flowered; Mr. Wright and Mr. Hodgson, gr. to W. L. Jackson, Esq., Chapeltown, Leeds, equal 3d. Six Nosegays: Mr. W. Winterbourne 1st, Mr. Eastwood 2d, Mr. Wright 3d. The competition in this class was very close. Six Doubles: Messrs. H. F. Smith & Son, Selby, 1st. Madame Michael Buchner in this collection was very fine, bright pink, a profuse flowerer. Six Tricolors: Mr. J. Lazenby, Apperley Bridge, near Leeds, 1st, with large well coloured examples—equal 1st, Mr. Fox; Mr. S. Hartley, Hendingley Nursery, Leeds, 2d; Mr. Edward 3d. The plants shown in this class were well done, but nothing new as to varieties. Six Bronze Pelargoniums: Mr. S. Hartley 1st, with a finely coloured lot of moderate-sized plants; Mr. Lazenby 2d, Mr. W. Hodgson 3d.

GLOXINIAS, usually the most dejected-looking plants brought to an exhibition, were here splendidly shown. Mr. Sanley was 1st with a grand lot of seedlings, having enormous flowers of a half-erect habit, and fine in colour; Mr. Eastwood 2d, Mr. Backhouse, gr., The Wyther, Kirkstall, Leeds, 3d.

CUT ROSES were produced in considerable numbers, and, for so backward a season, in good condition. Mr. May was 1st for forty-eight with a very uneven lot, containing some good flowers and some very inferior. Messrs. Paul & Son, Cheshunt, 2d; Mr. Turner, Royal Nurseries, Slough, 3d. Mr. Turner was 1st for thirty-six with a beautifully even collection; Messrs. Paul 2d, Mr. May 3d. In the class for twenty-four Mr. Turner was again 1st, Messrs. Paul 2d, Mr. May, 3d. Mr. Turner was awarded a First-class Certificate, and a prize in addition, for a box of twenty-four flowers of his fine new Rose, Miss Hassard, a pink, flesh-coloured variety, of great merit, very large, vigorous in habit, and having all the appearance of a good grower. Messrs. Paul's new H.P., Emily Laxton, received a First-class Certificate; this also has, so far as can be judged from a single bloom, the appearance of being a fine variety—pink with a shade of violet, splendid petal, and very full.

For six dinner-table decoration plants Mr. Thornber was 1st, with a good lot of plants, but a little too large for the purpose; Mr. Dixon, who was 2d, had a smaller very nice lot; Mr. Hubberstey was 3d, and some of his also were too large.

Group of flowers arranged for the dinner-table: Here Mr. Cypher was a long way ahead of the other competitors, his exhibit being composed of good flowers, most tastefully arranged, not overdone with a profusion of colour. Mr. Wright was 2d; Mr. J. Slater, gr. to Mrs. Hill, Apperley Bridge, 3d. In bridal bouquets there was a strong competition; Mr. Slater 1st, Mr. J. W. Jessop 2d. In the corresponding class for ball-room bouquets Mr. House, Eastgate Nursery, Peterborough, was 1st; Mr. Frankland 2d. Twelve bunches of cut flowers: These, as always is the case when produced in quantity, were very effective; Messrs. Cole & Sons were 1st, with a very fine collection, consisting of Ixoras, Heaths, Allamandas, Stephanotis, Pimeleas, &c.

There was not a very large show of fruit. For four dishes, Mr. Clark, The Gardens, Studley Royal, Ripon, was 1st, showing Black Hamburgh Grapes, a Melon, Prince Englebert Plums, and Violette Hâtive Nectarines. Three bunches of Black, and three bunches of White Grapes: Mr. Smith, gr. to W. Blinkhorn, Esq., Waterdale, St. Helen's, was 1st; his Muscats were magnificent, good in bunch and berry, and finely coloured. The Black Hamburghs accompanying them were also good. Mr. Wallis, gr., Kirby Hall, York, was 2d. Mr. Smith was 1st for two bunches Muscats, equal in quality to and larger than those he exhibited in the class for six bunches. He was also 1st for a Pine. Black Grapes, single dish: Mr. Wood, gr. to A. Wilson, Esq., Tanby Hall, Hull, was 1st with moderate-sized bunches, well-coloured, and even in berry. Heaviest bunch of Grapes: 1st, Mr. Wallis; 2d, Mr. J. Noble, Boston Spa, near Leeds. Dish of Peaches: 1st, Mr. Woodfield, The Gardens, Osberton, Worksop. Nectarines (small dish): 1st, Mr. Westcott. Melons: 1st, Mr. Woodfield. Cherries: 1st, Mr. Wallis; 2d, Mr. Eastwood. Strawberries in pots, six plants bearing fruit: 1st, Mr. T. Watson; 2d, Mr. Eastwood. Single fruit tree in pot: 1st, Mr. B. Crowther, gr. to — Feirn, Esq., Moortown; 2d, Mr. Backhouse. Two Pines in pots: 1st, Mr. Sleightholm. Brace of Cucumbers: 1st, Mr. J. Clark.

Mr. Williams exhibited a fine group of new and rare plants, for which he received an award. Messrs. J. & W. Yates, The Nurseries, Heaton Norris, Manchester, also had a miscellaneous group of flowering and fine-foliaged plants, which likewise received a prize. (*From a Correspondent.*)

Royal Botanic: *June* 16.—This proved to be an even better show than the last, the large show tent being fairly filled with good things. Stove and greenhouse flowering plants were perhaps in smaller numbers, but very good; fine-foliaged plants very good and plentiful, Orchids remarkably good for the metropolis, Pelargoniums quite first-rate, and of new plants the show was exceedingly fine. During the judging the rain came down in torrents, and threatened to spoil the day as far as visitors were concerned, but the afternoon proved fine, and there was about the usual attendance. In the morning the Sultan of Zanzibar and several members of his suite visited the exhibition, and remained for some time in the tent and grounds, with which his Highness appears to have been highly gratified. He was especially pleased with what he saw in the great tent, and, turning to Dr. Badger, who, earlier in the day had been extolling the beauty of Englishwomen, he said, "If your Englishwomen are as beautiful as your flowers, this country must indeed be a paradise." The Roses and other cut flowers were examined with much interest, and a grand new seedling Rose, shown by Messrs. Paul & Son, and named in his honour that morning, came in for a fair share of his approval. On departing he repeated, what he had said more than once previously at other places, that he must return some other time. It is stated that, when being driven through the Park, he expressed his admiration of the fine trees, but thought they would be better if they bore fruit!

STOVE AND GREENHOUSE flowering and fine-foliaged plants were, as usual, the leading features of the exhibition, and as a whole they were of quite first-rate quality, the only fault to be found being the old one of sameness in the plants shown. Whatever may be the case in the provinces, we in London certainly suffer from over-doses of a certain set of plants which it seems impossible to persuade our cultivators are not the only things worth growing. Regularly as the shows come round are the old familiar faces trotted out, sometimes better and sometimes the worse for their winter's rest, but always the same everlasting Erica Cavendishiana (without which it would seem that no metropolitan exhibitor considers a collection complete), Clerodendron Balfourianum, Stephanotis floribunda, one or other of the common Aphelexis, Dracophyllum gracile, Darwinia tulipifera, an Allamanda, an Ixora, an Azalea, one or two Heaths—and with these the changes are rung with unfailing regularity, breeding a positive feeling of contempt for plants which in themselves are beautiful to a degree. For this the societies are the most to blame, insomuch that they do nothing to encourage young and rising men to enter the lists. Lately Mr. Baines held the lead, now Mr. Ward carries the trump card, and young growers naturally ask what chance they have against such giants. None at all, at present, but let the managers of exhibitions offer liberal prizes to be competed for by men who have never before shown in those particular classes at their respective exhibitions—and after a man has won, say, two or three 1st prizes, let him be drafted into a champion class, to give those behind him a chance—and a move out of the present deadlock must certainly be the result, to the decided gain of all concerned. Unless some such scheme is carried out the public, who are the main supporters of horticultural exhibitions, must become more and more tired of paying to see the same things, and it needs no prophet to predict the final result. Let our readers compare the reports of the shows for the past few years with those of to-day, and see what difference they will find in the plants shown in the more important classes. None at all—the only difference is a slight variation from time to time in the names of the exhibitors. Who will be the first to start a reform?

We must now come back to the subjects before us, and have to state, as we have often done, that Mr. Ward was 1st in all the classes he showed in, and well 1st, let it be said to his credit, notwithstanding the objections before stated. In his group of twelve the largest specimen was one over 6 feet through of Erica Cavendishiana; Kalosanthes Phœnix, 4 feet over, and flowered as finely as it is possible to do it; Erica tricolor impressa, a large plant, nicely flowered; a specimen of Aphelexis macrantha purpurea, to which the same observations apply; Bougainvillea glabra, a large plant, nicely bloomed; Clerodendron Balfourianum, &c. In a group of smaller plants from Mr. Carr, gr. to P. L. Hinds, Esq., many of the foregoing were again represented, the variations consisting of Primula mirabilis and Ixora coccinea superba, &c.

In the amateurs' class for six Mr. Ward staged Ixora Williamsii, a grand plant with a profusion of trusses over 6 inches across; Statice profusa, Erica Cavendishiana, E. Candolleana, Stephanotis floribunda, all well-grown specimens. Mr. Childs, gr. to Mrs. Tow, Ewell, and Mr. W. Mearing, gr. to W. Whitley, Esq., Guildford, also competed. In the nurserymen's class for six, Mr. B. S. Williams had Allamanda grandiflora, 3 to 4 feet through, and very well flowered; a fine Dipladenia amabilis, and a very large well-flowered Darwinia tulipifera, &c. From Messrs. Jackson & Son came large and well-flowered examples of Dracophyllum gracile, Aphelexis macrantha purpurea, Bougainvillea glabra, Statice profusa, &c. Mr. Morse also competed. Messrs. Jackson & Son also put up a neat lot of plants in the class for twelve in 12-inch pots, but there was not a single novelty amongst them.

The amateur's class for six fine-foliaged plants was a particularly good one both as to numbers and quality. A new exhibitor here, Mr. Strahan, gr. to P. Crowley, Esq., Croydon, had large and very finely coloured specimens of Croton angustifolium and variegatum; a perfect plant of Dracæna australis, about 6 feet high; a good Phormium tenax variegatum, Alocasia Lowii, &c. From Mr. Child came amongst others a very fine plant of the Tasmanian Gleichenia dicarpa, and a very taking lot from Mr. Legg, gr. to S. Ralli, Esq., included a handsome pair of pyramidal Crotons—Weismanni and interruptum, a handsome Geonoma pumila, and grand plants of Dieffenbachia Bausei and Alocasia Lowii. Mr. D. Donald also competed, with a very handsome Cycas circinalis, Croton angustifolium and variegatum, both very fine, a a large Pandanus elegantissimus, &c. In the nurserymen's class Mr. B. S. Williams staged two large Crotons, a very fine Livistonia Cycas, Pandanus, and Gleichenia, all in the best of condition. Miscellaneous contributions in this section consisted of an exceedingly fine group of Dracænas, and a smaller one of Crotons from Mr. Bull; an attractive group of small Palms from Mr. J. H. Ley, Croydon, and a collection of Caladiums from Mr. Clark, gr. to A. Shuker, Esq., Hampstead.

The collection of ORCHIDS brought together was as large and as good in quality as any that has been seen for some time in the South of England, the bank usually devoted to them being very well filled on this occasion. In the amateurs' class for six Mr. Denning, gr. to Lord Londesborough, contributed a fine group, including a beautiful bit of Dendrobium Bensonæ, D. formosum, with fourteen very large flowers; Oncidium Lanceanum, a very strong spike, the flowers on which were particularly large and bright; Lælia purpurata, with three spikes; Aerides crispum Lindleyanum, with two fine spikes; and Anguloa Clowesii, very fine. From Mr. J. Ward, gr. to F. G. Wilkins,

Esq., came, amongst others, a plant of Masdevallia Harryana, with fifteen brightly coloured flowers; Odontoglossum Bluntei, nicely bloomed; Phalænopsis amabilis, with eight spikes, &c. Lycaste aromatica and Vanda suavis were nicely shown by Mr. Childs, and Acineta Humboldtii, with two good spikes, was shown in a group from Mr. R. Ritchie, gr. to R. H. Prance, Esq. In the corresponding class for nurserymen Mr. B. S. Williams showed a grand pan of Cypripedium barbatum superbum, Aerides odoratum majus, with fifteen spikes, gracefully arranged in two tiers; a fine Cattleya Mossiæ, &c. In another class for twelve Mr. Williams contributed a strong and nicely flowered plant of Cypripedium spectabile, Orchis foliosa, with eighteen spikes and prettily coloured; Vanda tricolor insignis, with four nice spikes; Cattleya Mossiæ, large and well flowered; Lælia purpurata, Vanda Batemanni, &c. A contribution to the same class from Messrs. Jackson & Son included a fine and well-flowered Epidendrum crassifolium, and nice plants of the following Aerides:—Lindleyana, odorata, Larpentæ, crispum, and virens Dayana, &c. A specimen of Cattleya lobata, with ten good spikes of nicely-coloured flowers, came with others from Mr. E. Morse, of Epsom. Mr. J. Ward, Mr. G. Wheeler, and Mr. H. Heims, gr. to F. A. Philbrick, Esq., Regent's Park, were the competitors in the amateurs' class for twelve—the first-named having a pretty bit of Dendrobium M'Carthiæ, a remarkably healthy plant of Epidendrum vitellinum majus, with two spikes of brilliant flowers; a good Odontoglossum Bluntii, also a fine Oncidium ampliatum, Masdevallia Harryana, &c. Mr. Heimes had, amongst others, a large and very healthy plant of Aerides odoratum majus, with from twenty-five to thirty spikes, but hardly yet in bloom enough; Stanhopea oculata, with two large spikes; and a small plant of Phalænopsis grandiflora aurea, with seven very fine blooms.

Amongst exotic Ferns, in the amateurs' class, were a grand specimen of Davallia Mooreana, and fine young plants of Dicksonias and Cyatheas from Mr. R. Ritchie, gr. to R. H. Prance, Esq.; a nice example of Adiantum cardiochlæna, &c., from Mr. D. Donald; a very good Acrophorus immersus and nice Adiantum farleyense, &c., from Mr. T. Sheen, gr. to D. E. Brook, Esq., Highgate. Mr. Carr and Mr. Child were also competitors, and Mr. B. S. Williams was the only representative of the nurserymen with a very fine group. Heaths were not so well represented as usual, and as no novelties were introduced we may only state that Mr. Ward was 1st amongst amateurs, and Messrs. Jackson & Son amongst nurserymen. The only collection of herbaceous plants worthy of notice was a group from Mr. R. Parker, which was really a fine display of good things.

Florists' flowers were capitally represented by show and fancy Pelargoniums, and fairly well by Roses and Zonal Pelargoniums. In the class for nine show varieties Mr. Ward again came in 1st, but he was run very close by Mr. James, gr. to W. F. Watson, Esq., Isleworth, whose plants were not so large, but very highly finished. The most perfectly coloured varieties in Mr. Ward's group were Caractacus, Example, Maid of Honour, Prince Leopold, and Conflagratum. Mr. Turner also competed, and superbly beautiful were the colours of such varieties as Charlemagne, Ruth, and Imperator. Mr. James also contributed a nicely finished group to the class for six, in which Mr. G. King, gr. to R. Feen, Esq., Esher, also competed with very creditable examples. The two last-named exhibitors also took the lead with fancies, Mr. James' six plants being in all respects most admirable, while those from his rival were but little inferior. The most striking varieties represented were Ellen Beck, Princess Teck, Acme, Mrs. Graham, Roi des Fantaisies, Lucy, Mrs. Alfred Wigan, and Madame Sainton-Dolby. In the zonal class for six, Mr. G. King far outdistanced the other competitors with a very well-grown lot, which individually measured from 3 to 4 feet over, well clothed with good foliage and nicely bloomed. A specimen of Clipper was most attractive from all points, its brilliant colour showing up well under canvas. The other varieties were—Delightful, white with salmon eye; Le Grand, a dark scarlet nosegay; Rose Rendatler, pink; Gloire de Corbeny, salmon-red; and Mrs. William Paul, pink. The next best came from Mr. Catlin, gr. to Mrs. Lermitte, Finchley, whose hand with these plants seems to have lost its cunning the last few years. Of nine Roses in pots the exhibitors were Messrs. Paul & Son, Cheshunt, who had a very effective group of medium-sized specimens. The same firm also contributed a grand lot of small flowering plants in pots, and a smaller collection came from Messrs. Veitch & Sons, who, with Mr. Turner, were also the contributors of some exceedingly fine cut blooms.

The exhibition of new plants consisted of four splendid groups set up by Messrs. Veitch, Mr. W. Bull, Mr. Williams, and Messrs. E. G. Henderson & Son, and which occupied the four beds in the centre of the tent. In Messrs. Veitch's group we noticed Alsophila hitta, an elegant bipinnate Tree Fern; Asplenium ferulaceum, a Columbian species, with minutely cut fronds, the pinnules of which are deflexed from the secondary rachides; a vigorous-growing New Caledonian Fern named Davallia Youngii, possibly a species of Dennstædtia, with the fronds cut into very fine segments; Dracæna Taylori, a dense-habited broad-leaved form bred between magnifica and Mooreana, and of a deep bronzy hue; Platycerium Willinckii, described and figured by us at p. 303; Anthurium cordifolium, a shining green-leaved species, with the basal lobes rounded and forming an open sinus, the blade itself somewhat elongated; Nepenthes rubra, a dwarf and rare species of Pitcher-plant; Zamia Wallisii, a species in the way of Z. Skinneri, the one leaf having a reddish thorny petiole and a few large lanceolate plaited pinnæ a foot long; the purple-leaved Peach, with dull sanguineous purple leaves; Betula purpurea, also with leaves of a deep dull reddish purple, both these being good shrubbery plants; Begonia Emperor, a very fine orange-scarlet variety of the new bulbous section; and three Gloxinias, namely, Liséré d'Argent, erect-flowered, bright crimson with white edge, very telling; Madame Patti, a very large drooping flowered red, pale at the edge with purple throat; and Marquis of Lorne, a drooping lilac-purple, with the pure white of the throat bordered by purple. In Mr. Bull's group the principal subjects were Kentia Moorei, the true plant, a very elegant stout-growing greenhouse Palm, with drooping dark green leaves; Croton picturatum, a curious and striking form, with the green leaves mottled with yellow and red, and the blade sometimes interrupted, with leafy appendages, sometimes ribbon-like and twisted, 18 inches long; Dracæna rex, a tall strong-growing erect form, with bronzy leaves, and free coppery red variegation; D. triumphans, a tall-growing, narrow-leaved spreading dark purplish form, very distinct; D. rubella, a short pointed-leaved sort, dark green, with broad bright rosy red edge and variegation; Anthurium Scherzerianum album; Sibthorpia europæa variegata, a pretty white-margined variety, adapted for baskets; Lomaria dobroydensis, an elegant fern with bipinnatifid sterile and erect elegantly toothed fertile fronds; Lomaria capensis, a fine pinnate tree-like Fern, in a finely developed condition; and Cibotium Menziesii, a Tree Fern of the Sandwich Islands, with a black scaly stem, and large spreading bipinnate fronds, glaucous beneath. Mr. Williams showed a group of fine things, amongst which Zamia Lindeni, a pinnate species with the pinna serrated near the tip; and Pellæa ornithopus, a dwarf evergreen Fern, with small glaucous pinnules, were the most strikingly novel—Mr. Van Houtte's two Bertolonias which came in the collection, having been already dealt with. In Messrs. E. G. Henderson & Sons' group the most noticeable subjects were Zamia calocoma, an elegant species, with a moderately thick stem, 2 feet high, and pinnate fronds with numerous close-set narrow linear leaflets; Dracæna Princess of Wales, a distinct-looking, slender, narrow-leaved sort, the leaves being recurved, the older ones green, and the young strongly marked with a blended creamy-red variegation; Sedum californicum, a rosulate-growing species, bearing some resemblance to Saxifraga rosularis, the flowering stems about 6 inches high, and bearing bright yellow flowers; and Saxifraga notata, a small compact-growing rosulate species, with oblong-toothed leaves. All the above received the Certificates awarded by this Society for novelties. The respective groups, moreover, comprised many other interesting subjects which we have not space to notice, amongst them an interesting group of Echeverias from Messrs. Henderson, the best of which had been previously certificated, as was the case also with several of the so-called novelties shown in the other groups. Some very promising Dracænas in Messrs. Veitch's group needed further development; indeed, these plants are becoming so numerous through hybridisation, that it is necessary to be rather chary before commending a new kind.

Amongst the seedling florists' flowers some Certificates were given to several Pelargoniums from Mr. C. Turner and others, the names of which appear in the advertised list in another column. They were flowers of good quality, fairly up to the usual mark of excellence, distinct, but not exhibiting any striking novelty of character. A Rose, shown by Messrs. Paul & Son, appropriately named Sultan of Zanzibar, in commemoration of his Highness's visit to the show, was remarkable for its high colour, a dark crimson, flashing with brighter crimson, but not over large. The new double-flowered Ivy-leaved Pelargonium, König Albert, with double lilac flowers, shown by Mr. Bull, seems to be a break in the right direction.

Royal Horticultural: *June* 16.—The Hon. and Rev. J. T. Boscawen in the chair. The Rev. M. J. Berkeley announced the awards made by the Fruit and Floral Committees, and expressed his regret that there were so few practical men present (there being only fourteen persons, including members of Council, in the room when the meeting began), as he had some important observations to make with reference to a new form of Potato disease which at present seems to be confined to the American varieties only; and concerning which he should have been glad of the opinions of growers. In the gardens at Chiswick the American varieties, and especially the Early Rose, were sadly affected with some form of disease communicated from the tuber to the haulm. He had only been able to make a superficial examination at present, but he thought it might prove analogous to the "curl," a disease well known to the writers of old works on agriculture, but which has not been seen in England for many years past. [See report of Scientific Committee below.]

Mr. Alexander Dean attributed the disease in the haulm, to which Mr. Berkeley had referred, to the fact that owing to the drought of last season there was existing in the seed tubers much dormant disease that had not during the winter developed into rot, as was usually the case. These tubers when planted, although apparently sound, had yet, when they came in contact with the moist earth, developed disease—had, in fact, rotted, hence the immature haulm. In all cases where the seed tubers were cut they were quite rotten, and, in the case of whole tubers found under the diseased haulm, they would be found firm, but would prove to be diseased when cut. The appearance of this disease in the American kinds more than in the English ones he attributed to the fact that the American varieties produced large tubers, which have to be cut before planting, hence the greater mortality amongst them. If this was a new disease he could assert that English kinds were not quite free from it, and it was desirable to have further information about it before any stamping-out measures were resorted to.

Scientific Committee.—Andrew Murray, Esq., in the chair.

Conophallus bulbifer.—The Rev. M. J. Berkeley exhibited the spadix of this plant, which he had raised among some tubers received from India. In Burmah the stalk of this or some allied species was eaten in place of Asparagus.

Diseased Potatos.—A letter was read from the Hon. Secretary of the Wiltshire Horticultural Society relating to some diseased Potatos, upon which Mr. Berkeley remarked that he had recently found the American varieties at Chiswick, especially the Early Rose, dreadfully affected with disease, communicated from the tuber to the haulm. Mr. Berkeley had hitherto been only able to make a superficial examination, but he suggested that possibly the disease in question was analogous to the "curl," a disease well-known many years ago, but since then not noticed. He had found in the cells of the leaf an obscure fungoid organism—a species of Protomyces. Mr. Berkeley promised to give a further report on another occasion. Dr. Masters observed that he had noticed the same disease affecting one particular plot of Potatos growing among others in a field by the sea near Folkestone. It was suggested, moreover, that Mr. Barron be requested to report on the subject.

Paraguay Tea.—Mr. Bateman exhibited a package of the Paraguay Tea, Ilex paraguaensis, together with the gourd and strainer used by the natives in the preparation of this Tea, as figured in Hooker's *Journal of Botany* many years since.

Peach Blister.—Mr. W. G. Smith exhibited a beautiful coloured drawing of the mould which is associated with the Peach blister. The mould (Ascomyces deformans) is apparently entirely superficial, although the tissue of the leaf is much thickened and the cells altered in shape. The fungus was clearly ascophorous, but Mr. Berkeley suggested that the same fungus might produce basidia.

Rust on Pear Leaves.—Mr. Murray exhibited leaves affected with Rœstelia cancellata, the rust of which is stated to be a stage of the orange gelatinous fungus occasionally found on the Savin (Podisoma). The only remedy is to pick the leaves off and burn them.

An Undesirable Root-pruner, &c.—Dr. Masters exhibited on the part of the Rev. H. N. Ellacombe a portion of the root of an Apple nearly gnawn through by the Water Vole, as already alluded to in these columns. Dr. Masters also showed Cheiranthus Cheiri var. gynantherus, an old and curious variety, to show that the peculiarity was reproduced from seed.

Trap-door Spider.—Dr. Hooker sent for exhibition the nest of a trap-door spider, found in the bark of a tree at Uitenhage, Port Elizabeth, South Africa, where it was obtained by Mr. Bidwell, a member of the Legislative Assembly of Cape Town. The nest and the lid were so nearly like the bark itself, that it was with difficulty the lid could be seen, and it was with some difficulty that the lid could be raised, as the insect was still within the nest. Mr. Murray suggested that the spider had taken possession of the empty cocoon of a moth (Bombyx), and had woven a lid to it with silk and fragments of bark.

Larch Disease.—A letter was read from Dr. Cooke calling attention to some remarks of his in *Grevillea*, iii., p. 136, in which a similar conclusion as to Corticium amorphum was arrived at to that expressed by Mr. Berkeley at the last meeting.

Fruit Committee. — Henry Webb, Esq., in the chair. From T. Laxton, Esq , Stamford, came examples of a seedling Strawberry named Pioneer, of fine size and colour, and in shape like a pincushion. Mr. Laxton also sent several clusters that the committee might taste them, and it was seen that only the first fruit of these clusters came of a pincushion shape, all the others being conical, and the committee were of opinion that there were already better varieties of that form in cultivation. Mr. Laxton also sent a promising seedling Pea, named Dr. Hogg, slightly curved, about 4 inches long, and of a dark green colour, the pods being fairly well filled. The committee would not pass any opinion upon it without tasting them boiled, and for that there was not enough, so that it will probably be grown at Chiswick.

Floral Committee.—Dr. Denny in the chair. The counter-attraction at Regent's Park drew away all but a mere handful of things from this meeting, and it was consequently of insignificant proportions. First-class Certificates were awarded to Messrs. James Veitch & Sons for Adiantum Henderson, a very graceful Fern ; and for Begonia Emperor, a very fine novelty, distinguished by its large flowers, great breadth of petals, and bright vermilion colour ; to Thomas Laxton, Esq., Stamford, for a double white or blush white Zonal Pelargonium named Wilfrid ; and to Messrs. Cripps & Sons, for Clematis Grand Duchess, white, delicately tinted with pink, a large flower, but wanting in the breadth of the sepals which distinguishes the more recent introductions in this class, and poor beside Alba Magna. Cut flowers of Crinum amabile came from Mr. Ross, gr. to C. Eyre, Esq. ; and from the Society's garden at Chiswick came several small but well-flowered plants of the fine scarlet Scutellaria Mocciniana. Messrs. James Carter & Co. showed a Coleus named The Mandarin, with large deeply cut leaves of a chocolate-red colour margined with yellow. Mr. R. Dean, Ealing, sent bedding Pansy Othello, almost black, of fine form and not over large, with a neat habit ; a small plant of Primula Scotica, a pretty little species, with violet-mauve coloured flowers ; and cut flowers of a fine strain of Canterbury Bells.

Bitterne and West End Horticultural: *June* 9.—This annual exhibition, which may be said to take the form of a village fête, was held in the pretty grounds of Brownlow, Bitterne, the residence of J. J. P. Hoare, Esq. Not the least interesting of the features belonging to this show is that the wealthy supporters of it give the use of the grounds in turn for the show, and among the class of society resident in the district the exhibition takes the form of a social reunion, and it is the invariable rule for a *recherché* luncheon to be laid out in a tent provided by the host for the entertainment of his visitors. The annual exhibition is supported with great cordiality by all classes, and the children of the neighbouring schools are invited to share in the floral festival.

The leading feature was the spirited competition in the class for a group of nine plants, Mr. Cox, gr. to Lady Glass, being 1st with well-grown examples of Caladium esculentum, a large cone-shaped specimen of Panicum variegatum in fine condition, Dracæna terminalis versicolor, Dieffenbachia Bowmani, Anthurium magnificum, Begonia nitida, &c. Captain Andrew, R.N., was 2d, having nice examples of the following Ferns :—Cyathea princeps, Croton variegatum, Thamnopteris australasica, Dicksonia antarctica, Dracæna terminalis, &c. Mr. Blandford, gr. to Mrs. Hazeefoot, and Mr. Smith, gr. to B. Ayre, Esq., were equal 3d, having nice groups of foliage and flowering plants combined. Mr. Blandford was the only exhibitor of six stove and greenhouse plants in flower, having well-grown and flowered examples of Clerodendron Balfourianum, Bougainvillea glabra, Stephanotis floribunda, Dendrobium nobile, extra fine ; Rhynchospermum jasminoides, and an Azalea. Mr. Blandford had the best six Ferns : very nice examples indeed of Adiantum macrophyllum, A. cuneatum, A. pedatum, and Pteris cretica albo-lineata, very clean and finely marked, were among them. A capital group of hardy Ferns was staged by Mr. Smith, gr. to B. Ayre, Esq.

Fuchsias, handsomely grown pyramid plants, were nicely shown by Mr. Blandford, and consisted of Cremorne, Wiltshire Lass, Wave of Life—the well coloured golden leaves contrasting well with the dark flowers, marginata, Rose of Castile, and striata perfecta, white tube and sepals and red corolla, which is distinctly striped with white.

Show Pelargoniums were nicely done by Mr. Blandford and Mr. Cox, who were placed equal 1st with six plants. The former had Pliny, Fair Ellen, Adam Bede, Rose Celestial, Eugène Duval, and La France. Mr. Cox's leading plants were William Bull, finely coloured ; Adam Bede, and Bridesmaid. Mr. Cummings, gr. to J. J. P. Hoare, Esq., had a capital collection of variegated Zonal Pelargoniums, even in size, well grown, and nicely coloured, consisting of Prince Silverwings, Italia Unita, Mrs. Turner, Beauty, Princess Beatrice, Minnie, Lady Cullum, Empress Eugénie, and Mrs. John Clutton. Mr. Blandford, who was placed 2d, had nice examples of Fascination, Mrs. Turner, Princess of Wales, Lass o' Gowrie, and Louisa Smith.

Mr. Smith was the only exhibitor of six double Petunias, six herbaceous Calceolarias, six Gloxinias, and six Achimenes, all well grown, and deserving a place in any London show. The best specimen plant was a capital Dendrobium nobile, from Mr. Blandford.

There is always a spirited competition for twelve cut Roses, and some of the amateur cultivators do this flower remarkably well round Bitterne. Mr. Alfred Jackson, the champion cultivator, was again 1st, having fine blooms of Maurice Bernardin, Madame Bernardin, John Hopper, Lamarque—very fine ; Gloire de Bordeaux, Maréchal Niel, Madame Moreau, Climbing Devoniensis, Exposition de Brie, Céline Forestier—very fine and full ; Général Jacqueminot, and Charles Lefebvre. Mr. Blandford and Mr. Smith were placed equal 2d, their best flowers being Maréchal Niel, La France, Gloire de Dijon, Charles Lefebvre, Marquis de Castellane, and Madame Willermoz.

A large number of prizes are given to cottagers for flowers, fruit, and vegetables ; and the children of the various schools are encouraged to make up nosegays of flowers, both from the gardens and hedges, and the results, on the whole, are quite satisfactory.

Some excellent Vines, in pots, of Black Hamburgh and Buckland Sweetwater, bearing ripe fruit, and trained to umbrella-shaped wire frames, were shown by Mr. Amy, gr. to G. H. Sheriff, Esq., Netley Castle, propagated from eyes put in in January, 1874. Some good Strawberries, in pots, came from the same exhibitor. Some fruit was staged, and very good collections of vegetables.

The only exhibitor of a group of twenty-four plants in the nurserymen's class was Mr. J. Kingsbury, Bevois Valley, Southampton ; and he also staged some new Zonal and Hybrid Nosegay Pelargoniums of his own raising, including Exquisite, very fine orange-crimson. A double white Fuchsia named Kingsburyana is very fine and showy. A strikingly variegated Petunia, the leaves broadly margined with pale yellow, was an attractive object.

Linnean Society.—Dr. Allman, F.R.S., President, in the chair.

Professor Thiselton Dyer exhibited, on the part of Mr. Archer of Dublin, specimens of Stephanosphæra, an Alga allied to Volvox, and having a similar gyratory motion. The specimens were remarkable from the extreme rarity of the species, which is found in one small pool at Bray Head, and nowhere else in Britain.

Mr. Miers communicated an elaborate paper on the Barringtoniaceæ, which will probably appear in the Society's *Transactions*.

Dr. Trimen exhibited specimens of two species or varieties new to Britain, viz., Zannichellia polycarpa, found in the Orkneys and by most botanists considered to be a variety of Z. palustris, and Carex ornithopoda.

Mr. Moore exhibited specimens of a species of Hibiscus with laciniated petals, found in south-east Tropical Africa by Dr. Kirk, and which Professor Oliver suggested might possibly be the wild form of H. rosa sinensis, which is only known in a cultivated state in India and China. Dr. Masters doubted whether the specimen could be considered a normal one, and thought it more probable it was an accidental monstrosity. He commented on the interesting relation exhibited by the laciniated petals and the branched stamens.

Dr. Gilbert read a paper on Fairy Rings, which naturally occur on poor pasture land and are usually driven out by manures. Fungi, as a class, are remarkable for the relatively large quantities of nitrogen they contain ; but in the experimental plots at Rothamsted, fairy rings occur especially on those plots which are the poorest in nitrogen and potash. An interesting correspondence was thus manifested between these fungi and leguminous plants in general, which though also containing a large proportion of nitrogen are by no means specially benefited by the application of nitrogenous manures. Seeing that the fungi are also not benefited by nitrogenous manures, though containing so much nitrogen, it becomes a most important question to ascertain from what sources they derive their nitrogen, whether from the air, the soil, or from other plants on which they may be parasitic. In other words, are the manurial conditions favourable to the growth of the fungi, or are these plants better able to hold their own, under the circumstances, than are the grasses and other plants, or have the fungi the power of assimilating nitrogen from the air or from the soil ?

An interesting discussion followed, in the course of which Professor Dyer spoke of the different ways in which fungi procured their food ; and Dr. Masters called attention to the different conditions under which Mushrooms were grown by the gardener, who always supplied large quantities of nitrogenous manure. Seeing what great differences sometimes existed between two nearly allied grasses as to their nutrition, he considered it highly probable that similar differences occurred among different species of fungi.

Florists' Flowers.

Carnations, Pinks, &c.—We are in danger of being bewildered amongst the many beautiful varieties now in cultivation of some of our choice florist flowers. In fact, when we come to examine the lists published annually by nurserymen, we are confused and unable to choose out of the hundreds of names of heroes, statesmen, public singers, botanists, clergymen, and lots of others, given to our favourite Carnations, Pansies, Roses, &c. Many botanical authors of the lumping school have long decried the splitting up of the Rubi, Roses, and Willows of even our limited British flora ; but this is nothing when compared with floral varieties. However, there are those, especially amateur cultivators, whose opinion is far more to be relied upon than that of nurserymen, because it is unbiassed. If our friends would come out and help us to riddle these lists of the worthless varieties, and tell us from actual observation and experience which specimens they have proved to be valuable, and worthy of a nook in the garden border, they would do immense surface, as well as perform an act of kindness. For my own part, having paid close attention, during the past few seasons, to Carnations, Picotees, and Pinks, not only in my limited collection, but to those of several large nurseries and cultivators of these novelties, I can honestly recommend your readers who are about to purchase their spring plants to secure the following varieties, which are in their way really first-class, excellent, and distinct in colour, &c., from all others. If the florist will supply them true to name, no purchaser will be disappointed.

Pinks.

Elcho, Lady Craven, John Ball, Shirley Hibberd, Perfection, G. Jeans, Agnes, and Mrs. McLean.

Picotees.

Bright red edge : Miss Turner, W. Summers, Ada Mary.
Dark red edge : John Smith, Lord Valentine.
Light purple edge : Mary, Princess of Wales, National.
Light-edge rose : Mrs. Fisher, Maid of Clifton, Rosy Circle.
Dark rose edge : Flower of the Day, Scarlet Queen.
Dark purple edge : Mrs. Summers, Admiration, Picco.
Perpetual flowering vars.: Prince of Orange, Ascot Yellow.

Carnations.

Rose flakes : John Kiel, Queen Boadicea, Lovely Ann.
Purple flakes : Squire Meynell, Dr. Foster, True Blue.
Scarlet flakes : Annihilator, William Cowper, Sly.
Scarlet bizarres : Dreadnought, John Norman.
Pink bizarres : Falconbride, Captivation, Purity, Fanny.
Crimson bizarres : Eccentric Jack, Warrior, Earl of Zetland, Colonel North, Lamplighter. *R.*

Law Notes.

Action for Damage done by Fowls to a Garden.—At the Bloomsbury County Court on Thursday last, before the presiding Judge, G. Lake Russell, Esq., the case of Beaman *v.* Cummings was heard, in which the plaintiff, described as a gentleman fond of floricultural pursuits, and residing at 53, Lawford Road, Kentish Town, sued the defendant, residing at No. 55 in the same road, for damage done to the flowers in the plaintiff's garden by the trespass of the defendant's poultry, and for money paid by the plaintiff in respect of the following particulars—namely, $5\frac{3}{4}$ dozen of choice Carnations, costing £2 6*s.*, and 18*s.* for damage done to the plaintiff's garden, and for the gardener's time in replacing the same. Mr. Charles Williams appeared as solicitor for the plaintiff, and Mr. Wright for the defence. The plaintiff being called, stated he took great pride in his garden, which was continually invaded by the defendant's fowls, and he had frequently warned the defendant to restrain his fowls, but as he (the defendant) had taken no heed of the plaintiff's remonstrances, the present action was brought.

The plaintiff's gardener was called, who proved that the damage sued for was done, and the amounts charged were fair and reasonable ; he further stated that as many as twenty of the defendant's fowls overran the plaintiff's garden, that he had many times repaired the damage done by them, and that it was quite impossible to keep the garden in proper order.

Mr. Wright, called the defendant, who said every precaution had been used by him to restrain his fowls, but even if any damage had been done, 8*d.* each for a common flower like a Carnation was a preposterous price.

The learned Judge thought that this was not so, and was of opinion that, as the defendant had not pro-

perly restrained his poultry from committing depredations, he must pay for the damage done.

Judgment was accordingly given for the full amount claimed, with costs of attorney and one witness.

The Villa Garden.

FRUIT TREES: WATERING, MULCHING, AND SYRINGING.—Some attention to these is now absolutely necessary if the Villa gardener would have well-matured and ripened crops of fruit; and, secondly, his trees prepared to ensure productiveness another year. Fruit trees require constant attention at this season, and on the discharge of these attentions depends much of the perfection of the fruit crop. And now for a few simple yet very necessary directions. First, are the wall trees—Peaches, Nectarines, Apricots, Plums, Cherries, Pears, &c.—showing signs of suffering from the continuance of the dry weather? The symptoms are soon apparent: the leaves curl and get a yellow tint, the points of the shoots are brown, and they seem incapable of putting forth an effort, and the trees get a general languid appearance, as if exhausted after some severe exertion. We are daily observing trees getting into this state, where they are planted in a gravelly soil, and it is thought it is all owing to blight, little dreaming it arises from want of moisture at the roots. When soils are poor and sandy that most-to-be-abhorred pest the red-spider is likely to attack fruit trees, and if it once gets the upper hand the results are pitiable.

Where the drought is felt, let a trench some 4 inches or so in depth be opened round the stem of the tree, drawing the soil back and placing it round the opening so as to form the earthworks of a bay. Then pour in plenty of water, thoroughly saturating the roots. If the family washing be done at home, secure all the warm soap-suds for this purpose, and use them also for syringing the trees. At all events syringe plentifully and frequently during drought. Having poured a good supply of water into the trench, fill it in with a layer of manure, and pour water on it occasionally as long as the dry weather lasts. Thorough root waterings and the free use of the syringe soon effect a renewal of the health of the trees, but an attentive and thoughtful gardener will not suffer his wall trees to get harm through dryness at the roots. Our wall trees are all in a stiff clayey loam, in which they have rooted deeply, and in the driest weather they do not suffer, but we syringe freely at this time of year, and the surface roots thereby become nicely moistened.

We invariably syringe our trees of a morning, and that for the main reason that if done at night it induces the snails to visit and cluster about the trees, and they are then very apt to commence eating the fruit when swelling into size. Where there is much undergrowth about the trees snails will congregate, and when a shower falls they get into motion and make for the walls, and by examining the trees at that time a good many are captured. Water and mulch the trees at the roots, and syringe the branches occasionally when the weather is dry, and healthy trees can hardly fail to be obtained.

SUMMER PRUNING: STOPPING AND THINNING.—The common error of setting to work and cutting out almost every young shoot made by a Peach, Nectarine or Apricot tree, on the ground that there is already enough wood in it, is one to be avoided. It is an error too frequently committed by inexperienced gardeners, who are under the impression that if the young wood be left on the tree the fruit must suffer. A good cultivator husbands the resources of his tree, but this plan is like calling on them almost beyond their capacities. Don't be afraid that, because a healthy young growth is distributed on the tree, that therefore the fruit cannot be matured. The renewal of a tree, *i.e.*, the laying in of the young wood that shall bear bud and blossom for another year, is a most important matter, and it is done during the summer months. The thing to be done is to lay in certain of the shoots, either to fill up bare spaces, if any exist, or to take the place of spent wood that should be cut away at pruning time next winter, and it should be laid in by fastening it to the wall with a nail and shred or by means of a tie made to a nail in the wall, or by fastening the shoots to wires if provided. Sometimes the main trunk of a tree, as well as its leading branches, will send out strong gross shoots, but unless required to form a branch they should be cut away. The young wood to be retained is that of a moderate wiry growth; from such fruit may be looked for another year. All the shoots not required for laying in should be quite removed, cutting them away close to the base. This allows the air to circulate among the trees; it assists in the development of the fruit crop, and aids the ripening of the fruit-bearing wood for the following year. A lesson or two from a neighbouring gardener—and we have always found them ready and willing to assist and instruct the inexperienced—is of great value at this time; it is of more practical utility than the laying down of the simplest rules.

Thinning out the fruit is so important a matter when the crop is numerous, that its contemplation as a duty carries a pang to the heart of many a Villa Gardener. Naturally enough he wants all the fruit he can get, and he is very loth to thin it out. He has our warmest sympathies, but he must be taught. One of our cleverest fruit gardeners, Mr. William Wildsmith, of Heckfield Gardens, writing on this subject, says:—"Apricots, Peaches, and Nectarines, should now be finally thinned; were this always completed before stoning commenced there would be fewer complaints of fruit droppings at the stoning period. It is the excessive demand for nourishment made on the trees by the fruit at this critical period that causes it to drop. Hence the importance of thinning. It is, therefore, best by judicious thinning to ensure a crop, rather than, by leaving a large number, peril the chances of having any at all. Young trees must not be overcropped; older vigorous trees can carry more." Some one once laid down the rule that each fruit should have a space of at least six square inches on a tree, and let it be remembered that it is always best to have some fruit of large size and fine quality than a larger number of less attractive produce, smaller in size, and lacking quality.

PYRAMID AND BUSH FRUIT TREES.—At this time of the year these also require attention, especially as it has come to be a recognised fact among gardeners that in the matter of hardy fruits, such as Apples, Pears, Plums, and Cherries, summer pinching is preferable to winter pruning. Our trees are now making a vigorous growth, and we allow all shoots required to extend the tree in size and shape to remain, but all others are pinched back to two and three eyes. The swelling of the fruit is thereby assisted, while a free circulation of air among the trees is promoted. As our trees make vigorous growth, being in good, deep, holding soil, we do not water at the roots; but when trees are planted in shallow gravelly soils they should be mulched and watered both. In early morning we occasionally sprinkle overhead, and insects are looked for and summarily destroyed. Hawthornden, Warner's King, Orange Pippin, Cellini Pippin, and other Apples are promising to be very fine on pyramids this season.

CUTTING BED.—This is a most useful agency in a garden, and it is one that can be set up in any odd corner and turned to valuable account. We have now in use a bed of oblong shape, the framework made of old boards, about 6 or 7 inches in depth. At the bottom is a good layer of brick rubbish, over that a layer of Laurel branches, obtained in the course of thinning out a Laurel hedge, and on these a layer of pieces of thin turf, and on the turf at least 2 inches of a good light sandy soil. We find this very useful for striking cuttings of Pansies, Violas, double Rockets, Cheiranthus Marshallii, Pink pipings, &c. There are many things in a garden that it is desirable to propagate, and cuttings put in pots and pans seldom do so well as those pricked out in a bed such as that described when set up in a cool shady spot. In a bed of this character we find Pinks, Carnations, and Picotee cuttings strike readily, and a good supply of young plants can be thereby obtained.

The Weather.

DURING the week ending Saturday, June 12, in the suburbs of London, the reading of the barometer at the sea level the sea decreased from 29.98 inches at the beginning of the week to 29.93 inches by the morning of the 6th, increased to 30.20 inches by the morning of the 8th, decreased to 29.63 inches by the morning of the 11th, increased to 29.75 inches by the evening of the same day, decreased to 29.66 inches by the afternoon of the 12th, and was 29.76 inches at the end of the week. The mean reading for the week was 29.88 inches, being 0.14 inch less than that of the preceding week.

The highest temperatures of the air at 4 feet above the ground varied from 77¼° on the 9th to 58½° on the 12th, with a mean value for the week of 69°. The lowest temperatures of the air ranged between 55¾° on the 8th and 47¾° on the 12th, the mean for the week being 52½°. The mean daily range of temperature in the week was 16½°, varying from 23½° on the 9th to 10½° on the 12th. The mean daily temperatures of the air and the departures from their respective averages were as follows:—6th, 61°.2, +3°.7; 7th, 61°.1, +3°.5; 8th, 63°.8, +6°.1; 9th, 62°.6, +4°.7 10th, 58°.1, 0.0; 11th, 52°.3, —6°; 12th, 51°.4, —7°.1. The mean temperature for the week was 58°.6, being 0.7 above the average as deduced from sixty years' observations.

The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in sun's rays, were 140° and 143½° on the 6th and 9th; on the 7th 90° was the highest reading. The lowest readings of a thermometer on grass, with its bulb exposed to the sky, were 44° and 40½° respectively on the 10th and 11th; on the 8th 50½° was the lowest reading. The mean for the seven low readings was 46½°.

The direction of the wind was W.S.W., and its strength brisk.

The weather during the week was fine, but showery. A strong gale on the 11th. Distant thunder heard on the afternoon of Wednesday, June 9.

Rain fell on three days, the amount measured was 1.15 inch.

In England, for the week ending June 12, the extreme high temperatures observed by day ranged from 78¼° at Cambridge to 66° at Newcastle-on-Tyne, the general average over the country being 73¼°. The extreme low temperatures observed by night varied between 49° at Truro and 43° at Newcastle-on-Tyne, the general average being 45½°. The mean of the extreme ranges of temperature in the week was 27¾°, the greatest range being 34°, at Cambridge, and the least, 19°, at Truro. The mean high day temperatures ranged between 72½° at Cambridge and 62½° at Newcastle-on-Tyne, with a general average of 67°. The mean low night temperatures varied from 53½° at Truro to 48¾° at Eccles and Cambridge, with an average value of 50½°. The mean daily range of temperature in the week was 16½°, the greatest range being at Cambridge, 23½°, and the least at Truro, 11°. The mean temperature of the air for the week was 57°, being 1½° higher than the value for the corresponding week in 1874; the highest was 59°, at Blackheath, and the lowest 54½°, at Liverpool and Newcastle-on-Tyne. Rain fell on five days in the week at most stations; the amounts varied from one inch and six-tenths at Eccles to three-tenths of an inch at Norwich and Hull; the average fall over the country was nine-tenths of an inch nearly.

The weather during the week was fine, though cloudy and showery. Thunderstorms occurred generally over the country on June 9.

In Scotland the highest temperatures ranged from 69½° at Aberdeen to 61° at Greenock, the general average over the country was 64¾°. The lowest temperatures varied between 45° at Greenock and Paisley, and 40° at Aberdeen, the general average being 43½°. The mean range of temperature in the week was 21½°. The mean temperature of the air was 54½°, being half a degree above the value for the corresponding week in 1874; the highest happened at Dundee, 55½°, and the lowest at Paisley, 53½°. The fall of rain varied from one inch and four-tenths at Dundee, to four-tenths of an inch at Paisley and Leith; the average fall over the country was seven-tenths of an inch.

At Dublin the highest temperature was 72½°, the lowest 41½°, the mean 57°; and the rainfall one-thirteenth of an inch.

STATE OF THE WEATHER AT BLACKHEATH, LONDON
FOR THE WEEK ENDING WEDNESDAY, JUNE 16, 1875.

MONTH AND DAY.	BAROMETER. Mean Reading Reduced to 32° Fahr.	BAROMETER. Departure from Average of 18 Years.	TEMPERATURE OF THE AIR. Highest.	TEMPERATURE OF THE AIR. Lowest.	TEMPERATURE OF THE AIR. Range.	TEMPERATURE OF THE AIR. Mean for Day.	TEMPERATURE OF THE AIR. Departure of Mean from Average of 60 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Degree of Humidity. Sat. = 100.	WIND. Average Direction.	RAINFALL.
	In.	In.	°	°	°	°	°	°			In.
June 10	29.52	—0.27	67.0	53.0	14.0	58.1	— 0.0	46.5	66	SSW: S.W.	0.00
11	29.49	—0.31	62.2	48.0	14.2	52.3	— 6.0	45.6	78	S.W.: S.S.W.	0.53
12	29.51	—0.28	58.4	47.8	10.6	51.4	— 7.1	48.0	88	WSW: S.W.	0.59
13	29.56	—0.23	61.2	47.9	13.3	53.4	— 5.3	49.8	88	S.S.W.: S.	0.10
14	29.41	—0.38	64.0	53.6	10.4	57.3	— 1.6	51.8	82	WSW: S.S.W.	0.01
15	29.29	—0.49	62.8	50.4	12.4	55.3	— 3.7	45.0	68	WSW: S.W.	0.14
16	29.44	—0.34	63.7	50.7	13.0	55.3	— 3.8	47.7	76	S.S.W.: S.W.	0.07
Mean	29.46	—0.33	62.8	50.2	12.6	54.7	— 3.9	47.8	78	S.S.W.: S.W.	sum 1.44

June 10.—A fine day. Strong wind. Thin rain at night.
— 11.—Fine, frequent heavy showers throughout. Gale of wind.
— 12.—Fine, cloudy, and occasional heavy rain.
— 13.—Fine in early morning. Overcast, dull, and rain fell throughout afterwards.
— 14.—A dull day, fine at times. A little rain fell in the morning.
— 15.—A fine dull day, frequent showers of rain in morning. Strong wind all day.
— 16.—A fine day; showery in morning. Cloudless at night.

JAMES GLAISHER.

Garden Operations.

(For the Ensuing Fortnight.)

PLANT HOUSES.

Plant Stove.—The old *Euphorbia splendens*, that used to be met with in almost every plant stove, is now rarely seen; yet a more useful subject for a private establishment where button-hole flowers are constantly required does not exist. Large specimens of this Euphorbia are never out of bloom all the year round when kept in a growing temperature. The flowers are naturally so durable that they will last in water when cut for a week in the dry atmosphere of a room. Its stout leathery texture, peculiar form, and intense colour make it most useful for mixing with white or light-coloured flowers. It is a plant of the easiest possible growth, and does not need a great deal of root-room; a 15-inch pot is big enough for a large specimen. It does well on a back wall, for which it makes a suitable covering, occupying little space, and not being much subject to insects. If moderate-sized plants are procured, and, if they require it, potted on, they will soon make useful specimens, flowering continuously whilst any growth is being made, and which will go on all the year round if in heat sufficient without in any way injuring the plants, provided they get plenty of light. They do not require any shade. *Eranthemum pulchellum.*—This winter-flowering subject is the most useful grown from cuttings struck each spring. Plants now in 5 or 6-inch pots should at once be removed to others a couple of sizes larger; stop the points to induce a bushy habit, and give them plenty of air.

Gardenias that have done flowering may be cut close back; few things are more liable to the attacks of mealy-bug and scale. After cutting back is the best time for thoroughly cleasing any that have been affected, as when devoid of leaves the stools will stand dressing with insecticide sufficiently strong to destroy these pests. For bug, wash with Abyssinian Mixture at 6 oz. to the gallon; if the application is thorough, neither insects nor eggs will escape; if they are only troubled with brown scale, Fowler's Insecticide at 5 oz. to the gallon applied at a temperature of 95° will clear them. Return the plants to the stove, and as soon as they have broken shake half the old soil from the roots, which reduce a little, and place in pots 2 inches larger. Young plants that have been struck this spring should be well attended to in giving them the requisite pot-room, and maintaining a genial growing temperature. Where these are struck each spring, and thoroughly well done all through the season, they are preferable to old ones, but where there is not the necessary heat kept up to get them on, the old plants should not be destroyed. *G. intermedia* is the most useful variety for cutting, not producing such large flowers as *G. Fortunei*, but being more manageable in size. The small growing citron-scented variety, *G. citriodora*, bears blossoms which are very useful for mounting for bouquets similarly to orange-blossom; the plant is easily grown, and does not occupy much room, requiring similar treatment to *G. intermedia*. This is a comparatively slow-growing species, and will be years before it gets too large; after flowering shorten the shoots back a little and repot, getting as much of the old soil away as can be done without disturbing the roots too much.

Bougainvilleas that have completed their flowering should be now cut back, removing at the same time 4 or 5 inches of the surface soil without interfering with the roots more than unavoidable, and replacing it with new, to which has been added one-third of rotten dung; return the plants to the stove, and when the roots have begun to move freely give manure-water. *Stephanotis* that are grown permanently on the roof, and have finished flowering, should so far as required be cut back to the extent necessary. To carry this will depend upon the size of the plants, and the more or less vigorous condition they are in, bearing in mind that whatever cutting in is required through the year, should be done after flowering before growth commences. Plants of this fragrant climber that have been run on the roof whilst growing and afterwards trained upon trellises to flower, should after blooming be placed where the young growth as it is formed can be run upon strings close to the glass; this, being a light-loving subject, cannot be depended upon to flower freely unless its growth is made under conditions favourable to being thoroughly solidified as it progresses. If this solidification does not take place no amount of drying-up or punishing the plant can be relied upon as certain to induce the requisite quantity of flower. Specimen plants of *Medinilla magnifica* that have bloomed and are as large as it is desirable to grow them, should be shortened back, and as soon as they have broken turned out of the pots, a third or so of the old soil removed and then replaced in the same pots, or others a size larger. It is necessary to perform this partial shaking out operation before the young growth has made much progress, or much of it will be stopped from advancing further. *T. Baines.*

FLOWER GARDEN, &c.

Greenhouse Hard-wooded Plants.—If, as often happens, a considerable time is allowed to elapse after flowering before *Acrophyllums* are prevented seeding, their ability to make growth for the ensuing year is so far impaired that it is reduced to not more than half the wonted amount; but this plant requires especial treatment in this matter, so as to be careful that no injury is done to the points of the shoots that grow through the whorls of flowers that encircle the preceding year's growth, for if these are injured the plant is very reluctant to break back from below where the flowers have been produced, the ripe wood being almost as hard as whalebone. As will be evident from this, *Acrophyllums* will not bear cutting back in the least, unless in the case of such as have thrown up a quantity of strong young shoots from the collar. When this occurs, if the plants happen to have become thin and straggling in the old wood, it may be removed, and the young bottom shoots will then form a plant. *Clianthus puniceus.*—This remarkably distinct and fine old decorative subject, so useful for conservatory decoration, grown either bush-fashion or to clothe a pillar or wall, would appear to be fast lapsing into the limbo of undeservedly neglected plants without any assignable reason, except that it is liable to the attacks of red-spider. To prevent this a diligent look-out should be kept from the time the weather becomes warm. With this, as with all similar company, prevention is preferable to cure. Copious applications of water with the syringe, both over and under the leaves, will keep the plants clean. Where this Clianthus is planted out in a narrow confined space, or has been long without the soil being renewed, frequent applications of manure-water will promote a free growth—a condition that goes far to discourage this pest. The beautiful *C. Dampieri*, that so well deserves a place in the most select company, will not, even when too much confined at the roots, bear repotting after it has attained any considerable size, it being one of the plants that should be managed on the one-shift system; but where it is suffering through insufficient nutriment in too small pots the deficiency must be made up by watering it altogether with clear weak liquid manure. *Fuchsias* that have flowered early are liable to get exhausted and shabby in their foliage. If plants in this condition are placed out-of-doors for a month, in a sheltered situation, the flowers and seed-pods picked off, and the wood when it has got a little hardened is shortened one-third, and after the shoots have broken back they are moved into pots 2 or 3 inches larger in good rich soil and then taken indoors, they will again flower through the autumn as late as required. Spring-struck cuttings of these plants intended for late display are difficult to keep in a condition of free growth after the sun gets powerful, as the heat imparts to them a greater disposition for making flower than wood. Continuous removal of the blooms and shading in bright weather is the best means of counterbalancing the inclination to present flowering, they will also be stimulated by manure-water once a week, but in using this with *Fuchsias* it must not be given strong or it will cause the leaves, and if in a blooming state the flowers also, to fall off.

FRUIT HOUSES.

Melons.—Further sowings must still be made according to the wants and means of the individual establishment. To the amateur and the small grower, whose appliances consist of a few dung-heated pits and frames only, I would recommend to make their last sowing at once, which sowing will, under ordinarily favourable conditions, produce a supply of good fruits during the sunny days, towards the end of September. The large grower, however, who has at command the most modern appliances, by way of nice light and well-heated houses, may make further sowings up to about the last week in July, and this batch will continue the supply up to the end of October, or early in November, after which time it is impossible to have home-grown Melons of first-rate flavour. A good bottom-heat of dung, or other fermenting material, should still be secured to young plants about to be turned out, and which will not only contribute what the Melon delights in, but will also lessen the necessity for much fire-heat—a little by night, however, is still recommended. Continue to remove laterals freely where the fruits are fast swelling, and to support by means of tables (previously described) or nets those fruits which are becoming heavy. Avoid the bad practice of removing fruits directly they begin to change to a sunless fruit-room. This is often done to prolong the season of supply, and the result is that the flavour becomes much deteriorated. Fruits that must be cut from nearly exhausted plants to make room for a successional batch had better be placed in a sunny position in one of the late vineries. Continue to fertilise all female blossoms every day in a dry atmosphere, and for general cultural details consult previous Calendars. Husband a good sun-heat, by closing early, in pits and frames, and these, as well as houses, might be slightly shaded for a couple of hours at mid-day. *Thos. Simpson, Chelmsford, June* 15.

Pines.—Under ordinary circumstances fire-heat should now be discontinued in most Pine structures, excepting for the purpose of providing the requisite degree of warmth (80° to 90°) at the roots, or to assist in accelerating plants with fruit in an advanced condition of growth. Its use for other purposes will now be no longer required, and in those houses which contain successional stock to continue it would ultimately prove to be more detrimental than beneficial. In such structures the temperature rarely falls below 65° by reason of the assistance which is obtained from the heated beds wherein the plants are plunged. This temperature, under such conditions, is most suitable at this season for the satisfactory development of the plants. Newly potted plants will, as soon as the roots have taken hold of the fresh soil, make growth speedily, therefore care should be exercised in management, particularly in regard to the ventilation, so as to avoid an attenuated state of growth. On sunny days admit air in the morning at 75° or 80°; gradually increase this supply until the temperature reaches 85°: at this degree a plentiful supply will be needful at the apex and front or sides of the house as the case may be. In like manner it should be diminished by degrees to about 80° in the afternoon, and at finally closing the house for the day a light sprinkling with the syringe should be indulged daily when sunny weather prevails. The early section of fruiting Pines will soon be finished off. From the stock of suckers on these plants a number sufficient in quantity to meet the demand should be taken off and started at once, the present time being a suitable one for coming plants, which will fruit from this time onwards next year. These will form a supplementary batch to those which were started last March. The requirements of these plants will be identical with those which were potted in March, excepting that water should be applied to the soil in which they are potted at once if it be at all dry, and the shading will, under present conditions, require to be done more effectually. The degree of excellence to which fruit attains when cultivated under glass depends very much upon proper ventilation during the colouring process. Nothing contributes more beneficially towards this object, both as regards quality and appearance than a free circulation of air in a suitable condition. Pine-apples are not an exception to this rule, therefore whenever favourable influences prevail externally this matter should have the foremost consideration. *G. T. Miles, Wycombe Abbey.*

Cucumbers.—Much of the instructions given in this week's Melon Calendar are also applicable to the Cucumber, and if the cultivator has taken advantage of what has been advanced under this heading for the last few weeks, little remains to be enforced upon his attention just now. The weather for the past fortnight has not been altogether favourable to the Cucumber; we have had cold and strong winds, accompanied with bright sunshine, which necessitated the giving of air, and thus admitting the winds, which are a powerful absorbent of moisture. In such weather, therefore, it is better to shade a little more rather than admit too much strong wind; more moisture, too, both at the roots and in the atmosphere should be employed. Now is a good time to save a few fruits for seed, and such varieties as it is desirable to retain should be fertilised with a view to that end. As the fruits are swelling off it will be easily seen which will bear seed, indicated by the lower end of the fruit being what is termed in gardening phraseology "bull ended." A piece of matting tied round straight fruits, however, will sometimes produce the desideratum, but not always. Strive to maintain a clean growth and an even temperature. Remove handlights from ridge varieties, and give them a good mulching of rotten dung previous to pegging out the growths. *Thos. Simpson, Chelmsford.*

HARDY FRUIT GARDEN.

The stopping and nailing or tying-in of wall trees generally should now be proceeded with as fast as possible, laying in a sufficiency of the young shoots to fill up or extend the trees where necessary. In pruning Pears the foreright shoots should be pruned to three or four buds, as if cut-in too hard the trees will probably start into a second growth, instead of forming fruit-buds for next season. Where the fruit is thick, and this is the case in most places where fruit is grown to any extent, lose no time in judiciously thinning the crop, leaving it sufficiently thin so as to hang clear of each other when matured. Little is gained in a plentiful season by retaining too heavy a crop, which, if allowed, must inevitably result in a failure of next year's crop. The present cold and sunless weather is unfavourable to the growth of Peaches and Nectarines, and aphis is now becoming somewhat troublesome. Where this is the case the affected shoots should be dipped in tobacco-water, and after remaining one day the trees should be well washed with a syringe or engine. Pyramidal or bush trees

of Apples, Pears, Plums, &c., may also be pruned in, and the fruit thinned as before directed for wall trees. Bush fruits, as Gooseberries, Currants, &c., should also be stopped back when the growth is over-abundant, but the crops of these are so heavy that less growth than usual has taken place. These, and also Strawberries, which are now ripening fast, should be netted or otherwise protected from birds, which are already very troublesome. Where Strawberries are required in quantity for forcing, preparations should be made for layering runners as early as possible, it being essential to get the plants well rooted early in July so as to give a good season of growth. We usually plant out in the latter month a few runners of each kind; these not being allowed to fruit give a good supply of runners for the following season, and with us the new forward of these are now ready to be operated on. We use 3 inch pots for layering in, and as soon as the layers become well rooted they are taken off and removed to a sheltered spot, under a north wall or hedge, for a few days previous to planting in the fruiting pots. The best varieties for forcing are Keens' Seedling, President, Sir Charles Napier, British Queen, and Sir J. Paxton, which ripen much in the order named. Le Gros Sucrée, a new and very early kind, of good size and quality, seems likely to be valuable for this purpose: I hope to give it a fair trial next season. *William Cox.*

Enquiries.

He that questioneth much shall learn much.—BACON.

[MANY enquiries which reach us would be more suitably answered by those of our correspondents whose experience or requirements are, or have been, similar to those of the questioner. These we propose, in future, to gather together for facility of reference; and as fellow feeling makes us wondrous kind, so we would fain hope that this enquiry column may serve as a bond of sympathy and good-will between our correspondents and readers, and be the means of eliciting much valuable information. EDS.]

50. ICE-HOUSE.—Can any of your numerous correspondents enlighten me as to the repairing of an ice-house, to make it "keep" ice? I have a well about 15 feet deep, and basket-wicked round the inside, but having no drainage excepting into the rock, through part of which the hole is cut. A small thatched round roof covers the top. *A Wiltshire Man.*

51. PYRUS DOMESTICA.—*Inquirer* asks where the true Service Tree, Pyrus domestica, can be obtained?—What goes under that name in the nurseries is usually P. torminalis, or P. Aria.

52. TO ROSE GROWERS.—Can any one offer a palliative, preventive, or cure, for red-rust on Roses?—or must it run its course, like its new ally the Hollyhock disease? *D. T. Fish.*

Answers to Correspondents.

BOOKS: *S.* There is nothing better than the last edition of Mr. Thomson's *Practical Treatise on the Grape Vine*, published by Messrs. Blackwood.—*E. S.* Hooker's *Students' Flora*, published by Macmillan.

CLEMATIS: *Lawson Seed Co.* Unless the flowers of your Thomas Teponent come more decidedly double than in the example sent, it would not take a high rank amongst modern varieties, although in itself necessarily a fine showy plant. If now blooming for the first time, we should pronounce it very promising, and should grow it on vigorously for next season. If it fills up better it will class with Countess of Lovelace as to style, but, being French white, is quite distinct.

CUCUMBER, DANIELL'S DUKE OF EDINBURGH: *H. R.* The specimen you send us, measuring 2 feet 9 inches in length, is a fine one of its kind; but such large fruits are in no way desirable for consumption.

CUCUMBER: *Messrs. Sutton & Sons.* Your Duke of Connaught is a well-formed handsome fruit of the large show type, but not equal in flavour to those of the Telegraph type.

HEATING GREENHOUSE: *R. B.* (1). The flow-pipe on top of boiler ought to be at least 1 inch below the lowest pipes in the greenhouse, or where they pass under any door or passage. This is not absolutely necessary, but it is better for the working of the apparatus, and more economical in the end. The boiler may be lower if necessary for the position of stokehole—the lower the better. (2). Three 3-inch pipes would be sufficient to keep out frost, but there ought to be three 4-inch ones for general greenhouse purposes. (3). A 21-inch saddle boiler; one of the best is the rivetted saddle.

INSECTS: *A. B.* Your plum leaves are infested by a small and active insect belonging to the frog-hopper or cuckoo-spit family, and to the little genus Typhlocyba. Syringing with strong lime-water might possibly much annoy them, or they would be dislodged by burning weeds to the windward. *I. O. W.*—*F. J. L.* The beetles which have gnawed the bark of the Rhododendrons underground are the common omnivorous Otiorhynchus sulcatus, the white grubs of which, similar to those of the Nut-maggot, are equally destructive. We know no better remedy than hand-picking, carefully disturbing the earth at the roots of the plants. *I. O. W.*—*J. McJ., Handsworth.* We believe your pale green caterpillars are those of the Van moth (Geometra vanaria), and the dark coloured ones those of the Geometra (Melanippe) hastata. *I. O. W.*

IRIS: *T. T.* There is no published list, but Mr. Baker has one in preparation, to be published in our columns.

LILY OF THE VALLEY: *H. E. R. T.* The roots are probably starved from growing too thickly; possibly also from drought. Take up the crowns next autumn after they become dormant and plant out thinly, in small patches, on a well enriched north border, and you will get stronger crowns.

NAMES OF PLANTS: *W. Withers.* Orchis latifolia. That which grows on a chalk hill will be a different species. *J. Scott.* Not a Verbascum, but Celsia cretica, a native of Southern Europe, but naturalised in some parts of Australia.—*D. R. M.* Maxillaria tenuifolia.—*Carhoo.* 1, Jasminum revolutum; 2, Symphoricarpos racemosus; 3, Deutzia scabra; 4, Fabiana imbricata; 5, not sufficiently advanced to name; 6, Abies pectinata.—*P. W. J.* (1) Avena pubescens; (2) 1, Aira cæspitosa; 2, Festuca pratensis; 3, F. ovina, var. tenuifolia; 4, Teesdalia nudicaulis.—*Nomenclature.* Rhododendron hirsutum.—*J. Dimmick.* 1, Ornithogalum thyrsoides; 2, Asclepias curassavica. *An Old Subscriber.* 1, Scilla peruviana, var. glabra; 2, Alonsoa incisæfolia; 3, Pernettya mucronata; 4, Pittosporum Tobira; 7, Iris Xiphium; 15, Buddlea globosa; 17, Helichrysum cordifolium; 19, Rhamnus Alaternus; 20, Coprosma Baueriana variegata; 24, Stachys lanata. Please remember in future that we only deal with half-a-dozen at once. *C. E. G.* 3, Polygonum viviparum; 6, Prismatocarpus, new species? 7, Chænostoma æthiopica? Nos. 6 and 7 seem to be Cape plants. Do you know their origin? We should be greatly obliged for as good specimens of these two as you could spare us for the herbarium.—*J. H. Goodacre.* Dictamnus fraxinella.—*G. E. C.* Alstrœmeria psittacina.

PEACHES: *C. A.* Flowers of sulphur dusted on the affected parts is the only remedy.

PELARGONIUM HAPPY THOUGHT: *W. W. C.* This does not belong to the group usually designated "tricolors;" and therefore, notwithstanding the three colours in the leaf, we consider it open to disqualification if shown as such. A good deal depends on the words used in defining the class, and of these you do not inform us.

ROSE-LEAF FUNGUS: *E. S.* The fungus on Rose-leaves is Coleosporium pingue. The plant is impregnated from spores of the previous year, and it is so very common that the affection is quite beyond any remedy. Every hedge will diffuse the fungus if you could for a moment drive it out of the garden. *M. J. B.*

VERBENAS: *J. M.* The leaves have been eaten up, probably by some caterpillar.

WARTS ON VINE LEAVES: *F. Smith.* A close moist atmosphere will produce the warts on the back of Vine leaves, and this was probably the cause in your case. A better circulation of air will prevent its spread.

*** Correspondents are specially requested to address, post-paid, all communications intended for publication to the "Editors," and not to any member of the staff personally. The Editors would also be obliged by such communications being posted as early in the week as possible. *Letters relating to Advertisements, or to the supply of the Paper, should be addressed to the Publisher, and* not *to the Editors.*

COMMUNICATIONS RECEIVED.—W. Elliot.—G. G.—E. P.—T. Campbell.—O.—G. T. M.—A. M. C. J. C.—P. H. G.—H. Harrison.—H. S.—C. E. M.—S.—D. T. F.—J. D.—W. W.—R. G.—A. B.—W. Lacey.—T. L.—J. H.—W. J. E.—E. S. D.

Markets.

COVENT GARDEN, June 17.

A good supply of home-grown produce. Strawberries becoming very plentiful, and the Kent goods largely increasing in bulk, especially common early Cherries. Green Currants are offered, but do not find buyers to any extent. *Thos. Taylor, Wholesale Apple Market.*

FRUIT.

	s. d.	s. d.
Apples, per ½-sieve	3 0–	4 0
Apricots, per box	2 6–	4 0
Cherries, per box	2 0–	4 0
Figs, per doz.	6 0–	12 0
Grapes, English, lb.	4 0–	10 0
— foreign, do.	..	..
Lemons, per 100	8 0–	12 0
Nuts, Cob, p. lb.	..	..
Oranges, p. 100	8 0–	12 0
— Malta, per doz.	2 0–	3 0
Peaches, per doz.	15 0–	30 0
Pine-apples, p. lb.	6 0–	10 0
Pomeloes, each	0 6–	1 0
Shaddocks, each	2 0–	3 0
Strawberries, per lb	0 6–	3 0
Walnuts, p. bush.	16 0–	..

VEGETABLES.

	s. d.	s. d.
Artichokes, Fr., doz.	4 0–	..
Asparagus, English, per bundle	5 0–	6 0
— French, p. bund.	4 0–	15 0
Beans, French, p. 100	2 6–	..
— broad, per bushel	5 0–	..
Beet, per doz.	1 0–	2 0
Cabbages, per doz.	1 0–	2 0
Carrots, French, do.	1 6–	..
Cauliflowers, spring, per doz.	3 0–	4 0
Celery, per bundle	1 6–	2 0
Cucumbers, each	1 0–	2 6
Endive, per doz.	1 0–	2 0
Herbs, per bunch	0 2–	0 4
Horse Radish, p. bun.	3 0–	5 0
Leeks, per bunch	0 2–	0 4
Lettuces, per score	1 0–	..
Mint, per bundle	0 4–	..
Mushrooms, per pott.	1 0–	2 0
Onions, young, bun.	0 4–	0 6
Parsley, per bunch	0 4–	..
Parsnips, p. doz.	0 9–	1 0
Peas, per quart	1 6–	..
Radishes, per bunch	0 2–	0 4
Shallots, per lb.	0 3–	..
Salsify, per bundle	1 6–	..
Sprue, French, bund.	1 6–	..
Tomatos, per doz.	4 0–	..
Turnips, per bundle	1 0–	1 6
— French, p. bund.	1 6–	..
Veg. Marrows, doz.	6 0–	..

Potatos, old:—Regents, 80s.; Flukes, 120s.; and Victorias, 120s. per ton. New: Lisbons, 6s. to 10s.; Kidneys, 10s. to 12s.; and Rounds, 7s. to 10s. per cwt. Old Potatos nearly finished.

CUT FLOWERS.

	s. d.	s. d.
Carnations, 12 blooms	1 0–	3 0
— Clove, per doz.	1 6–	6 0
Cornflower, p. doz. bun.	3 0–	6 0
Deutzia, per bunch	0 4–	1 0
Eschscholtzia, 12 bun.	3 0–	6 0
Eucharis, per doz.	6 0–	12 0
Gardenia, per doz.	2 0–	6 0
Heliotropes, 12 spr.	0 6–	1 0
Mignonette, 12 bun.	4 0–	6 0
Myosotis, per bunch	0 4–	0 9
Nemophila, 12 bun.	1 6–	3 0
Paeonies, 12 bun.	4 0–	12 0
Pelargoniums, 12 spr.	0 6–	1 6
— Zonal, do.	..	3 0
Primula, dbl., p. bun.	0 9–	1 6
Ranunculus, p. bun.	0 4–	1 0
Roses, indoor, p. doz.	2 0–	6 0
— outdoor, 12 bun.	4 0–	9 0
— Moss, 12 bun.	6 0–	12 0
Rose de Mai, doz. bun.	3 0–	9 0
Spiræa, 12 sprays	1 0–	3 0
Stephanotis, 12 sprays	2 0–	6 0
Stocks, 12 bun.	6 0–	12 0
Sweet Peas, 12 bunch	4 0–	9

PLANTS IN POTS.

	s. d.	s. d.
Begonias, do.	6 0–	12 0
Bouvardias, do.	9 0–	18 0
Calceolarias, do.	6 0–	18 0
Cyperus, do.	6 0–	12 0
Dracæna terminalis	30 0–	60 0
— viridis, per doz.	12 0–	24 0
Ficus elastica	1 6–	7 6
Fuchsia, per doz.	6 0–	18 0
Gardenias, do.	12 0–	60 0
Heaths, in var., doz.	12 0–	30 0
Heliotrope, per doz.	6 0–	12 0
Hydrangeas, per doz.	9 0–	24 0
Lobelia, per doz.	4 0–	9 0
Mignonette, do.	4 0–	9 0
Myrtles, do.	3 0–	9 0
Pelargoniums, dble., per doz.	6 0–	12 0
— Scarlet, do.	4 0–	9 0
Petunia, per doz.	6 0–	9 0
Roses, do.	12 0–	60 0
Solanums, do.	6 0–	18 0
Spiræa, do.	12 0–	24 0
Stock, do.	3 0–	6 0

SEEDS.

LONDON: *June 17.*—Our seed market is now most thinly attended, with an almost complete absence of business. In both red and white Clover seeds there is nothing whatever passing. In consequence of the recent rains less disposition is shown to purchase Trifolium for future delivery. A few speculative sales have, however, taken place. For Rape seed there is a diminished inquiry, but Mustard seed keeps steady. The extreme rates obtained for Tares are bringing out the few odd sacks remaining unsold about the country. There is still an eager inquiry for this article. Canary seed, as indicated last week, is falling in value. White Millet (now largely used as a substitute for Canary seed) is in better supply. Blue boiling Peas seem about used up. *John Shaw & Sons, Seed Merchants*, 37, *Mark Lane, E.C.*

CORN.

The supply of English Wheat at Mark Lane on Monday was very short, the demand was firm, and an advance of 1s. per quarter was obtained in a few instances. Foreign Wheat was also firmly held for 1s. advance, but this was not generally conceded. Barley was in moderate supply. Prices for malting were nominal; grinding was inactive, and malt dull and without change. Oats ruled about the same as on Monday se'nnight. Maize was dull, at about late rates; Beans and Peas were quiet and without change; flour was inactive, but rather firmer.—On Wednesday the market was quiet. Wheat, being in limited supply, was rather firmly held, but in consequence of the good harvest prospects, millers were not generally disposed to operate, unless at some reduction. Barley had a drooping tendency, so also had malt. Oats were in short supply, and little or no change occurred in their value. Maize was rather weak, and a dull tone pervaded the market for Beans, Peas, and flour.—Average prices of corn for week ending June 12:—Wheat, 41s. 11d.; Barley, 34s. 11d.; Oats, 32s. 11d. For the corresponding week of last year:—Wheat, 61s. 4d.; Barley, 41s. 5d.; Oats, 30s.

CATTLE.

On Monday, at the Metropolitan market, the demand for beasts was chiefly directed to the primest qualities, for which full prices were paid. In sheep prime breeds were scarce, and prices were in consequence enhanced. Lambs were dull of sale, and calves were quiet at late rates. Pigs sold slowly. Quotations:—Beasts, 3s. 4d. to 4s. 8d. and 5s. to 6s.; calves, 4s. 8d. to 5s. 4d.; sheep, 3s. 4d. to 5s. 6d. and 5s. 8d. to 6s. 8d.; lambs, 6s. 4d. to 7s. 4d.; pork, 4s. 4d. to 6s.—On Thursday trade in beasts was brisk, and the quotations (4s. to 6s. 4d.) readily obtained,—occasionally exceeded. For sheep the demand was good at 5s. to 5s. 8d., and 6s. 4d. to 7s. In calves choice qualities were not cheaper. For milch cows trade continues dull.

HAY.

From the Cumberland Market we have the following quotations:—Superior meadow hay, 126s. to 135s.; inferior, 100s. to 110s.; superior Clover, 123s. to 132s.; inferior, 100s. to 108s.; and straw, 40s. to 44s. per load.

POTATOS.

Increased supplies have been on offer at the Borough and Spitalfields markets, new kinds coming forward freely. The inquiry was slow, at the annexed quotations:—Regents, 80s. to 100s.; Victorias, 80s. to 120s.; flukes, 100s. to 130s.; and rocks, 50s. to 65s. per ton.—Last week's imports into London consisted of 1038 bags from Antwerp; 747 bags, 496 packages, and 120 casks Malta; 250 barrels and 35 casks Bordeaux; 150 sacks Boulogne; 3471 boxes and 2706 packages Lisbon; and 2974 sacks and 216 tons from Dunkirk.

COALS.

The market on Monday showed a steady demand for coals at last prices. There were no Hartleys for sale. Prices: Wallsends—South Hetton, 22s.; West Hartlepool, 21s. 9d.; Lambton, 21s. 6d.; Tees, 21s. 9d.; Newbottle, 18s. 6d.; Tunstall, 19s. 3d.; Holywell Main, 19s.; East Wylam, 19s.—On Wednesday house coal advanced 6d. per ton, and the quotations were as follows:—West Hartley, 19s. 9d.; Wallsends—Hetton, 22s. 6d.; Hetton Lyons, 19s. 9d.; Kelloe, 20s.; East Hartlepool, 22s. 3d.; Tees, 22s. 3d.

RANSOMES' AUTOMATON LAWN MOWERS.

TEN THOUSAND IN USE, GIVING FULL SATISFACTION.—These Machines leave no Ribs in the Grass, and are unsurpassed for keeping a Lawn or Croquet Ground in first-rate order. They are now fitted with adjustable handles, to suit the height of the person using the Machine. Either "corrugated" or "plain" front rollers can be supplied at pleasure. A pair of short side rollers is sent with every Machine, to replace the usual front rollers when cutting long grass. The grass can be either collected in the box—the neatest plan—or delivered at the back of the Machine and left on the lawn, to prevent the grass burning in dry seasons. These Machines are fitted with the best wheel gearing, the best steel-edged knives, and hardened steel points and bearings.

Sizes from 8 to 20 inches. Prices from 55s.

Carriage paid to the principal Railway Stations in England. Warranted to give satisfaction, and a month's trial allowed. Orders executed on receipt.

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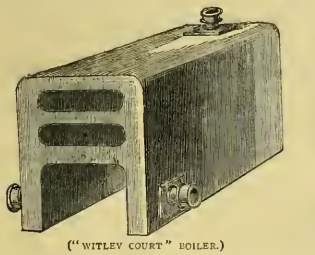
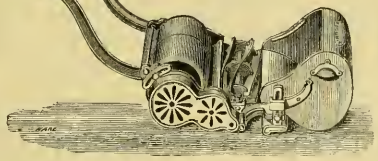


("WITLEY COURT" BOILER.)



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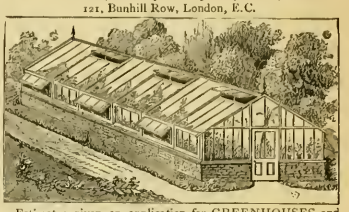

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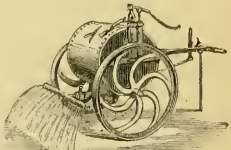

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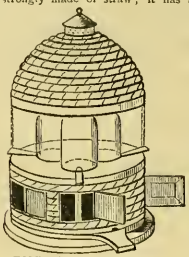

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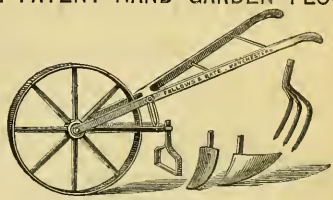

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THESE ADVERTISEMENTS MUST BE PRE-PAID.

Advertisements for the current week MUST *reach the Office by Thursday noon.*

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CHATSWORTH,

THE

SEAT OF THE DUKE OF DEVONSHIRE, K.G.

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Price Fivepence; Post Free, Fivepence-halfpenny.

ADVERTISERS DESIROUS OF HAVING EXTRA SPACE IN THIS NUMBER

are particularly requested to communicate at once with the Publisher.

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Editorial Communications should be addressed to "The Editor;" Advertisements and Business Letters to "The Publisher," at the Office, 41, Wellington Street, Covent Garden, London, W.C. Printed by WILLIAM RICHARDS, at the Office of Messrs. BRADBURY, AGNEW, & Co., Lombard Street, Precinct of Whitefriars, City of London, in the County of Middlesex, and Published by the said WILLIAM RICHARDS, at the Office, 41, Wellington Street, Parish of St. Paul's, Covent Garden, in the said County.—SATURDAY, June 19, 1875.
Agent for Manchester—JOHN HEYWOOD. Agents for Scotland—Messrs. J. MENZIES & Co., Edinburgh and Glasgow.

THE

GARDENERS' CHRONICLE.

Established 1841.

A WEEKLY ILLUSTRATED JOURNAL OF HORTICULTURE AND ALLIED SUBJECTS.

No. 78.—Vol. III. { New Series. } SATURDAY, JUNE 26, 1875. { Registered at the General Post Office as a Newspaper. } Price 5d. Post Free, 5½d.

With this Number is issued, Gratis, an EIGHT-PAGE SUPPLEMENT, descriptive of CHATSWORTH, the Seat of the Duke of Devonshire, K.G.

CONTENTS.

SALES BY AUCTION.

Highly Important Sale of Orchids.

MR. J. C. STEVENS will SELL by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on WEDNESDAY, June 30, at half-past 12 o'Clock precisely, a Consignment of ORCHIDS from Ecuador, in fine health, comprising nine plants of the magnificent Pescatorea Roezlii, Reich.; excepting six others these are probably the only nine plants alive in Europe—for full description see Professor Reichenbach's report, *Gardeners' Chronicle*, June 13, 1874; some fine plants of the beautiful Batemannia Burtii var. Wallisi, Reich., Oncidium nubigenum, and Odontoglossum Halli, true; one plant of a double Odontoglossum Cervantesi (flowers and drawings will be exhibited on the day of Sale); also 6000 imported Orchids, collected by M. Roezl in Mexico, consisting of large masses of Lælia autumnalis, Oncidium trigrinum, Odontoglossum citrosmum roseum, Cattleya citrina, Lælia majalis, Sophronites violacea, &c., all in the finest possible condition

On view the morning of Sale, and Catalogues had.

Important Sale of Established East Indian and OTHER ORCHIDS.

MR. J. C. STEVENS begs to announce that he has been favoured with instructions from H. J. Buchan, Esq., in consequence of change of residence, to offer for SALE by AUCTION, at his Great Rooms, 38, King Street, Covent Garden, W.C., on THURSDAY, July 8, at half-past 12 o'Clock precisely, his valuable Collection of EAST INDIAN ORCHIDS, purchased during the last eight years from Messrs. Veitch, Bull, Williams, Rollisson, and others, and also selected from the best private collections at the sales held at these Rooms, comprising fine varieties of Aerides, Saccolabiums, Vandas, Cattleyas, Lælias, Coelogynes, Phalænopsis Lowii, P. Schilleriana, P. grandiflora and P. amabilis, Dendrobium Wardianum, D. thyrsiflorum, D. crassinode, D. devonianum, and various other Dendrobes; Cymbidium eburneum, Anthurium Scherzerianum, Oncidiums, Odontoglossums, Pescatoreas, Dendrochiloms, also a number of other Orchids.

On view the morning of Sale, and Catalogues had.

West Derby, near Liverpool.

MESSRS. BRANCH AND LEETE will SELL by AUCTION on TUESDAY and WEDNESDAY, June 29 and 30, at 1 o'Clock each day, in the Gardens and Grounds of Broughton, Yew Tree Lane, West Derby, near Liverpool, the exceedingly choice Collection of EXOTIC and GREENHOUSE PLANTS of C. G. Schwabe, Esq., who is removing to the South of England, comprising a number of unusually fine standard Azaleas, on stocks from 6 to 8 feet high, all of choice named sorts; about 150 Pyramid and Dwarf Azaleas, of best varieties, a large proportion of them of very useful size—say, the Pyramids from 2 to 6 feet, the Dwarfs from 18 inches to 2 feet; about eighty Camellias, of very choice kinds, well grown plants, in splendid condition; several fine Standard Camellias, a very large collection of pot Roses, some choice Hard-wooded Plants, two fine specimens Araucaria excelsa, Yuccas, Caladiums, Dracænas, and other Ornamental-foliaged Plants; a very fine assortment of Dendrobium nobile, Lælias, Cattleyas, and other Orchids, both for stove and cool treatment; Adiantum farleyense and other fine Stove Ferns, two very fine specimens Rhaus grandifolius, some choice Ericas and Epacris; a small collection of Succulent Plants, large and fine assortment of Gloxinias, Deutzias and Prunus in pots, and the variety of plants usually cultivated in the Stove and Greenhouse; the whole in perfectly healthy and capital order.

To be viewed on Monday, the 28th inst, and Catalogues may be had several days before the Sale from the HEAD GARDENER, at Broughton, West Derby; or from Messrs. BRANCH AND LEETE, at their Offices, in Hanover Street, Liverpool.

Important Preliminary Announcement.

To the NOBILITY, GENTRY, HORTICULTURISTS, &c.
ATTRACTIVE SALE of the Extensive and Valuable Collection of STOVE and GREENHOUSE PLANTS formed by the late Mr. Bewley, of Blackrock, County Dublin.

MESSRS. BENNETT AND SON respectfully announce that they have been favoured with instructions from the Executor of the late Thomas Bewley, Esq., of Rockville, Blackrock, County Dublin, to SELL by AUCTION, on the Premises, on WEDNESDAY, July 14, and following days, the entire important and valuable Collection of STOVE and HOTHOUSE PLANTS, which embraces some of the rarest and largest specimens of Ferns and Orchids in the United Kingdom, and for which this Collection has been so long and so justly celebrated, bearing, as it does, an almost European reputation, it having been formed, not only regardless of expense, but with a highly cultivated knowledge, as well as matured judgment and refined taste.

Full particulars will be duly announced. Descriptive Catalogues, price 1s. each, are now in course of preparation, and will be ready for distribution ten days previous to the Auction (without which the Collection cannot be viewed), and may be had only on application to the Auctioneers, BENNETT AND SON, 6, Upper Ormond Quay, Dublin.

Worcestershire, in the far-famed Vale of Evesham.

PRELIMINARY ADVERTISEMENT.

MESSRS. CHESSHIRE AND GIBSON have received instructions to SELL by AUCTION, on THURSDAY, July 15 next, at the "Hen and Chickens Hotel," in New Street, Birmingham, at 6 o'Clock in the evening for half-past, in consequence of the death of the Proprietor, unless in the meantime an eligible offer be made for a Private Contract, a very excellent FREEHOLD ESTATE of 240 Acres, known as "Seaford Grange," situated at Peopleton, within 1½ mile of the Pershore Station on the Great Western Railway.

A considerable portion of the above has been laid out as Fruit Gardens, the Trees being of the choicest kinds, now in their prime, the produce finding a ready sale at Liverpool, Manchester and Birmingham, where a very lucrative business was carried on by the late Proprietor.

In addition to a complete set of FARM BUILDINGS, with COTTAGES, there is a very comfortable and desirable RESIDENCE, replete with every convenience, and the portion of the Estate not laid out as Fruit Gardens is occupied as a FARM, and comprises Arable and Pasture of excellent quality.

A Balance-Sheet, showing the profits for the last five years, has been prepared, and may be obtained of the undermentioned Referees.

Further particulars and plans will be issued in due course, in the meantime further information may be obtained of H. G. GOLDINGHAM, Solicitor, or A. BUCK, Estate Agent, both of Worcester; or to the Auctioneers, Messrs. CHESSHIRE AND GIBSON, 93, New Street, Birmingham.

WARWICKSHIRE (2017).—In a first-class locality, a genuine and thriving NURSERYMAN'S and SEEDSMAN'S BUSINESS to be Disposed of under advantageous circumstances; comprises a comfortable Dwelling House, spacious Premises and Shop, for doing an extensive Seed Trade; 72 acres of Land (22 of which are under Stock, the remainder Arable and Pasture), Glass limited. Probable amount of capital required for Stock and Utensils-in-Trade, £2500.

SOMERSETSHIRE (2006).—An old-established NURSERYMAN'S and SEEDSMAN'S BUSINESS to be Sold; about 22 acres of Land not fully stocked, excellent deep soil, Cottage, six Greenhouses, ample Outbuildings, newly-built Shop, and large ornamental Conservatory in the town. Terms on application.

MIDDLESEX (2018).—In a rapidly improving neighbourhood, close to a railway station, and twenty minutes' ride by train to the City, a flourishing FLORIST'S BUSINESS; comprises an eight-roomed Residence, nine newly-built Greenhouses (heated on modern principles). Lease sixteen years, rental £40 per annum. Price for Tenant's fixtures on application, Stock optional.

SURREY (2049).—Three miles from Chertsey, in a most healthy and charming locality, occupying an elevated and highly-favoured situation, in the midst of Seats of the Nobility and Gentry, about 20 acres of capital LAND, sloping principally to the south, producing remarkably early crops of Strawberries, &c. The Land is chiefly Pasture, but there is also a fair proportion of Arable, and between 4 and 5 acres are planted with a fine collection of the best and most approved kinds of Herbaceous and Alpine Plants, which, together with the Crops and a small quantity of Nursery Stock, might be procured by an incomer on very easy terms. Rent only £60 per annum on lease.

ESSEX (1785).—Ten miles from London, to be Let a small NURSERY, with a comfortable detached Residence standing thereon, in all about 2 acres of Land, with three large Greenhouses heated by hot water; no Stock. Lease fourteen years. Rent £70 per annum.

SUSSEX (2038). — Two miles from the fashionable, rapidly rising town of Worthing, and about 10 miles from Brighton, a small NURSERYMAN'S and FLORIST'S BUSINESS to be Sold, by order of the Mortgagee; about 15 acres of good sound Land (inclusive of Paddock), cropped with a useful assortment of Nursery Stock and large Fruit Trees in bearing condition, and Farm produce, convenient Dwelling House, two prolific Vineries, and Conservatory, suitable Outbuildings. Lease eleven years unexpired. Rent, inclusive of Glass Erections, £83 per annum. Price for Stock and Utensils-in-Trade, £600.

CHIGWELL (2054). — Nine miles from London, to be Disposed of, a well-stocked and prolific FRUIT and MARKET GARDEN, 4 acres in extent, surrounded and intersected by 1000 yards of brick wall, 12 to 20 feet high, and which is covered with the choicest Fruit Trees, over 100 old-established Standard Fruit Trees in addition; excellent soil, in good working order; unfading supply of water; Dwelling House, Stabling, and other Outbuildings. Lease fourteen years. Rent £450. Price for interest in Lease, Garden, and Fruit Crops, £300.

More detailed particulars of the above Nurseries will be found in PROTHEROE AND MORRIS' HORTICULTURAL REGISTER, to be obtained gratis at 98, Gracechurch Street, E.C., and Leytonstone, E.

Freehold—28 Miles S.W.

TO BE SOLD, a beautiful ESTATE of 240 acres, with elegant Swiss Villa, and capital Stabling, Gravelly Soil, fine views, and extensive frontages, free from tithe and land-tax. Two thirds on mortgage. The Furniture may be taken at a valuation.

A Plot of about 50 acres, planted with fine Evergreens, Fruit, and other trees, would be Sold separately; also a Plot of 25 acres. Apply to

W. TARRY, Bailiff, "Golden Farmer," Bagshot, Surrey.

Victoria Estate, Kansas, U.S.—To Farmers and OTHERS.

FINE STOCK FARMS of 640 Acres and upwards, to be SOLD, Freehold, from 12s. to 50s. per acre. Grass in its natural condition unsurpassed for feeding Sheep and Cattle. For PAMPHLET containing full particulars respecting this Property, apply to

ROBERT W. EDIS, Esq., F.S.A., 14, Fitzroy Square, London, W., Architect to the Estate.

Important to Nurserymen and Others.

TO BE LET or SOLD, one of the LARGEST OLD ESTABLISHED WEST END LONDON NURSERIES. It has been doing an extensive business for upwards of fifty years. The connection is principally amongst the Nobility and Gentry. The Establishment possesses every facility for doing a large profitable trade, up to £50,000 per annum, or more. It might be advantageously carried on by a Public Company or otherwise. The reason of its now being disposed of is the declining health and necessary retirement from business of the principal Proprietor. Part of the purchase-money may remain on Mortgage, if desired.

For full particulars apply to Messrs. KEARSEY, SON, AND HAWES, Solicitors, 35, Old Jewry, London, E.C.

Beds and Hunts.

TO BE LET, from Michaelmas, 1875, a FARM of 265 Acres, with good Farmhouse, Bailiff's House, two Cottages and two Homesteads; about two miles from Sandy Junction. Tithe free, Tenant has the shooting. The Light Land, about 72 acres, is suitable for Garden cultivation. Advantageous covenants will be granted to a Tenant with capital.

For terms of entry, rent, and full particulars apply to SMITH AND ROBINSON, Estate Agents, Hemel Hempstead, Herts.

TO BE LET, on Lease, for a term of years, with immediate possession, the MAISON DIEU NURSERY, Dover. Premises comprise Dwelling-house with Shop, Greenhouses, Forcing-houses, Potting Shed, and Garden Ground. Rent moderate. Apply to

Messrs. TERSON AND SON, Auctioneers, 27, Castle Street, Dover, Kent.

To Florists and Others.

TO BE LET, about TWO AND A HALF ACRES of LAND, situate at Shepherd's Bush, close on the high road, and very open. Orders to view of

J. H. GREEN, Auctioneer, 72, King Street, Hammersmith, W.

BRIGHTON and SUSSEX HORTICULTURAL SOCIETY'S GRAND SUMMER EXHIBITION will be held at the Royal Pavilion on WEDNESDAY and THURSDAY, July 7 and 8 next, on the same grand scale as on former years. Schedules of which can be obtained on application to E. SPARY, Superintendent of the Exhibitions, Queen's Graperies; or of the Secretary, 96, St. James' Street, Brighton.

The AUTUMN EXHIBITION will be held on September 8 and 9. EDWARD CARPENTER, Secretary.

Brighton, June 16.

GRANTHAM and SOUTH LINCOLNSHIRE HORTICULTURAL SOCIETY.

President—The Right Hon. Earl BROWNLOW, Lord-Lieutenant of the County.

The next Exhibition will be at GRANTHAM, JULY 6 and 7, and not 7 and 8, as previously advertised.

Forms of Entry and Schedules of Prizes (£220—2 Silver Cups) are now ready, and may be had of Mr. LYNE, Bookseller, Grantham.

Persons intending to compete at NOTTINGHAM on JULY 8, &c., will be able to exhibit at Grantham, which is within one hour's ride of Nottingham; and every facility will be given for leaving Grantham on the evening of the 7th, the station being only 200 yards from the show ground. Conveyances for the Plants, &c., provided free.

RICHMOND HORTICULTURAL SOCIETY.—President, H.S.H. the DUKE OF TECK, G.C.B. Under the Royal and Distinguished Patronage of H.R.H. the Duchess of Cambridge, H.R.H. the Princess Mary Duchess of Teck, H.R.H. the Duc d'Aumale, &c.

The FIRST ANNUAL EXHIBITION of PLANTS, FLOWERS, FRUIT, and VEGETABLES, will be held on THURSDAY, July 8, in the Old Deer Park, Richmond, Surrey. Two Military Bands will attend. A Subscription of £1 1s. entitles to Four Admission Tickets. Tickets and Schedules may be had of

ALBERT CHANCELLOR, Hon. Sec.

Richmond, Surrey.

MANCHESTER BOTANICAL and HORTICULTURAL SOCIETY.

EVENING FETES and EXHIBITION of ROSES, FLORAL TABLE DECORATIONS, PLANTS, BOUQUETS, &c., in the Gardens, Old Trafford, on THURSDAY, FRIDAY and SATURDAY, July 8, 9 and 10.

SCHEDULES are now ready, and may be had from BRUCE FINDLAY, Curator and Secretary.

NOTTINGHAM and MIDLAND COUNTIES GRAND ROSE SHOW and HORTICULTURAL EXHIBITION (open to all England) will be held at the ARBORETUM, NOTTINGHAM, on THURSDAY, FRIDAY, and SATURDAY, July 8, 9, and 10. The Mayor of Nottingham President; the Town Clerk Honorary Secretary. Prize List amounting to £750. Prizes for Roses upwards of £240. Space will be allotted for the exhibition of Horticultural Implements and Garden Furniture. Certificates of Merit awarded. Schedules are now ready, and may, with particulars, be obtained on application to

ALFRED KIRK, Municipal Offices, Nottingham.

WORCESTERSHIRE AGRICULTURAL SOCIETY.

Meeting at Worcester, AUGUST 10, 11 and 12.

President—The Right Hon. the EARL OF COVENTRY.

A Grand HORTICULTURAL EXHIBITION in connection with the above will be held in the Show Ground at Worcester, when Prizes amounting to £200 will be offered. Prizes are also offered to all Cottagers residing in Worcestershire. Entries close July 31. For Schedules of Prizes and Rules, &c., apply to

EDWARD T. GOLDINGHAM, Secretary, Worcester; or to J. S. HAYWOOD, Nurseryman and Seed Merchant, 26, Broad Street, Worcester, Hon. Sec. to Horticultural Show.

LEAMINGTON.—The GRAND HORTICULTURAL EXHIBITION, under the joint management of the Warwickshire Agricultural and Warwickshire Horticultural Societies, will be held in the JEPHSON GARDENS, Leamington, on TUESDAY and WEDNESDAY, July 13 and 14 (in conjunction with the County Agricultural Show). Prizes £150. For Schedules apply to

Mr. JOSIAH SOUTHORN, Auctioneer, 15, Upper Parade, Leamington.

GREAT AUTUMN SHOW of 1875, in BURGHLEY PARK, Stamford, on SEPTEMBER 15 and 16 NEXT. The following are amongst the Special Prizes offered:—Silver Cups, by Messrs. Sutton & Sons, Royal Berkshire Seed Establishment, Reading, for Fruits; by Messrs. Carter & Co., Queen's Seedsmen, 237, High Holborn, for Vegetables; by Messrs. Paul & Son, the Old Nurseries, Cheshunt, for Cut Roses, for Amateurs; and by Messrs. Hooper & Co., Central Avenue, Covent Garden, for American Potatos; and other Prizes by Messrs. Brown, Stamford, for Vegetables; and by Mr. John Pearson, Chilwell, for his Bedding Geraniums. The Rules, with Schedules, are now ready, and may be had of

Messrs. JOHNSON and LAXTON, } Hon. Secs.

Stamford.

SURPLUS BEDDING PLANTS.

ALYSSUM VARIEGATUM, 1s. 6d. per dozen.
ASTERS, five best sorts, strong, 2s. per 100.
CENTAUREA CANDIDISSIMA, 3s. per dozen.
CHAMÆPEUCE DIACANTHA, 4s. per dozen.
HOLLYHOCKS, Seedling, 4s. per dozen, 25s. per 100.
MAURANDYAS, of sorts, 4s. per dozen.
MESEMBRYANTHEMUM CORDIFOLIUM VARIEGATUM, 2s. 6d. per dozen.
RICINUS, of sorts, strong, 3s. 6d. per dozen.
SWEET VERBENA, 2s. 6d. to 4s. per dozen.
SALVIA, Blue, 2s. 6d. per dozen.
VERBENA VENOSA, 2s. 6d. per dozen.

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

CHARLES HADFIELD, HORTICULTURAL AUCTIONEER and VALUER, 20, St. Mary's Gate, Manchester. TREES, SHRUBS, CONIFERA, ROSES, BULBS, and every other Horticultural requisite from all parts of Britain and the Continent, carefully prepared for SALE, CATALOGUED, and SOLD by AUCTION. Very reasonable terms, prompt payments, and good prices realised. Satisfactory reference given from Nurserymen in neighbourhood of Manchester, for whom large Sales have been made.

NEW and CHOICE FLOWER SEEDS.
AURICULA, PANSY and POLYANTHUS, saved from a prize collection, 1s. per packet.
CALCEOLARIA, saved from 120 beautiful varieties, 1s. and 2s. 6d. per packet.
CINERARIA and PRIMULA SINENSIS, including fern-leaf varieties, 1s. and 2s. 6d. per packet.
None of the above can be surpassed.
JOHN SCOTT, The Seed Stores, Yeovil.

NEW CLEMATIS, now being sent out by JOHN STANDISH AND CO. :—
ASCOTIENSIS.—The flowers are considerably larger than Jackmanii, and are well shaped, containing six petals each; colour, a fine azure-blue; it throws a profusion of flowers the whole summer long, and is of a very vigorous habit, 10s. 6d. each.
MRS. QUILTER.—A magnificent white flower, containing eight petals; it is the largest, smoothest, and purest of all the whites, and a very free bloomer, with strong habit. 10s. 6d. each.
The above are decided acquisitions, and should be in every collection. Orders are now being booked for them.
Royal Nurseries, Ascot, Berks.

Paul's Roses.

WM. PAUL begs to announce that the COLLECTION of ROSES at WALTHAM CROSS NURSERIES is now in bloom. Everybody interested in Roses is invited to inspect the display. The Hardy Ornamental and Pictorial Trees, Fruit Trees, Geraniums, and Camellias are also in fine condition.
Entrance to the Nurseries from the platform "Waltham" Station, Great Eastern Railway. Frequent trains daily from Bishopsgate Station, and occasionally from St. Pancras.

PANSY BLUE KING, the best really blue bedding Plant, nice Plants 10s. per 100; 80s. per 1000.
Also,
VIOLA BLUE BELL (fine), 3s. per dozen.
,, DICKSON'S GOLDEN GEM, 2s. per dozen, 12s. 6d. per 100.
,, PRINCESS TECK (beautiful), 2s. 6d. per dozen.
,, PRIMROSE QUEEN, 3s. per dozen.
,, LUTEA GRIEVI, 2s. per dozen, 10s. per 100.
,, CORNUTA ALBA, 2s. per dozen, 8s. per 100.
,, STRICTA ALBA, 2s. 6d. per dozen, 14s. per 100.
RODGER, McCLELLAND AND CO., Nurserymen, &c., Newry.

SEEDLING GERANIUMS.—A small quantity of Seedling Geraniums, the seed for which has been carefully hybridised and selected from the newest and best of Pearson's, Dr. Denny's, and other noted raisers, and comprise Gold and Bronze and dark Zonals, and Golden and other Selfs, &c., now showing very fine colour, and cannot fail to produce some really fine new sorts: 12 distinct sorts, 1s. 3d.; or 5s. per 100, all post free.
SAMUEL SHEPPERSON, Florist and Seedsman, Prospect House, Belper.

Prizes for Monro's Duke of Edinburgh Cucumber.
J. MONRO begs to say that the PRIZES offered by him (viz., £3 for the best brace, £2 for the second best brace, and £1 for the third best brace of the above-named Cucumber) will be competed for, by permission of the Council of the Royal Horticultural Society, at South Kensington, on July 21 next, the same day as the Fruit Prizes offered by James Veitch & Sons are competed for.
The Prize Money will be paid on the day of Exhibition, on application to the Secretary of the Royal Horticultural Society.
JOHN MONRO, Potter's Bar, N.—June 16.

CALCEOLARIA, CINERARIA, PRIMULA and CYCLAMEN.
The best strains in the kingdom, including James', Waters', and other well-known growers,
Price, per packet, 2s. 6d.; or one each of the 4 varieties for 7s. 6d.
CYCLAMEN BULBS for Christmas blooming, James' Prize, 2s. 6d. and 3s. 6d. each.
HARDY PERENNIALS, 12 choice varieties, 3s. post free.
THE HEATHERSIDE NURSERIES CO. (Limited), 59, Queen Victoria Street, London. Nurseries—Bagshot, Surrey.

E. G. HENDERSON AND SON will place in commerce, for the first time, the following NEW PLANTS, full descriptions and prices of which are given in their NEW PLANT CATALOGUE, a copy of which will be forwarded immediately on application :—

Amaryllis Hendersoni * (†)	Convolvulus mauritanicus atroceruleus
,, ,, coccinea * (†)	Crowea angustifolia
,, Henry Little	Dracæna Duffii
Asplenium nobile	Epigynium acuminatum (†)
Armeria cephalotes alba	Hæmanthus Kooperi * (†)
Ageratum cordifolium	Ixora Fraserii (†)
Begonia Orange Boven	Nerine rosea
,, Dr. Dollinger	Plumeria bicolor
,, White Queen	Sonerila Hendersoni * (†)
Blandfordia flammea elegans*	,, ,, argentea (†)
Bouvardia bicolor	,, ,, marmorata (†)
,, multiflora	Yucca stricta, &c.; with other
Cantua corymbiflora	New and Florist Flowers.
Cyclamen Peakeanum (†)	

Large Coloured Illustrations of the kinds marked * will be forwarded for twelve stamps each.
Those marked (†) have been awarded First-class Certificates.

E. G. HENDERSON AND SON'S SEED CATALOGUE for 1875, containing over 200 Illustrations of Flowers, will be posted, free, on application, and from which the following can be supplied, of first-class quality :—
CALCEOLARIA, in mixed colours, 1s., 2s. 6d., and 5s. per pkt.
CINERARIA, 1s., 2s. 6d., and 5s. per packet.
PRIMULA SINENSIS, fine strain, 2s. 6d. and 5s.
,, ,, RUBRA FLORE-PLENA, 2s. 6d. and 5s.
,, ,, ALBA FLORE-PLENA, 2s. 6d. and 5s.
AURICULA, 1s. and 2s. 6d. CARNATION, 2s. 6d. and 5s.
CYCLAMEN PERSICUM, 1s. and 2s. 6d.
HOLLYHOCK, 1s. and 2s. 6d. PINKS, 1s. and 2s. 6d.
MIMULUS, 1s. PANSIES, 6d. and 1s. 6d.
PETUNIAS, 6d. and 1s. VERBENA, 1s. and 2s. 6d.
SWEET WILLIAM, Perfection, 1s.
,, from named flowers, 1s. and 2s. 6d.
The Wellington Nursery, St. John's Wood, London, N.W.

NEW ENGLISH ROSES

STAR of WALTHAM.—First-class Certificates from the Royal Horticultural and Royal Botanic Societies. Nice plants in pots, 10s. 6d. each.
"Star of Waltham is the best new Rose we have seen this season." *Gardeners' Chronicle.*
"A noble Rose, with great substance of petal, good colour, splendid foliage, and, what is more, delicious perfume." *Journal of Horticulture.*
"An exceedingly fine Hybrid Perpetual Rose." *The Garden.*
"A grand Hybrid Perpetual." *Gardeners' Magazine.*
"Large, full, lustrous in colour, and superbly beautiful." *Florist.*

QUEEN of WALTHAM.—Nice plants in pots, 10s. 6d. each.
"Star and Queen of Waltham are splendid examples in their colours." *The Queen.*
"Star of Waltham and Queen of Waltham, really gems, of which every rosarian ought to possess representatives." *The Country.*

THE NEW FRENCH ROSES of 1875.—Good plants, in pots, of all the best varieties, 2s. 6d. each, 24s. per dozen.

THE NEW FRENCH ROSES of 1874.—2s. each, 18s. to 21s. per dozen.

OLDER ROSES, a splendid stock, in pots, 10s. 6d. to 21s. per dozen, £3 15s. to £7 10s. per 100.

Priced Descriptive Catalogue Post Free on application.

WILLIAM PAUL,
PAUL'S NURSERIES, WALTHAM CROSS.

BENJAMIN S. WILLIAMS' Superb Strain of FLORISTS' FLOWERS (post free).

Per packet.—	s.	d.
CALCEOLARIA, Williams' superb strain, 1s. 6d., 2s. 6d., 3s. 6d. and	5	0
CINERARIA, Weatherill's extra choice strain, 1s. 6d., 2s. 6d., 3s. 6d. and	5	0
CYCLAMEN PERSICUM, Williams' superb strain, 1s. 6d., 2s. 6d., 3s. 6d. and	5	0
GLOXINIA, saved from the finest drooping varieties ..	1	6
,, saved from the finest erect varieties	1	6
PANSY, saved from extra choice show varieties 1s. and	2	6
,, Belgian, finest mixed .. .. .. 1s. and	2	6
PRIMULA SINENSIS FIMBRIATA, Williams' superb strain, red, white, or mixed, 1s. 6d., 2s. 6d., 3s. 6d. and	5	0

VICTORIA AND PARADISE NURSERIES, Upper Holloway, London, N.

MAURICE YOUNG'S
NEW DESCRIPTIVE CATALOGUE
Is now ready, and may be had on application.

IT COMPRISES:—
HARDY JAPANESE and other CONIFERÆ.
HARDY ORNAMENTAL TREES, SHRUBS, and EVERGREENS.
RHODODENDRONS in fine named varieties; PONTICUMS, and other common kinds for covers.
ROSES, Standard, Half-standard, and Dwarf, in all the best kinds.
FRUIT TREES.
CLEMATIS, and other climbing Plants.
Cheap EVERGREENS and DECIDUOUS TREES and SHRUBS for Planting Belts and Shrubberies.
TRANSPLANTED FOREST TREES.
QUICKS, and other Hedge Plants.
DWARF EVERGREEN and VARIEGATED PLANTS for Winter Bedding, &c.

DESIGNS, PLANS and ESTIMATES prepared for Laying-out and Planting New Grounds, and for Improving Park Scenery and Existing Shrubberies and Plantations.

MILFORD NURSERIES, near GODALMING.

Orchids.
In consequence of large Importations
MR. WILLIAM BULL can make special offer of the following :—
DENDROBIUM DEVONIANUM, 2s. 6d. and 3s. 6d. each; 24s. and 36s. per dozen.
CYPRIPEDIUM NIVEUM, 2s. 6d. and 3s. 6d. each; 24s. and 36s. per dozen.
DENDROBIUM THYRSIFLORUM, 7s. 6d. and 10s. 6d. each; £4 and £5 per dozen.
ODONTOGLOSSUM HASTILABIUM, 5s. and 7s. 6d. each; £2 10s. and £4 per dozen.
ACINETA HUMBOLDTII, 3s. 6d. and 5s. each; 36s. and 50s. per dozen.
ANÆCTOCHILUS DAWSONIANUS, 2s. 6d. each; 24s. per dozen.
ANGULOA CLOWESII, 5s. and 7s. 6d. each; £2 10s. and £4 per dozen.
DENDROBIUM PIERARDII, 2s. 6d. and 3s. 6d. each; 24s. and 36s. per dozen.
CATTLEYA TRIANÆ, 5s. and 7s. 6d. each; £2 10s. and £4 per dozen.
LIMATODES ROSEA, 2s. 6d. and 3s. 6d. each; 24s. and 36s. per dozen.
CATTLEYA CITRINA, 5s. and 7s. 6d. each; £2 10s. and £4 per dozen.
ODONTOGLOSSUM CRISPUM (ALEXANDRÆ), 10s. 6d. and 15s. each; £5 and £7 per dozen.
LÆLIA AUTUMNALIS, 7s. 6d. and 10s. 6d. each; £4 and £5 per dozen.
PLEIONE WALLICHIANA, 2s. 6d. and 3s. 6d. each; 24s. and 36s. per dozen.
MAXILLARIA LUTEO-ALBA, 2s. 6d. and 3s. 6d. each; 24s. and 36s. per dozen.
ODONTOGLOSSUM INSLEAYI LEOPARDINUM, 7s. 6d. and 10s. 6d. each; £4 and £5 per dozen.
DENDROBIUM CRYSTALLINUM, 7s. 6d. and 10s. 6d. each; £4 and £5 per dozen.
EPIDENDRUM VITELLINUM MAJUS, 7s. 6d. and 10s. 6d. each; £4 and £5 per dozen.
HOULLETIA CHRYSANTHA, 7s. 6d. and 10s. 6d. each; £4 and £5 per dozen.
MAXILLARIA LUTEO-PURPUREA, 3s. 6d. and 5s. each; 36s. and 50s. per dozen.
ODONTOGLOSSUM RAMULOSUM, 7s. 6d. and 10s. 6d. each; £4 and £5 per dozen.
EPIDENDRUM MACROCHILUM, 7s. 6d. and 10s. 6d. each; £4 and £5 per dozen.
ERIA ODORATA, 3s. 6d. and 5s. each; 36s. and 50s. p. doz.
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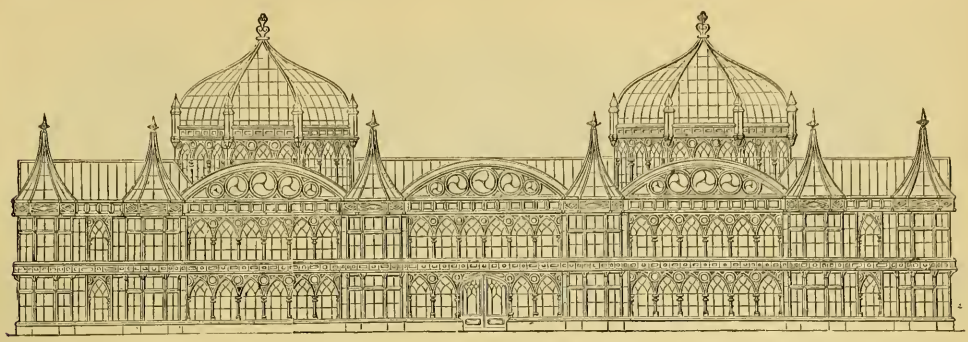

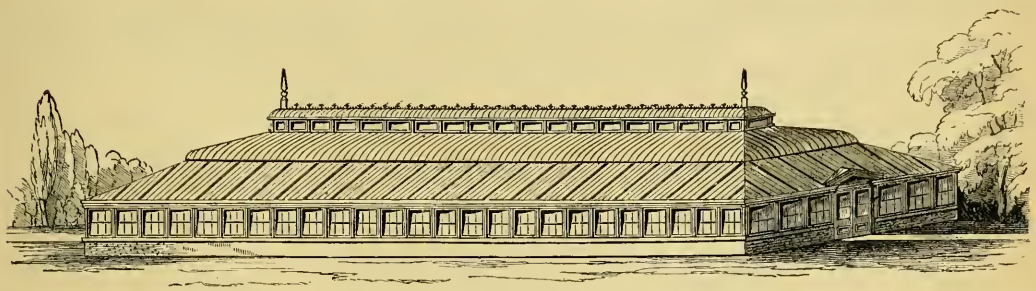

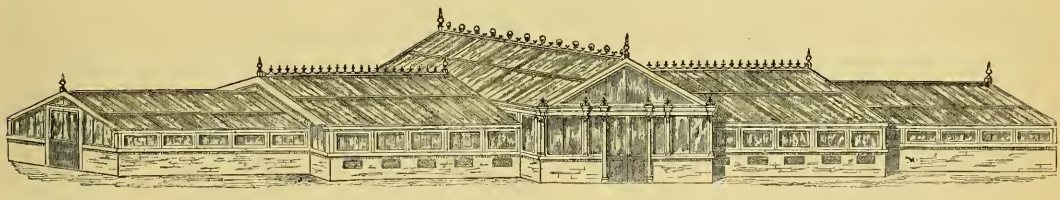

SATURDAY, JUNE 26, 1875.

MIDSUMMER FLOWERS.

ALMOST before the spring blossoms have disappeared from our woods and fields, and while even in our midland counties the Hawthorn remains in nearly full blossom, the "longest day" arrives, and midsummer is upon us. Like many other terms, this one of midsummer is perhaps somewhat misleading. Spring, in the popular acceptation of the term, can scarcely be said to begin on March 21, in spite of the almanac; and midsummer, so far as perfection and abundance of flowers is concerned, has hardly arrived by June 24. Yet it is with this day that many of the ancient observances connected with flowers are especially associated; such, for example, as the collecting of fern-seed and all its legendary details, which we have noticed somewhat at length at p. 755 of our first volume for 1874; and the reason for this may be found, at any rate in part, in the fact that this day was held in pre-Reformation times as a feast of considerable importance in honour of the nativity of St. John the Baptist—a feast which is still retained in the present Church of England prayer-book.

The popularity of St. John the Baptist in old times is manifested by the number of traditions connected with his day, both regarding natural and supernatural events. This may be partly accounted for by the fact that he occupied in the Christian faith a position similar to that previously filled by "Baldur the beautiful," the Apollo or sun-god of northern mythology. This planting of the new faith upon the remains of a past superstition was a thing of constant occurrence in the early days of the Church, and was even literally carried out—as in the case of the Cathedral of Chartres, the first Christian church founded in France, which stands upon ground anciently devoted to the rites of Druidic worship. The character of St. John was one which naturally appealed strongly to the sympathies, more especially of the rude northern nations, and resulted, as a matter of course, in the collection around his festival of many traditions.

Leaving on one side, however, as somewhat beyond the scope of this journal, any such speculations, however tempting, as are indicated above, we will confine ourselves to a notice of a few of the plant traditions and associations connected with Midsummer Day. It may be noted that the weather on this, as on other festivals, is in many places supposed to exercise an important influence upon the crops of the year. Rain is generally regarded as likely to exercise an unfavourable influence, especially upon nuts and grain of various kinds; although upon weeds its effect is favourable, if we may judge from an English proverb cited by Mr. Swainson:—

> "Cut your Thistles before St. John,
> You will have two instead of one."

The St. John's Wort—by which name Hypericum in general and H. perforatum in particular are generally known—naturally occurs first to one's mind in connection with Midsummer Day, and this association of the plant is both general and widespread. With us in England, indeed, it is chiefly by its name that this connection is recalled; but it was formerly the custom, as Pennant states to have been the case in his time in Wales, to stick it over the doors on Midsummer Eve, with a view, no doubt, of arresting the power of witches, to whom it was supposed to be especially obnoxious. Mr. Conway traces its use throughout Europe on this day. "In Sweden and Norway," he says, "it is the central plant of the midsommarsgvastar, the bouquet gathered on St. John's Eve, and hung up as an antidote to witches. In the Tyrol it was thought that if a traveller has it in his shoes he will never get weary. On the Lower Rhine it is placed in wreaths on the roofs as a general protection. Its sap is esteemed of especial potency—it being the elf's or the Baptist's blood, and is sometimes mixed with beer. In Wales St. John's Wort is sometimes made into a tea which produces a certain exhilaration. In France we may often see the harvesters having their hats decorated with it. It is held sacred by many in the Levant, where it is a current superstition that the plague is sure to leave a city on St. John's Day." The supposed power of the plant is manifested in one of its old names, "fuga dæmonum," as also in the distich—

> "Trefoil, Vervain, John's Wort, Dill,
> Hinder witches of their will."

The curiously perforated appearance of the leaves when held up to the light, to which the St. John's Wort owes its specific name, perforatum, is accounted for by the malice of the devil, who, in his anxiety to injure the plant, pierced its foliage with a needle! In Norway the connection of St. John with Baldur, to which we have already referred, becomes very apparent; as the red markings of the root are known both as "Baldur's blood" and the "blood of St. John." The rhythmical version of a German legend relating to this plant, which originally appeared in *Blackwood's Magazine*, has been so often quoted that we need not do more than refer to it here.

Another plant of ancient association with Midsummer Day is the Orpine (Sedum Telephium). As long ago as 1578, Lyte, in his translation of Dodoens, tells us that "the people of the countrey delight muche to set it in pots and shelles on Midsummer Even, or upon timber, slattes, or trenches, daubed with clay, and so to set or hang it up in their houses, whereas it remayneth greene a long season, and groweth." The plant was commonly called Midsummer Men; and a writer in the *Connoisseur* refers to it by this name, and refers to the love-divination which was practised with it. "I stuck up two Midsummer Men, one for myself and one for him. Now, if his had died away, we should never have come together, but I assure you his blowed and turned to mine." In connection with this, it may be mentioned that a ring, apparently of the fifteenth century, which was found near Cawood in Yorkshire at the beginning of the present century, had for its device two Orpine plants turned towards each other and joined by a true-lovers'-knot.

Mugwort (Artemisia vulgaris) was another plant dedicated to St. John; a girdle was made of it, called Cingulum Sanctis Joannis, which was supposed to be endowed with various properties, and the plant was hung before doors upon St. John's Eve. The most curious point connected with it, however, was the virtue attached to a certain marvellous "coal," which was found on this day only under the roots of the Mugwort and Plantain. The virtues of this coal were both numerous and varied, and the coal itself would take rank as a serious rival to many of the quack nostrums of the present day. Lupton, who appears to have believed in it, tells us in his *Notable Things* that "it is certainly and constantly affirmed that on Midsummer Eve there is found under the root of Mugwort a coal which saves or keeps them safe from the plague, carbuncle, lightning, the quartan ague, and from burning, that bear the same about them;" and Thomas Hill, in 1650, adds to this list of ills which are prevented by the

magic coal, and says that it is only to be found upon Midsummer Eve, "just at noon." The romance of the affair is, however, rather removed by a writer in 1675, who says that "they are not coals, but old acid roots, consisting of much volatile salt, and are almost always to be found under Mugwort; so that it is only a certain superstition that those old dead roots ought to be pulled up on the eve of St. John Baptist, about twelve at night." Both Lupton and Hill also mention the Plantain "coal," but it would appear from Aubrey that its use in his day was of less practical importance, albeit more romantic, than had formerly been the case. He says that at twelve o'clock on Midsummer Day in 1694, while accidentally walking in the pasture behind Montague House (where the British Museum now stands), he saw there "about two or three and twenty young women, most of them well habited, on their knees, very busie, as if they had been weeding. I could not presently learn what the matter was; at last a young man told me that they were looking for a coal under the root of a Plantain to put under their heads that night, and they should dream who would be their husbands. It was to be found that day and hour."

Love divinations, in fact, appear to have had unwonted efficacy upon this day. Besides those to which we have already alluded one or two others claim a brief notice. The sowing of Hemp seed, which was in many places practised on All Souls' Eve, also took place on Midsummer Eve. In the *Connoisseur*, from which we have already quoted, is the following:—"The same night, exactly at 12 o'clock, I sowed Hemp seed in our back yard, and said to myself—

'Hemp seed I sow, Hemp seed I hoe,
And he that is my true love come after me and mow.'

Will you believe me? I looked back, and I saw him behind me as plain as eyes could see him." The same writer gives the following custom regarding the Rose:—"Our maid Betty tells me that if I go backwards, without speaking a word, into the garden upon Midsummer's Eve, and gather a Rose, and keep it in a clean sheet of paper without looking at it till Christmas Day, it will be as fresh as in June, and if I then stick it in my bosom, he that is to be my husband will come and take it out."

The decoration of churches and houses on Midsummer Day with boughs of Birch and Beech, and with various other plants, was in former times very general. Stow, in his *Survey of London*, says that "on the vigil of St. John Baptist every man's door" was "shadowed with green Birch, long Fennel, St. John's Wort, Orpine, white Lilies, and such like," and "garnished upon with garlands of beautiful flowers." Disbursements for Birch occur in many churchwardens' accounts of the fifteenth and sixteenth centuries, often associated with Broom; and it was probably at this season that Coles, riding through Little Brickhill, in Buckinghamshire, noticed that "every signe-post in the towne almost was bedecked with green Birch."

A few of the European plant-associations of Midsummer Day may fitly conclude this notice. In many parts of Germany the Hazel rod used for divining purposes has to be cut on the midnight before St. John's Day. Elder berries gathered on St. John's Night are essential to the safety of the Styrian who would stand in the centre of a magic circle on Twelfth Night. "The Bohemian poacher," says Mr. Conway, "thinks he can make himself shot-proof for twenty-four hours by finding, on St. John's Day, Pine cones on the top of a tree, creeping around them, taking them home, and eating a single kernel on each day that he wishes to be invulnerable. In East Prussia there is a superstition concerning Dogwood, that its sap, absorbed in a handkerchief on St. John's Night, will fulfil all wishes." In the same district wreaths of Camomile are gathered on Midsummer Day, and hung up in houses as a preservative against storms. Even in Iceland we find a Midsummer superstition: it is supposed that the Meadowsweet (Spiræa Ulmaria) taken on this day and placed in water will discover, at any rate, the sex of a thief; if it sink the thief is a man, if it swim a woman. *B. M.*

New Garden Plants.

Albuca (Eualbuca) glandulosa, *Baker, n. sp.**

This is a well-marked new species of the group of Albucas which have the three outer filaments entirely destitute of anthers. Of the five species already known it comes nearest A. viridiflora (*Bot. Mag.*, tab. 1656), but may be distinguished at a glance by its flowers, which are very fragrant, permanently erect, with pure white segments having a green central band, instead of inodorous and cernuous, with the whole segment more or less green. Bulbs were sent by Mr. McOwan, in 1872, from the eastern part of Cape Colony, to the living collection at Kew, where it flowered in the month of April in the present year.

Bulb globose, an inch or more thick, the tunics quite truncate at the top. Leaves 2—3, cotemporary with the flowers, linear semiterete, half a foot long, 3—4 lines broad, tapering to the point, fleshy and somewhat fragile, deeply channelled and quite naked down the face, bright green on both sides, with 4—5 distinct ribs on each side of the costa, semi-terete on the back and finely glandular. Scape a foot long, terete, densely glandular throughout. Corymb in this specimen three-flowered, but doubtless producing more flowers when the bulb gets well established. Bracts lanceolate, 6—9 lines long, equalling or rather shorter than the permanently erect densely glandular pedicels. Flowers very fragrant, permanently erect, outer divisions of the perianth erecto-patent, oblong, 4 lines broad, the central third bright green, glandular on the back; the two outer thirds pure white. Inner segments rather shorter, permanently connivent, with an incurved yellowish tip. Filaments flat, pure white, narrowed into a haft, only those opposite the three cucullate inner segments anther-bearing. Triquetrous obconic style as long as the ampullæform ovary. *J. G. B.*

Aloe (Pachidendron) drepanophylla, *Baker, n. sp.*†

A native of the district of Somerset in Cape Colony, and of the Zuurberg range of mountains, where it was discovered by Mr. Thomas Cooper, who brought it to this country, and has now a plant in flower in his collection at Reigate, from which these notes were taken. From all the other species with the stamens and style much exserted from the perianth it is readily marked by its leaves; and from the numerous varieties of A. cæsia, which in habit and leaf it most resembles, by its different perianth, and much exserted stamens.

Plant 7 feet high in Mr. Cooper's specimen at Reigate, seen 10—12 feet high in its native country, 3 inches thick at the base, half as much at the top. Leaves crowded in a dense rosette in the top foot and a half, ensiform, falcate, more decidedly oblique than in any other species, 15—18 inches long, 2½ inches broad at the base, narrowed gradually to the point; a uniform rather dead glaucous green throughout, not at all marked with either spots or blotches; flat down the face, rounded on the back, half an inch thick, soft and pliable in texture; the edge armed with moderately close spreading green spines with a horny border, not more than a line deep. Flowers 150, in a dense raceme, which when expanded is 3 inches broad, and above half a foot long. Pedicels ascending, half an inch long. Bracts lanceolate, shorter than the pedicels. Perianth tubular, 9—12 lines long, gamophyllous in a short cup at the base, the segments ligulate, much imbricated, pink before opening, when mature whitish, with 1—3 very distinct green ribs. Stamens one-third as long again as the perianth. Anther oblong, ⅓ inch long. Style longer than the stamens, curved, exserted at least half an inch from the perianth. *J. G. B.*

Odontoglossum Andersonianum, *Rchb. f.*

I have at hand a most beautiful variety of this plant. It is conspicuous by reason of its very large and very dark blotches, and by the very shining yellow on the lip. I have to thank for it Mr. Van Branteghem, who is the pioneer of Orchidophilia on the Bosphorus at Constantinople. *H. G. Rchb. f.*

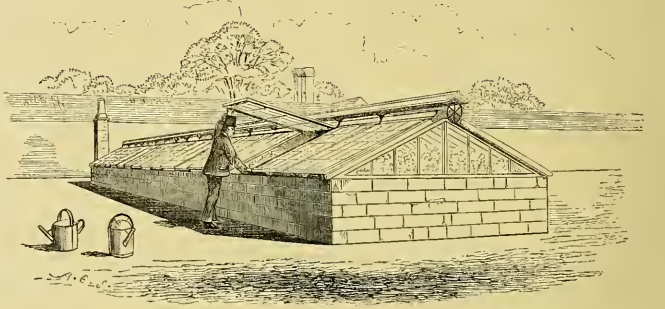

Fig. 167.—Strawberry House at Chatsworth.

HALF HOURS AT KEW.—III.

ACACIAS.

Having been prevented from continuing our gossip on plants in the Kew Gardens in regular order, this article is somewhat out of season, as most of the Acacias are already out of bloom. Nevertheless, there is so much that is curious and beautiful in the genus Acacia that we will not pass it over on that account. In the first place it is remarkable for the diversity of form it displays in the foliage of its numerous species, which may be studied as well now as at any other time; and it is equally singular in the uniformity in structure and colour exhibited by the flowers of species inhabiting the most distant parts of the globe. The number of species known at the present time is nearly 450, dispersed over nearly all tropical and sub-tropical regions, a few reaching the warm temperate zones. In a recent revision of the sub-order Mimoseæ of the Leguminosæ, by Mr. Bentham, in the *Transactions* of the Linnean Society, 432 species of Acacia are described, many of which offer a great variety in their foliage, the extreme forms of which were regarded as distinct species by some botanists before the connecting links were discovered, and for horticultural purposes these names are retained. Doubtless a considerable number of species yet remain undiscovered in the interior of Australia, and other little explored tropical regions; and probably forms will be found connecting some of those now considered as distinct. Thus, Dr. Grisebach has lately described four new species in a small collection of plants

* *Albuca (Eualbuca) glandulosa*, Baker, n. sp.—Bulbo globoso apice nullo modo fibroso; foliis 2—3 anguste linearibus semipedalibus facie glabris dorso semiteretibus subtiliter glandulosis; scapo tereti pedali dense glanduloso apice parce corymboso; bracteis lanceolatis pedicellis ascendentibus subæquilongis; floribus suaveolentibus diutine erectis; perianthio unciali segmentis albis dorso late viridibus glandulosis; staminibus exterioribus castratis; stylo clavato obconico prismatico ovario æquilongo.

† *Aloe (Pachidendron) drepanophylla*, Baker, n. sp.—Longe caulescens; foliis dense rosulatis falcatis obliquis sesquipedalibus glauco-viridibus nullo modo lineatis nec maculatis facie planis dorso rotundatis margine dentibus parvis patulis deltoideis cartilagineis præditis; racemo simplici densiflore; pedicellis ascendentibus bracteas lanceolatas superantibus, perianthio 9—12 lin. longo basi brevissime gamophyllo; segmentis ligulatis late imbricatis junioribus rubro-tinctis, maturis pallidis 1—3 nervis distinctis viridibus percursis; genitalibus longe exsertis.

gathered in the territory of the Argentine Republic. Now a few words as to the distribution of the species, very few of which, it will be observed, are common to separate countries, and we may add that most of them, especially the Australian, have a very limited geographical area. Australia contributes 293 species, America 61, Africa 57, Asia 19, Polynesia 4, and the Mascarene Islands 2. A fact worth noting is that the genus is not represented in New Zealand, although the species are numerous in Tasmania. In the northern hemisphere the genus is represented as far north as Japan and the Mississippi States of North America, but none appear to reach the fortieth parallel of latitude. We will first of all say something of the Australian species, the majority of which exhibit a peculiarity in their foliage exceedingly rare in other genera and in the species of Acacia inhabiting other countries. The peculiarity is this, that the true leaf is not developed, but in the place of this the stalk or petiole is more or less flattened out or lengthened, assuming a wonderful variety in size and shape. That this is actually the case is proved by some species in which the finely divided (bipinnate) blade is borne at the end of the phyllode, as the flattened leaf-stalk is termed, and the young seedling plants of all (?) the species have pinnate leaves. Under cultivation A. Melanoxylon, A. implexa, and others, usually develope some of the true leaves; indeed, it would seem that generous treatment favours their development. A similar thing occurs in the foliage of two South American species of Mimosa, and one species of Prosopis from the same country. Some American species of Biophytum (Oxalis) are likewise phyllodineous.

Of the 293 Australian species of Acacia, 271 belong to the phyllodineous section, which numbers only about 280 altogether. The extra-Australian phyllodineous Acacias occur in the Pacific Islands and is Indian Archipelago. One, A. Richii, is found as far north as the island of Formosa, and curiously enough the northern limit in the western hemisphere is in about the same latitude, just within the tropics, in the Sandwich Islands, where A. Koa is one of the largest and most important timber trees; from its trunk the canoes of the natives are formed. The earliest known species of this section was found in Amboina, and is figured by Rumphius in the *Herbarium Amboinense*, but it has not been re-discovered. It is described as having phyllodes 18 inches long, which is much larger than those of any other. Practically, the first-known species was A. laurifolia, described as Mimosa simplicifolia by Linnæus, who does not appear to have understood the nature of the foliage. This is a very handsome species with broad, dark green, oblong phyllodes. It is a native of the Isle of Pines, Fiji, and other islands in the South Pacific Ocean, and was introduced by J. R. Forster as early as 1775, but it has almost, or quite, disappeared from our gardens. Not much later Lamarck described a phyllodineous species from Bourbon, under the name of Mimosa heterophylla, a very appropriate appellation, inasmuch as this species developes some true leaves, and furnished the solution of the true nature of the phyllodes. It was introduced into this country in 1824.

To continue the history of the discovery and introduction of this group we may mention that Willdenow (*Species Plantarum*, 1805) includes nine species; in the third edition of Aiton's *Hortus Kewensis* (1810) a few more were added, but only thirty-seven were known to Wendland (*Commentatio Acaciis aphyllis*) in 1820. After that date new species were rapidly discovered and introduced by Drummond, Fraser, and others, who collected in West Australia, to which part nearly one hundred of the known phyllodineous species are confined. By way of further illustration of the limited area of the species, it may be mentioned that fifty others are limited to North Australia, as defined in Mr. Bentham's *Flora Australiensis*. But out of seventeen species found in Tasmania only two are endemic, including the beautiful A. Riceana. Again, a few species have a very wide range—such are A. juniperina, armata, sentis, salicina, myrtifolia, Melanoxylon, longifolia, &c. The twenty-two species of Acacia in Australia having true leaves are scattered all over, but are much more abundant in the eastern and especially the south-eastern parts. The almost ubiquitous tropical species, A. Farnesiana, is also indigenous in Australia. Before entering more fully into a description of the merits of a selection of species for greenhouse and outdoor cultivation, we may give some idea of the general appearance, uses, &c., of the Australian species. In habit and stature they vary as much as in the form and disposition of their phyllodes, forming a conspicuous feature of the vegetation on the most different soils and in the most diverse situations. Some are mere trailing or prostrate shrubs (A. humifusa, nitidula, &c.), others compact, dwarf, erect shrubs (A. armata), others stout erect shrubs, of 8 or 10 feet or more in height (A. myrtifolia), others elegant small trees (A. pendula), and others lofty timber trees (A. Melanoxylon). The flowers are almost invariably some shade of yellow, very rarely white, and arranged in globular heads or cylindrical spikes. In many species they are very fragrant, and usually produced in such unbounded profusion that an Acacia scrub or forest in bloom is a most striking and beautiful sight. Taken altogether, the genus Acacia is more numerous in species than any other represented in Australia, although there are many very large genera in that country.

The arborescent species form entire forests, and those of shrubby growth constitute the principal vegetation of miles of "scrub." Among the more important for their timber, bark, gum, or other products are A. Melanoxylon, or Blackwood, A. mollissima, or Black Wattle, A. homalophylla, or Myall, and A. dealbata, or Silver Wattle, but a large number of them that have received no distinctive popular names, yield gum and bark suitable for tanning, or handsome hard wood suitable for the cabinet maker. The timber of A. Melanoxylon is described in the report on the Victorian Exhibition as the most valuable of all colonial timbers; it is sometimes called Lightwood, as well as the more appropriate name of Blackwood. It is extensively employed in the construction of railway and private carriages, as it is well adapted both for light and heavy framing purposes; and in this respect contrasts most favourably with the best of the English woods. The naves and spokes of light wheels are often made of it; and from its quality of bending with facility, it is highly prized for gigs and buggy shafts, and the rims of light carriage wheels. It also makes excellent gun-stocks, being harder and more durable than Walnut, and not inferior to it in beauty. It is a favourite with cabinet-makers for furniture of every description, and receives a very high and beautiful polish. The Black Wattle furnishes a valuable wood for the cooper, and the bark is largely used for tanning purposes. A. homalophylla, the Myall, and several other species bearing the same trivial name, have a hard fragrant wood which retains its odour for years. Bennet says, in his *Gatherings of a Naturalist*, "I have a small cup of Myall wood which has been in my possession for the last fourteen years and retains its fragrance as powerfully as ever." For the preparation of leather the barks of the various Wattle trees are the most useful, and the most commonly employed. The trees are flayed in September and the two following months. The leather produced by the use of the bark of the Black Wattle is characterised by a reddish-brown colour, much deeper than that communicated by Oak bark, and it is considered to act more speedily. According to Mitchell (*Tropical Australia*) cattle eagerly browse upon the branches of A. pendula; whilst the same traveller states that the natives use boughs of A. varians to poison fishes in their holes. The gum exuded by various species is described as excellent eating, and Wilhelmi affirms that the Port Adelaide tribes lived almost exclusively during the summer months on the gum obtained from different Acacias. Respecting the Acacia seed the same writer observes that those of all the varieties are collected in large quantities under the name of Nundo. They are roasted in hot ashes, which causes them to swell to double their former size. As a proof how valuable these trees are to the aborigines it may be mentioned that the Kukata tribe, living in the north-west, and renowned as very savage and possessing the art of sorcery, often threaten to burn the Nundo bushes or otherwise destroy them, to harass the inimical tribes. Various other economical applications are made of different products of this genus, but not on a sufficient scale to have become of commercial importance. The characters for grouping are chiefly taken from the form, disposition, and venation of the phyllodes and the arrangement of the flowers. In our next we propose giving a rapid sketch of the principal groups, selecting a few of the more curious and interesting species for comment, and specially noting the most desirable for cultivation. *H.*

(*To be continued.*)

HYBRID RHODODENDRONS.

As the summer nears the beauty of this excellent group of plants wanes within-doors. Then the unpleasant duty devolves upon us to crop away the remains of what was recently brilliant in regal pomp, with aspect enduring, free from the tint of decay, but now shrunk and soiled masses, clinging to but disfiguring what they once adorned. Reluctant to part with the objects which afforded so much real pleasure one may be pardoned the confession of feeling a tinge of sadness when the period of their richness has expired. However, such sentiments soon evaporate on recounting the pleasure experienced as each member of this great family in its turn unfolded its beauty, and lightened with its brightness the bleak and gloomy months, even before "grim November's surly blasts" had set in. R. Nobleanum, supported with its varieties, first awakes into renewed activity, unfolding to our senses a feast of good cheer served in piles of rosy scarlet cups, along with others of rose and blush tint. Close in their train follow R. ciliatum, a maiden of neat, compact stature, and beautiful in her modest clothing of white flowers, campanulate, lucid, waxy, of solid texture, profusely produced. Cunningham's White may well look up with confidence as we near the end of the first month, there being none to outstrip it then. R. multiflorum furnishes its clusters of blossoms, which taken singly might be mistaken for blooms of R. ciliatum, but there can be no difficulty in determining their respective difference; multiflorum produces flower buds down the stems as well as on the points of all its growths. This one dislikes excessive forcing, but readily yields to a little gentle persuasion by means of heat and moisture; thus urged she usually puts in a fair appearance in February and March. R. præcox ought not to be despised, although not claiming to be one of the "fairest of the fair;" its bluish purple flowers are useful when flowers generally are at a ransom value; and even old R. atrovirens produces a telling plant when taken out of the ground in February and placed into very moderate moist heat; but as a hardy, contented, unfailing friend there is none before R. barbatum. Exposed in a tub all the past grave winter, without any protection whatever, stood a splendid plant of this species, with considerably over a hundred flower crowns on it; this plant suffered nothing by the exposure, excepting a few leaves which caught the rays of the morning sun before the previous night's frost had got out of them. Independent to this hard usage, R. barbatum commenced to expand its splendid trusses when we were forced to afford it lodgings under glass, where its startling richness expanded with amazing rapidity, displaying in the sunlight which played around each cluster of ruby crimson a halo of its own glowing colour. Flowers campanulate, medium sized, of extraordinary substance. The flowers are closely set into a globose form; the leaves are long, lanciform, inclined to droop, they are rather harsh in look, and their foot-stalks are densely furnished with rigid hairs or barbs. I am aware of the existence of other varieties in commerce which go under this name, but a good test is the presence of this tuft of barbs on the footstalks of the leaves, which is conspicuously shown in the true barbatum.

The forthcoming enumeration is given without any reference to their period of flowering. They are grouped according to prevailing colours.

White Flowers and White Suffused Blush.—The Queen is snowy white, displaying a small blotch composed of orange pencillings; truss large, bold, and of refined build; pips perfect in mould and substance. Minnie has also the noble bearing of a queen, having a truss of charming airy fulness; the individual flowers are full and perfect, and so is their arrangement into great pointed trusses; colour blush-white, blotch conspicuously large and telling, composed of dense mottlings of chocolate. Mrs. John Clutton is generally acknowledged the fairest and most accomplished member of the white section. I know that I never shall forget her appearance, having once seen her flowers, but I cannot venture a description of her parts from the remembrance of them. R. perspicuum has for prevailing colour a softish white, suffusing blush; blotch formed of delicate green freckles; nice full trusses. R. elegans is a white of superior purity, unless for the feather-like blotch traced in canary-yellow punctures confined to the upper petals. R. Vesta is also a lovely blush-white, with orange markings on the superior segments. R. Evelyn displays a beautiful truss, full, and of superior finish; its blossoms are models in form, colour white, flushed with purple, more intense around the margins of the corollas. R. album grandiflorum has also a grand truss of excellent white flowers, stained with a blotch of orange-yellow. R. guttatum colorans is second to none in whatever respect it may be judged; ground colour French white, profusely stained by pencil touches of maroon over the entire exterior of the corolla, which is cupped; truss large and perfection itself. R. Jean Stern should have figured at the commencement; her sterling worth merits special description, but I cannot furnish one, although I retain a sufficient remembrance of her to know her when we meet.

Those Classed as Crimsons.—R. Corregio is a brilliant maroon-crimson, flushed with rose, upper petals showing scattered freckles of black; truss of neat globular form. R. Decorator has crimson flowers, with stray punctures of black scattered over its upper petals, and compact truss of well-formed flowers. R. John Waterer is a showy crimson, pencilled black densely over the lower portion of its flowers; fine. R. Michael Waterer is still more showy, and on the whole a superior variety, being conspicuous for the brilliancy of its crimson, excellent larger flowers, and boldly marked blotch of shining black pencillings; truss unusually large, excellent build. R. Grand Arab and Sir Robert Peel are very much alike, but Sir Robert I consider the best. R. Warrior is another after the same style. The three are classed first-rate in the bright crimson section, with black or maroon markings.

Rose Colours, and inclining to Rose.—R. Betsy Trotwood is a lively rose, mingling with lighter shades, and vivid tints of dense rose prevailing around

the marginal portion of the corolla, centre blush with greenish yellow freckled blotch; flowers of moderate size; truss somewhat confused, owing to the shortness of the footstalks of the flowers, still Betsy Trotwood may well rank high. R. splendens is after the same style as the former, but splendens exhibits a more closely filled blotch of ochre-yellow spots. Mrs. John Waterer occupies a similar position amongst rose colours to that which Michael Waterer does amongst crimsons; colour, light rose. R. Brilliant is a brilliant magenta, and forms an excellent truss of cupped flowers, showing a few dim freckles of brown; exquisite. R. Barclayanum, another of the upper class noted for its superior attractions, and R. Brilliant, are very much alike; R. Jago and R. General Cabrera especially shine; their marked distinction rests on their approcahing in form and marking those of the Pelargonium. Jago's main colour inclines to rose-purple, while that of General Cabrera inclines to rose-crimson; both are marked with effective blotches of black pencillings, and are first-rate. R. Brayanum is the pride of the magenta order, without spot or stain; its truss is lightsome and free, each corolla being posed so as to complete a perfect truss; flowers campanulate, of firm, leathery consistency. Brayanum is one of the most favoured. R. giganteum elegans is a dark rose inclining to crimson; its blotch is closely beset with pencillings of dense maroon. R. Madame Warner produces a jaunty but charming truss of lively rose, toning down to blush as the centre of the flowers is approached; blotch composed of brown markings; corolla flattish, but smooth and uniform. R. concessum is a delicate and lively pink, with touches of peach in its colour; flowers large, flattish, and rather confused in the get-up of the truss, still very showy. R. Earl of Shannon is a bright rose-pink, with excellent truss, and strongly marked blotch in freckles of maroon. R. R. S. Field is another bright rose, showing but few faint freckles of light brown; flowers cup-formed, properly built into a well constructed truss.

Flowers Purple and inclining to Purple.—R. Nero is a worthy one to commence with. Its flowers are purple, inclining to lilac towards the inner portion of the flower; blotch triangular in outline, feathered with a strong washing of maroon, copiously filled in with mottlings of glossy maroon. R. Schiller, another excellent variety, is quite worthy the name it is intended to honour; the truss is of exquisite build, composed of medium-sized, neatly-formed flowers, with bold blotch of varnished black. R. roseum elegans may be rose colour out-of-doors, but it is more inclined to lilac under glass; however that may be, it has a cheerful appearance, its truss is well constructed, and the pips creditable, showing a blotch of ochre-yellow. R. Blatteum is a star of the first magnitude, with truss massive, elegantly poised on the shoots; in build it is difficult to surpass; flowers deep purple, expansive, smooth, with solid, conspicuous blotch of triangular form, filled in by shining black spots. R. Chancellor has rather pale purplish-lilac flowers, which are extra large. R. Princess of Wales has a dark purple border, the interior of the corolla is white dyed with purple; blotch traced by mottlings of greenish brown; splendid truss and flower, remarkably distinct from all others but R. Prince of Wales, which in every important respect resembles the Princess, but is of a darker shade. R. Sherwoodianum produces handsome trusses of well-formed flowers, the petals are well-rounded, shell-like, of purple hue, blending to white; blotch strikingly bold in its well-defined markings and outline; freckles composing blotch maroon, exhibiting in the blotch a washing of maroon. R. Joseph Whitworth may be designated the acme of perfection, so far as we have seen in this class of Rhododendrons; its truss is faultless, as are its flowers, with a colour unique, in short it is one of the most imposing of them all; colour maroon-purple, uniting a metallic gloss, and besides, although difficult to trace, at a distance there exists evidence of the presence of lurid crimson in its composition; the interior is freckled over with minute mottlings of glossy maroon, enlivened by a blotch, which is clearly defined by its frecklings of the same shade. *A. Kerr.*

CHATSWORTH.

[See also Special Supplement.]

Fruit growing at Chatsworth is nearly all carried on under glass, in consequence of the great uncertainty attendant upon late spring frosts, which are very keenly felt here. On the 30th of May last there was sufficient frost to cut down Yews, Laurels, Lilacs, and other trees pushing into growth, to kill nearly all the Apples, and an immense quantity of Gooseberries, and all the blossoms then out on Peas. For the last seven years Mr. Speed has never escaped a sharp frost during the last week in May, consequently all crops out-of-doors are quite a fortnight later than in gardens on higher ground. Peaches, Nectarines, and Apricots cannot be depended upon for a crop outside, and consequently none are grown. But little is also done with Plums, which cannot be trusted, the oldest men in the garden never having seen a bushel of fruit gathered from outside trees in any one year. On the contrary, Cherries of all kinds do grandly on the walls, and yearly produce an abundance of fruit. Mr. Speed attributes his success with this fruit to the fact that the borders in which they grow are never dug, and the trees are never touched with a knife, all the wood they make being nailed in without much regard to the rule of thumb. Apples are nearly always cut off by frost, and no dependence can be placed upon them. Pears are grown entirely upon the walls, and the best grown here are Winter Nelis, Glou Morceau, Jargonelle, and Beurré de Rance, while some fine young trees of Louise Bonne of Jersey promise to be equally serviceable.

Vine growing is carried out at Chatsworth are large extent, and some sixteen houses to a devoted to it. Thirteen of these houses are lean-to's, with the Vines planted out, and finds no remedy more effectual than syringing with cold water for a night or two.

Pines are grown in pots in soil from the magnesian-limestone formation, to the extent of about 600 plants, 300 being fruited every year. The varieties most favoured are Queens, Charlotte Rothschilds, Smooth Cayennes, and a few Black Jamaicas, and all are plunged in leaves in six well-built pits. For these Mr. Speed never uses water of a lower temperature than 85°, and there is a copper handy for furnishing the supply of hot water for mixing. Mr. Speed has been unfortunate in obtaining a bad sample of guano, which has injured rather than improved his plants, but a change to home-made liquid manure has done wonders in getting the stock round to their normally fine condition.

About 3000 plants of Strawberries are forced, the varieties preferred by Mr. Speed for this purpose being Underhill's Sir Harry, Reeves' Eclipse, and Vicomtesse Héricart de Thury, the latter being especially valuable as requiring less light than most other varieties. For growing Strawberries Mr. Speed has arranged a span-

Fig. 168.—Old Peach Trees at Chatsworth.

three are handy span-roofed erections, for Vines in pots, which are grown—and remarkably well, too—for early work. The only sorts grown in pots are Black Hamburgh, Foster's Seedling, and Buckland Sweetwater, and the first cutting is generally made about the middle of April. All the best varieties are planted out permanently, in addition to several of the newer ones. Pearson's Golden Queen is well spoken of by Mr. Speed, while another of Mr. Pearson's Grapes, M. de Lesseps, is valued as ripening six weeks earlier than most others. Dr. Hogg and the Chilwell Alicante may also be seen in fine condition, and Mr. Speed anticipates that the last named will prove a remarkably good acquisition. In Vine culture Mr. Speed lays great stress on the free admission of air, the outside borders are even covered with loosely fitting tiles in preference to shutters, as allowing freer access of air. Having to produce Grapes for a large family consumption, Mr. Speed favours those bunches which weigh from 1½ lb. to 4 lb., with good berries, and visitors to Chatsworth will find an abundance of both. We may incidentally mention that for mildew Mr. Speed's remedy is simple and effectual, it consists merely in drying the house and allowing free access of air; while for red-spider he roofed pit (fig. 167, p. 814), the lights of which lift off on either side. The pots are plunged in leaves, and the plants are close to the glass. From this they can be taken into the forcing-houses and placed on the shelves to ripen. Early runners being in request for pot culture, Mr. Speed has a plan of his own for obtaining them. After he has layered a sufficient quantity for forcing, he takes about 200 of the next best runners of each of the sorts in demand, and plants them out. Then when they come into flower in the following year, all those which do not flower are at once pulled up, and the result of this process of selection is, that out of his 3000 plants he has not a single blind one.

Melons are for the most part grown in 2-peck pots at the back of the Pine stoves, and a good supply of excellent fruits is obtained from such varieties as Colston Bassett, Gilbert's Scarlet-flesh, and Gilbert's Victory of Bath. The Cape Gooseberry is a speciality at Chatsworth, and a roomy span-roofed house is devoted to its culture. The plants are propagated by cuttings, and grown in pots, the shoots being trained up the roof like a fan-shaped Peach tree. The plants are in very fine condition, and Mr. Speed has not been without a dish of fruit since last November, and very delicious and refreshing

the fruits are. Several houses are devoted to Peaches and Nectarines, and the principal varieties are Royal George, Elruge, Violette Hâtive, Prince of Wales, Victoria, Bellegarde, Stirling Castle and the Royal Ascot Peach, the last-named being considered by Mr. Speed the finest late variety, while Prince of Wales is esteemed by him as the best late Nectarine, and one that stands fire-heat well. In the Plum-houses the plants are grown as small bushes planted out in the front border, and as single vertical cordons on the back wall. In the Fig-house—a lean-to—the beds are raised to the height of about 3 feet, and the trees planted out back and front, are doing splendidly. Mr. Speed considers a variety named Pallance the best early Fig grown, and for a general crop Lee's Perpetual, *alias* Brown Turkey, is the best. Some small plants which have been layered only three months are now showing five and six fruits each—a sufficient hint that this is not the wrong way to propagate them.

Kitchen-Garden.—We have unfortunately but little space left to devote to the vegetable department; consequently, we can only indicate some of the more prominent features. Of the quantities annually furnished we may mention 2000 plants of Snow's Winter White Broccoli; 12,000 Celery, Williams' Matchless Red, and Turner's Incomparable Dwarf White, grown in beds of four rows each; 6000 Endive, mostly used as a vegetable; 1 acre of Asparagus, a quarter of an acre of Rhubarb, for forcing; an immense quantity of Seakale, for the same purpose; Kidney Beans all the year round—the supply for ten months out of the twelve being obtained from pot plants; 2000 Brussels Sprouts, &c. Mushrooms are grown in a long shed constructed of brick, iron and slate—an indestructible shed, in fact—and a generally abundant supply is kept up without intermission. Mr. Speed crops very closely, two crops being in all cases where practicable on the ground at the same time. The soil is a sandy loam deposit from the grit formation, but the situation is low, and we should suspect the subsoil is cold, judging from Mr. Speed's disbelief in the advantages of digging; that the ground is not too often dug over is certain, for here is a plantation of Strawberries on ground that has not been dug for seven years, but which carried crops of Peas, Cabbages, &c., before the Strawberries were planted, and the latter are as fine as it is possible to get them. The hoe is the principal tilling implement in use, and the secret of the fine growth all around lies in its frequent use and in the application of manure on the surface of the ground only. Peas, Beans, and all such crops are treated in the same manner, and starved vegetables are conspicuous by their absence. Horse Radish is grown to a considerable extent, and in a way differing from that ordinarily practised. When a new plantation is made thin roots about 18 inches long are selected, and, after having all the side rootlets rubbed off, are planted in rich soil in a slanting direction instead of vertically, so that all parts are comparatively near the surface; and the sticks grow frequently as thick as one's wrist, every bit of which is usable.

THE ROYAL BOTANIC GARDEN, BELFAST.

First impressions have generally an influence upon our subsequent estimate of most things; yet if such were invariably the case, few persons would come away with a very favourable impression of this place, for the wretched apology for an entrance that leads to the garden is such as to induce a stranger to suppose he has lost his way and in mistake got to the potting sheds. But once fairly inside the visitor is agreeably surprised to find the internal appearance of the grounds so much superior to the approach. The time of my visit was on the occasion of the great fruit and flower show, held in the gardens during the time the British Association met here in August last year. The first thing noticeable to southern eyes was the beautiful, green, close condition of the turf, as elastic to the foot as stepping upon a thick piece of india-rubber, contrasting so favourably with the burnt-up condition of the surface in the South of England; this verdant luxurious growth was not alone confined to the grass, but was apparent everywhere in the shrubs, the herbaceous and bedding plants, and particularly the trees, especially the fine collection of Oaks, for which this garden is celebrated. Here are some good examples of Abies Douglasii, Taxodium distichum, T. sempervirens, Cedrus Deodara, C. Libani, C. atlantica, and other allied trees, doing well, the humid climate and the proximity to the sea appearing to suit them as well as many other moisture-loving plants, without the stunting effect of exposure to cutting breezes. On the left of the entrance is a wall covered with a number of plants, most remarkable amongst which is a Wistaria sinensis, covering over 100 yards of its surface. In different parts of the garden are some good examples of the white-leaved Willow and English Elms: in one corner of the grounds are growing a number of memorial trees, amongst which is the Cedrus Deodara planted by the Duke of Abercorn, the present Lord-Lieutenant; C. Libani, by the Duchess of Manchester; Thuja Lobbii, by the Countess Spencer. The ground is undulating, and the surface varied, altogether having a pleasing appearance. From different parts of the elevated ground a glimpse is caught of the surrounding country; westward is the high range of hills which rise abruptly and run from north to south, shutting out the western gales; on the east the eye stretches, to the left, far over the old town of Carrickfergus, and more to the right over the River Lagan.

Fig. 169.—View in the Rock-Garden at Chatsworth.

At the bottom, or eastward end of the garden, is situated the exhibition ground, noticed in the report of the exhibition which appeared at the time in the *Gardeners' Chronicle.* This was a hollow, which Mr. Johnson, the present able curator, converted from a useless corner into one of the best and most effective show grounds that have ever been made, and which, even when stripped of its show-tide embroidery, is a very interesting example of original gardening (see fig. 170, p. 821). The principal posts that support the framework, and which is covered with canvas during the time of the shows, are draped with Ivy and other climbing plants, that go far to do away with the objectionable bare timber, which is still further hid by the judicious planting of here and there an evergreen or deciduous shrub. The whole has a most natural and pleasing effect, without a particle of stiffness; it is surrounded with shrubs that are planted so as to produce an irregular inner line.

From this end of the garden we turn westwards towards the flower-garden, which is in front of the principal range of glasshouses, and here the general effect produced is good and quite different from anything that I have seen attempted: there is a combination of materials such as is not usually brought together. Mr. Johnson has not been in any way conventional. This garden is not composed of herbaceous, subtropical, or ordinary bedding plants, but of all combined; the beds are large and irregular in shape, not any of them filled with plants that give an even surface, but differ in their height, yet the centre plants in most of them are not of such a close, dense description as to effectually conceal whatever they stand betwixt and the eye, being mostly of a light, airy habit of growth; the beds again are, most of them, more or less elevated irregularly, in different parts above the level of the turf, exhibiting in one place an even surface to suit a considerable breadth of some particular plant adjoining to some other distinct in habit, colour, and general outline. Those who are fond of masses of colour can see their ideas worked out in considerable breadths of such things as scarlet Pelargoniums, yellow Calceolarias, or blue Lobelias, in a broad circle, a division, or a match corner of a bed, but in all cases divided from the grass by a considerable breadth of some grave-coloured dwarf edging plant, from the surface of which, in its turn, springs here and there a plant of a character quite different in both colour and height, so as to effectually break a too even surface. By this means the individual who admires form alone can have his fancy gratified to the full, for there are very great numbers of what may be called foliage plants used, as well as some common hardy shrubs, such as small Rhododendrons, for a background for any plant that may be improved by them. Large beds exclusively filled with subtropical plants there are none, the great majority of the things used are hardy, or nearly so; in fact, Mr. Johnson's practice has here, in a great measure, been ruled by necessity.

To replant every year such a space as the large beds comprising this garden would tax the resources of the place, especially in labour, beyond the means at command; consequently, the greater portion of the whole is occupied by subjects of a permanent character. That such can be selected from the immense storehouse of cultivated plants which we possess is here exemplified; one striking feature, and most effective in its result, is that most of the plants used for a margin or inner circle are not confined to a given breadth all round a bed or any portion of a bed they occupy, but are broad or narrow as the case may be—here confined to a narrow strip, there spreading out to greater width; consequently when a dull-coloured edging plant is so planted the inner circle of something possessing more colour is divested, not alone of its objectionable formality, but also of an unwonted vivid glare, as hereafter will be evident from a more particular description of the occupants of some of the beds. Those who are fond of strong contrasts in vivid colours, with strict formality in outline and equality in surface, will not meet here with much to please their taste; neither will those who abhor colour, and see perfection in form alone, be satisfied; but those who love a garden for the diversity of form and colour in leaf and flower which the different plants it contains can afford, will here find as much to please and

satisfy them as can well be imagined. This flower garden is composed of sixteen large beds,—the centre one being occupied by a large massive vase filled partly with Pelargoniums intermixed with flowers of graver colour well edged with drooping plants; then, next these, planted round the base, are a combination of Yuccas, Agaves, Bamboos, Dracænas, and flowering plants. The four beds that immediately surround this centre one are raised considerably in the middle, a plant of Arundinaria japonica occupying the centre of each, round which are planted four large masses of scarlet Pelargoniums. In the centre of each is a plant of Artemisia vulgaris variegata, rising high above the Pelargoniums, which are edged with Santolina incana, combined with Dianthus Heddewigii and Koniga variegata, the whole margined with a broad belt of Sedum. There are two beds right and left of these, which are raised in three tiers; in the centre of each is a good specimen of Dracæna australis, with four Bamboos round at a short distance; these spring from a carpet of Mesembryanthemum cordifolium. The rise of each tier is planted with Sedums—S. acre aureum, S. rupestre, S. reflexum, S. turgidum, and S. oppositifolium; the two lower tiers are planted with an admixture of Echeveria grandiflora, E. metallica, and E. metallica glauca, forming a carpet; Agaves, Chamæpeuce Diacantha, Dasylirion acrotrichum, &c., in the margin; at some distance apart are eight standard Fuchsias. Here was a mixture of forms and colours that, combined, were very effective. The remaining beds were filled in a similar manner with such as the above and numbers of other plants, foliage and flowering combined, with a view to displaying both the individual character of each species of plant, and the general effect produced by the whole.

This flower garden is situated in front of the principal range of plant-houses which faces the south, and is 200 feet in length by 24 in width. The houses are iron-built erections, very substantial, and well calculated for growing the different plants they contain. Entering at the western end, the first is a house devoted to greenhouse stock in general; in the front corner, next the door, is a remarkable plant of Maréchal Niel Rose. It has been planted out four years, and has now a stem 7 inches in circumference, with a head that covers a considerable portion of the roof. Whatever may be said of this Rose being adapted for outdoor growth, it is evident that, so placed, it is never half seen in the condition that it attains under glass. The enormous quantity of the splendid yellow flowers produced by such a plant as this, when it has room to extend itself fully, makes it worth while to give it all the encouragement possible. Associated with it on the roof is a plant of Gloire de Dijon, and another of the climbing Devoniensis; all three are trained thinly, so as not to shade too much the plants underneath, and which consist largely of Camellias, occupying the back portion of the house. These are just the things to grow under the partial shade of the roof-trained Roses, being benefited during their growing season by the shade—any insects likely to infest the Roses, such as aphides or red spider, being little calculated to injure the Camellias, which latter are benefited by the use of the syringe required to keep the Roses clean. They are the best plants that can be grown together.

The space in front of the Camellias, and on the stage in front of the house, is filled with a mixed general collection of ordinary greenhouse plants. The adjoining central division is large and lofty, standing at right angles with the last, and running back a considerable distance. It is well adapted for the growth of the plants it contains, amongst which are Araucaria Bidwillii, A. Cunninghamii, A. brasiliana, Dacrydium cupressinum, Dracæna australis, Rhododendron arboreum, R. Edgworthii. R. Falconeri, R. barbatum, and R. Dalhousianum. These are all grand plants, sufficiently large to show their character, associated with a number of fine specimens of Tree Ferns, with stems from 12 to 15 feet in height, with grand heads, and consisting of Dicksonia antarctica and D. squarrosa, and a magnificent pair of Cyathea dealbata. Among the Palms may be mentioned the Nepalese Chamærops excelsa, and the rare C. Martiana, some 10 feet in diameter; C. Fortunei, C. Palmetto, Seaforthia elegans, Jubæa spectabilis; these are amongst the finest plants in the country. In this house, under the partial shade of the other plants, is a large case filled with Todeas, which Mr. Johnson is so successful in growing; they consist of T. superba, T. pellucida, and T. Fraseri; they are in magnificent health, as green and fresh as possible, many of them 4 feet across. Here also are the Van Diemen's Land Phyllocladus rhomboidalis and P. trichomanoides. The house is nicely arranged, the surface of the large pots and tubs being covered with moss, which much improves their appearance.

Leading from this house, in a continuation, is the stove, on the back wall of which is a large plant of Cyrtanthera magnifica, flowering all the year round; here, also in a large tub, is a magnificent specimen of Imatophyllum miniatum, full 6 feet across. On the roof of this house is a plant of Lasiandra macrantha; grown in this way it shows its true character, which it never can do when the attempt is made to keep it dwarf by stopping, which evidently is opposed to its nature, so far as to prevent it blooming in anything but the most meagre manner. Here it produces bunches of flowers a foot long, with as many as fifty on the point of a single shoot. Seen so it is certainly one of the very finest plants in cultivation, its profusion of intense purple blossoms showing to the greatest advantage; but it is well to mention here that the house in which it grows is only kept at an intermediate heat—nearer the temperature of a greenhouse than a stove for growing subjects from the hottest regions. If submitted to the great heat required by such plants it would not flower at all, but keep on growing. Here also are some examples of tropical fruits, medicinal plants, &c., amongst which was the Pear-bearing Guava, Cinnamon (Cinnamomum verum), Cinchona officinalis (bark of commerce), the Tea plant (Thea Bohea), Sarsaparilla, the sweet-smelling Lemon-grass (Cymbopogon Schænanthus), and many others usually found in botanic gardens merely existing—the veriest shadows of living vegetable forms—but here much better grown. Why cannot these plants, so interesting to the casual observer, independently of their use to the student, be grown more generally in a way that would show in some measure their natural character? As it is, they are usually seen in a condition to excite the commiseration of every one who has a love for plants? Entering the adjoining house the first thing that arrests the attention is, I should suppose, the finest plant of Bougainvillea glabra ever seen out of its native wilds; it almost covers the whole roof, its splendid mauve-coloured bracts hanging in such profusion as almost to hide the leaves. It is planted out in pure loam. Here also is a magnificent plant of Chamærops Palmetto, and beside it an example of Encephalartos caffer, 6 feet across, Cycas revoluta, equally fine; and standing near it is a splendid Ceroxylon andicola, at least 20 feet in height. These are a few of the most noticeable plants, many others there are little inferior and equally well grown. At the back of this range are a number of smaller houses devoted to wintering, and propagating the large quantities of plants turned out in the summer which require protection in the winter, and which by rights should have much more room to accommodate them; but here, as in the other departments of the place, there is ample evidence of what may be accomplished, even with inadequate means, where there is a fixed determination to struggle against difficulties. *T. Baines.*

Foreign Correspondence.

Farms in Porto Rico.—Porto Rico, anciently called Boringuen, is the smaller of the two insular fragments which still remain to Spain of her once almost boundless colonial empire in the New World. It is a healthy and fertile island, and contains some of the most beautiful scenery in the world; its character is essentially mountainous, and the valleys and plains occupy scarcely one-fourth of its surface. Lofty hills and verdant valleys alternate with each other; dense forests of valuable trees clothe the sides and summits of the mountains, and broad expanses of rich meadow-land stretch at their feet; through wide districts of Maize and Rice fields, of Sugar-cane and Coffee plantations, wind limpid streams, along whose banks, in individual loveliness, stand the white mansions of the planters or the modest huts of the peasants. Towns and villages are rare; there are no manufactures, and the population is almost exclusively engaged in agricultural pursuits. The rural population is six times as numerous as the town; the seven departments into which the island is divided contain five towns and fifty-two villages. In Porto Rico there are three classes of farms—haciendas, potreros, and ritios. The haciendas are mostly situate along the shores, or among the low hills and table-lands which lie between the flat coasts and the high mountains of the interior; these estates contain from 500 to 2000 acres, and are devoted to the culture of a single staple product, such as Coffee, Sugar, or Cotton. The haciendas are invariably in the hands of the owners, who constantly reside upon them, and, with their families, form the aristocracy of the island. The potreros are generally situate in the highlands, and contain from 80 to 400 acres; except in rare cases these farms are also the exclusive property of the occupiers. The products of the potreros are of a very mixed nature; cattle and mules are bred and reared upon them, and Rice, Maize, Tobacco, fruits, and vegetables are grown. The ritios are scattered over all parts of the island, but are chiefly placed among the mountains; they usually contain from 5 to 15 acres. Tobacco, fruits, and vegetables are the principal products. Comparatively few of the ritios are the property of the occupier; they are generally held in perpetuity of tenure from the owners of the haciendas. The rent varies from 10*s.* to £5 per acre, according to the situation of the holding. In the vicinity of towns the ritios are termed huertas, and correspond to our market gardens.

The potreros are the most interesting, as well as the most important, class of farms. The haciendas are chiefly confined to the production of Cotton, Sugar, and Coffee, all of which are valuable only as articles of export, and contribute but little to the food of the people. The same may be said of the ritios, the principal products of which are Tobacco, Cotton, and Oranges for exportation. On the other hand the potreros are devoted to the production of bread-stuffs, such as Maize and Rice; to the breeding and rearing of horses, mules, and oxen for agricultural purposes, and to the manufacture of butter and cheese. The agricultural census of 1870 fixes the number of potreros in the island at 4120, with a collective area of 204,450 acres, of which 105,210 are arable and the remainder in pasture. Unlike the small holdings of Jamaica, where, by reason of estrays and trespass, continual litigation exists among the farmers, the Porto Rican farms are always securely fenced with strong hedges of Cacti or Agaves, which present a formidable barrier even to the thick-hided wild bull of the mountains. The farmhouses, which are generally situate as near the highway as possible, are sometimes built of stone, but oftener of wood; on account of the frequent hurricanes and earthquakes they never exceed one storey in height. The farm offices are placed a little in the rear of the dwelling-house, and usually form three sides of a quadrangle; the fourth side is sometimes enclosed by a hedge or paling. Arable culture and cattle breeding are carried on simultaneously upon these farms, and this practice, although of comparatively recent introduction, has already effected great improvements in the system of agriculture. The fashion which so long prevailed of sowing again and again the same kind of crop upon the same ground, is being rapidly abandoned throughout Porto Rico, and a rational system of rotation adopted. The farmers have also begun to see the necessity of restoring to the exhausted soil some part of the riches extracted from it. Ashes, lime, and the refuse of the farmyard are the only manures employed. On the haciendas and potreros the majority of the implements are of American construction, and generally of good quality. The climate, however, is very severe upon iron implements, which, even with the greatest care, do not long withstand its influence. Very few of the old wooden ploughs and other primitive implements which, fifteen or twenty years ago, were almost universal in the island, are now to be seen except on the ritios. Another great obstacle to the progress of agriculture and the development of the rich resources of Porto Rico was the almost total absence of passable roads. According to Sotomayor, who wrote in 1784, the island did not then contain a single bridge, and the roads were mere bridle paths. This evil has now been in a great measure remedied, and broad, well-made roads, with stone-built bridges, traverse the country in all directions.

Rice and Maize are the only cereal products of the Porto Rican farm, and large quantities of both are annually grown. The Maize of Porto Rico is an indigenous product. It is a very fine variety of a bright yellow colour, and yields meal of a superior quality. It is not sown broadcast but in regular drills, four grains being dropped into each hole; the sowing is generally performed by women and children. The ploughing is done by American gang-ploughs, drawn by two or three pairs of oxen; the furrows are generally shallow. The Maize crop is sown three times a year, and is harvested four months after sowing. It requires a rich alluvial or volcanic soil, germinates very rapidly, and yields from three hundred to four hundredfold. The heads are usually cut off in the fields and conveyed to the barns; sometimes the straw is gathered in heaps and burned, and sometimes it is burned standing; the ashes are scattered over the field and ploughed in. Rice is cultivated chiefly in the highlands, and at an elevation of 2500 and even 3000 feet above the level of the sea; the variety cultivated is that known as mountain Rice. It is sown broadcast upon the hill-sides at the end of each rainy season, and is harvested three months after sowing; the increase is about twentyfold. The stalks are about 2 feet high, and the grains are small, hard, and white, but finely flavoured. The Rice fields are never watered, but manured only with vegetable ashes, which are mainly obtained by burning the straw. A very valuable plant is the Banana, which was introduced from the Canary Islands in 1516. As an article of food it occupies the same place in Porto Rico as the Potato in Ireland. The fruits are used both unripe and ripe; in the former case they are roasted and ground into meal, from which bread and soups are prepared. Tuberous plants hold an important place upon the farm; they form the chief food of the people when the other crops have suffered from hurricanes, droughts, or other causes. The principal are Yuccas, Yams, Cussadas, and Batatas. The principal fruit trees of the farm are Pomegranate, Orange, and Fig trees, Cocoa Palms, and Nutmegs; they are sometimes planted in the hedges, but more

frequently in the immediate vicinity of the dwelling-house. Neither the fruit trees nor vegetables of the temperate zone thrive in Porto Rico.

Agriculture in Porto Rico suffers much from hurricanes and floods, which prevail from July to October; from the ravages of mice, ants, grasshoppers, and other insects; and from snakes, which infest the pastures, and frequently cause great havoc amongst the cattle. Cattle breeding is a very important branch of farming in Porto Rico, where it is carried on with great success. The other West Indian Islands, and a large part of South America, obtain their chief supplies of cattle and mules, butter and cheese, from Porto Rico. With the exception of the oxen and mules employed in labouring, the animals remain in the open fields all the year round; there is no stall-feeding, but milch cows receive in addition Maize and Bananas. Guinea-grass forms the principal pasture; it is a rich, strong plant, and attains a height of 4 or 5 feet. The mules of Porto Rico are very handsome, powerful, and enduring animals; they are 3342 in number. The horses, which number 35,000, were originally introduced from Haïti; they are very inferior animals, being small and lean. The climate of Porto Rico, as elsewhere in the West Indies, does not seem favourable to the pig, which is a small, lean animal, covered with thick, coarse bristles. Sheep and goats are not favourites, and are chiefly kept by negro squatters in the mountains. The breed of horned cattle, although capable of great improvement, is undoubtedly the best in the West Indies; the cows are good milk-givers, and the butter and cheese are generally of fine quality. There are 270,844 head of cattle in the island. All kinds of poultry are extensively kept, and about 3,000,000 of eggs are annually exported. Great Britain receives 35 per cent. of the agricultural exports of Porto Rico, and sends 10 per cent. of the imports. The area of Porto Rico is 2,176,451 acres, divided among 19,140 landowners. The present value of the landed property is £6,750,000, and the value of the annual produce is £1,125,000; the amount of capital invested in land is £4,586,398. Slavery still exists in the island, but it is chiefly confined to the haciendas, and a few years will probably witness its total extinction. The labour upon the potreros is chiefly performed by free white men; there are 36,228 white agricultural labourers, above sixteen years of age, in the island. The importation of negros has entirely ceased; there is no inducement for the trade, as slave labour has become much more expensive than free labour. The average annual cost of a slave is estimated at £20 17*s.* against £15 12*s.* for a free white labourer, at 1*s.* per day, for the same period. The hours of work are from half-past six in the morning until half-past five in the afternoon, with an hour's interval at mid-day. The houses of the labouring class are of the most wretched description; they are roughly constructed of boards, and seldom contain more than one apartment. There are 64,567 of these houses scattered over the country. The food of the peasantry is rich and abundant; it consists chiefly of beef and pork, soups, Rice, and Maize bread, a great deal of milk, butter, and cheese, Bananas, and fruits. The population of Porto Rico amounts to 770,870 persons, of whom 423,000 are whites, 281,498 coloured (*i.e.*, mulatos and quadroons), and 66,572 blacks. The slaves are 46,200 in number. All whites are obliged to serve on the militia, but the coloured population is exempted. Porto Rico is the only West Indian island which can be regarded as ripe for political independence. *J. D. W.*

Florists' Flowers.

Blue Pansies and Violas.—A careful inspection of the flowers of the blue section of Violas and Pansies now in flower at Chiswick shows, in spite of the improvement made in recent years, how short they all fall of the genuine blue colour. This is made specially evident when blooms are compared with those of the blue Lobelia, Delphinium formosum, or that richest of all blue flowers, Salvia patens. Blue Violas may be said to commence with the pale mauve Princess Teck. A hue that is somewhat intensified in Lilacina is depressed in Blue Perfection, Magnificent and Blue Bell—all of which are of a pale purplish blue—is richer in Queen Victoria, Blanerne, and Waverley; and runs into a deep bluish purple in The Tory. Beyond this darker kinds become violet and purple. There is one variety named Royal Blue—a seedling out of Blue Bell—that indicates a nearer approach to the true blue colour than does any other variety. If flowers of all these Violas be gathered and laid side by side on a sheet of white paper in the order given, it will be seen how the hues run into each other, and it will better enable the observer to decide as to what progress has been made in the production of really blue Violas. Blue Pansies are not so varied in hue as are the Violas, as there are none having the mauve tints found in Princess Teck or in Lilacina, except such as may be found in a batch of seedlings of a German strain; but these are all too inconstant and flimsy to be worthy the designation of bedding kinds. One of the very best pale blue Pansies is Blue King, a variety that is now deservedly popular in gardens. Following this in colour is the old Imperial Blue, and darker still, because much shaded with purple, is Backhouse's Celestial. A more genuine blue is found in Bluebeard, and the richest shade of blue in Blue Jacket. This variety will be found to approach nearer to the ideal found in the hue of the Salvia blooms than any other kind. The darkest of all the blue shades is In Memoriam, as it is in colour rich violet-blue, being altogether much richer than Viola The Tory, but it is not a good bedding kind. No doubt raisers are on the right track, and, as we have now an abundance of white, primrose, yellow, and purple kinds, so without doubt a genuine blue colour will eventually be obtained. *A. D.*

Natural History.

Cabbage Root-gall Weevil.—*Ceutorhynchus assimilis, Payk.* (*pleurostigma, Cust.*).—I have had an exceptionally good opportunity this season of studying the life history of the Ceutorhynchus assimilis, or Cabbage Root-gall Weevil, a tiny grey round weevil, about an eighth of an inch in length—one of those insects whose peculiar province it is to cause the masses of galls with which the Cabbage roots are often injured and disfigured. In some of the districts near London, where large quantities of Cabbages are grown for the London market, the beetles are very prevalent, and generally distributed. The galls are usually situated below the ground level on the thick part of the root, and there they may be found in all ages of the Cabbage from the time it is fit for planting out till, its duty done, the stem has been drawn and thrown aside as worthless, and throughout the whole of this time larvæ are to be found present in some of the galls.

On young plants the gall excrescences are often mere rounded lumps of the same white colour as the root on which they grow, averaging about three-eighths of an inch in diameter, and placed singly or joined a few together as the case may be; on older plants the gall masses may be found much larger, sometimes an inch and a-half or more over, and formed of a quantity of galls, frequently communicating inside with each other, and with a corresponding number of larval tenants. Commonly, however, each gall contains a single larva, fleshy, much wrinkled, and legless, varying in size according to age up to as much as a quarter of an inch in length, the general colour white, the head (or the fore-part of the head in the specimens before me) chestnut-brown, and the jaws of the same colour, deepening to dark brown or black at the tips, and the eyes particularly noticeable as minute black specks at the side of the head.

When about to undergo the pupal change, the larva gnaws an opening in the side of the gall, through which it passes into the earth, and by securing a few grubs in this condition, and laying them on some fine mould in a little box (or in anything that will limit the sphere of action), the process of the formation of the earth cocoons, in which the change to the perfect beetle takes place, may be conveniently observed. The larvæ, on being placed on the surface of some damp crumbly earth, bury themselves almost immediately, showing considerable strength in the size of the masses they are able to displace, and two days after the cells may be found so far advanced as to cover about a quarter of the grub, which apparently steadies the progress of affairs at first by fixing the caudal extremity to the work, as at this stage it can drag the commencement of the earth cocoon about with it.

The cell is gradually and regularly built onwards round the larva, as a kind of outer skin of earth, and when completed, which it is in five days or less from the disappearance of the larva, is from an eighth to three-sixteenths of an inch in length, obtuse oval, or nearly round in shape, smooth inside, and rough on the exterior, and formed of the smallest pieces of stone, quartz, earth, and occasionally vegetable matter, accessible. The structure appears to be put together merely with the aid of moisture from the mouth of the larva, as the inside shows wet patches occasionally, as though the grub had then exuded it in its building operations, and is without any woven lining, so that the whole cocoon may be washed entirely away by the application of a little water. From the whole process of building being conducted underground it was difficult to ascertain the precise time occupied in the development of the beetle; but approximately dating from the disappearance of the larvæ the time occupied appeared to be about eight weeks.

The weevils on development are lively and active, and soon disposed to attack food supplied to them (as the root of a young Cabbage) with vigour, forcing the rostrum into it nearly up to the insertion of the antennæ, and using it when in as a pivot to turn on, pulling and dragging the while at the wound in the root in a way which, where many are present, must be very injurious to the tissues.

The galls themselves, excepting where very numerous, appear to do little harm, but where in great masses they must necessarily, from the misappropriation of so much material of growth, be bad for the plant.

The larva appears to have great difficulty in gnawing through the gall if the outside is artificially toughened, and probably any external application distasteful to it applied to the roots of the Cabbage when planted out would have a good effect by keeping the grub from eating its way through the unpleasantly tasted exterior, and so preventing the pupal change from taking place under the natural circumstances. Dipping in soot appears to answer for this purpose, and where the beetle exists in such a degree as to make it worth while to attempt a remedy, probably rolling the ground with a very heavy roller when the Cabbages are drawn would destroy many of the embryo beetles by crushing them, as they lie a little below the surface in their cocoons of earth. *O.*

The Burnet Moth.—In your Natural History column, at p. 755, "M. D. S." asks "if there be a larger kind of Burnet moth than those usually seen in the fields, &c.," and adds that the kind he refers to is 2 inches in expansion, but "similar to the common Burnet." I have no doubt he is speaking of the Cinnabar moth (Euchelia Jacobæa), which although different in form and heavier in flight than the Burnet is similar in colour, but without the metallic lustre of the latter. Its habitat is where the common Ragwort (Senecio Jacobæa) abounds. The larvæ may be found in the autumn feeding on that plant, stripping it of foliage and flowers, then migrating to other patches, and generally by the time they are full-grown have reduced the whole to a miniature forest of naked stems. The larva is black, with segmental yellow rings. *G. Gascoyne, Newark.*

—— There are, according to Newman, four varieties of the Burnet, all about the same size—1¼ inch. The Cinnabar (Euchelia Jacobæa) is very similar in colour and markings—two crimson spots and a crimson bar on the upper wings; hind wings crimson. It has been commoner than usual this year, and is sometimes 1¾ inch across. *E. P.*

Law Notes.

Action by a Florist against the London Parcels Delivery Company.—*Important Decision.*—*Butt* v. *the London Parcels Delivery Company.*—This action was heard at the Shoreditch County Court on the 22d inst., in which the plaintiff, a florist of Stoke Newington, sued the company to recover the sum of 34*s.* for eight packets of assorted plants delivered to the company to be sent to Twickenham, and which were lost *in transitu.* The plaintiff's solicitor, in opening the case, stated that a large assortment of plants and flowers had, in May last, been delivered at one of the local booking offices of the company to be sent to one of the plaintiff's customers at Twickenham, out of which consignment the eight packets were found missing on the arrival of the consignment at its destination. The company had been written to, and having denied their liability, the present action was brought. The plaintiff, having corroborated his attorney's opening, called the booking clerk who received the goods, and who forwarded them to the chief office in Rolls Buildings, from whence they were forwarded to the Chelsea branch, for transmission to Twickenham. Charles Dedman, the manager of the company's Chelsea branch, stated that the package when it reached that office did not appear to have been tampered with, and was dispatched in the same condition as it arrived. Mr. Cockell, of Twickenham, to whom the package was consigned, was called, who, with another witness, proved that the package was not in accordance with the invoice when it arrived. This evidence completed the plaintiff's case, when the solicitor for the company urged that the party to whom the goods were consigned was the party liable, and not the company; which objection being overruled by the Judge, the booking-clerks at the various offices were called to prove that the package was in a sound condition when it reached their respective offices, and this evidence completed the case for the defence. The Judge, in reviewing the facts of the case, considered he could not disbelieve the evidence of the plaintiff and his witnesses; and looking at all the probabilities of the case, and finding the number of clerks and drivers through whose hands the goods had passed, it appeared to him that the company were liable. It was well known that Messrs. Pickford had been so extensively robbed by their *employés*, that the prosecution of several of their men had been rendered necessary. It behoved companies like the defendants to be very careful as to the characters of the men they employed, and to keep a strict surveillance over them. Looking at the facts of the case by this light, he should give judgment in favour of the plaintiff, with costs of attorney and witnesses.

HORTICULTURAL EXHIBITIONS, 1875.

JULY.

6 and 7.—Grantham and South Lincolnshire Horticultural Society's Exhibition at Grantham. Sec., Thomas Lyne, Jun., Grantham.
6 and 7.—Brentwood Horticultural Society's Summer Exhibition. Hon. Sec., R. Earthy.
7.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees. Cut Rose Show.
7 and 8.—Leicester and Leicestershire Floral and Horticultural Society's Show. Sec., W. C. Marris, 8, New Street, Leicester.
7 and 8.—Brighton and Sussex Horticultural Society's Summer Exhibition. Sec., Edward Carpenter.
8.—Richmond Horticultural Society's First Exhibition. Hon. Sec., A. Chancellor, Esq., Richmond.
8.—Frome Rose Show. Sec., A. R. Baily, Frome.
8 and 9.—Manchester Botanical and Horticultural Society. Special Evening Fête and Exhibition of Roses, Floral Decorations, &c. Manager, Bruce Findlay.
8, 9, and 10.—Nottingham and Midland Counties' Grand Rose Show and Horticultural Exhibition, at the Arboretum, Nottingham. Sec., Alfred Kirk, Municipal Offices.
9.—Oxford Rose Show.
14.—Royal Botanic Society, Regent's Park. Evening Fête. Sec., W. Sowerby.
14.—Woodford Horticultural Society's Third Annual Exhibition Hon. Sec., S. J. Taylor, Woodford.
14.—Loughborough Horticultural Society's Show. Sec., William Pallett, 55, Baxter Gate, Loughborough.
14.—Croydon Horticultural Society's Exhibition. Sec., H. Coppin, Rose Nursery, Shirley.
14.—Exhibition of Flowers, Fruits, Vegetables, and Poultry at Oundle. Sec., Alfred King.
14 and 15.—Wimbledon and District Horticultural and Cottage Garden Society's Annual Exhibition. Hon. Sec., P. Applebyy, 5, Linden Cottages, Wimbledon.
15.—Colchester and East Essex Horticultural Society's Show. Sec., W. Harrison, Colchester.
16 and 17.—Altrincham and Bowdon United Floral, Horticultural, and Rose Society's Exhibition. Sec., John Harns.
21.—Royal Horticultural Society, South Kensington. Meeting of Fruit, Floral, and Scientific Committees. Zonal Pelargonium Show.

THE

Gardeners' Chronicle.

SATURDAY, JUNE 26, 1875.

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY,	June 29	West of England Rose Show at Hereford. Sale of a Collection of Shells, at Stevens' Rooms.
WEDNESDAY,	June 30	Wisbeach Rose Show and Horticultural Exhibition. Maidstone Rose Show. Sale of 400 Lots of Orchids, at Stevens' Rooms. Royal Botanic Society, Regent's Park: Exhibition of Fruit and Cut Flowers.
THURSDAY,	July 1	Spalding Horticultural Society's Exhibition (two days). Horticultural Exhibition at the Lower Grounds, Aston, Birmingham (four days).
FRIDAY,	July 2	Tunbridge Wells Horticultural Society's Exhibition. Gardeners' Royal Benevolent Institution: Anniversary Festival.
SATURDAY,	July 3	Southgate Horticultural and Cottage Gardeners' Exhibition. West Kent Horticultural Society's Exhibition in Camden Park, Chislehurst.

WHILE alarm is being felt in some quarters as to the appearance of a new scourge in Potatos, brighter prospects appear in store for gardeners in others. It was a great thing for horticulture when, owing to the removal of vexatious and burdensome imposts, the price of glass was lowered and its use increased tenfold. Now a further boon is promised, in the shape of HARDENED OR TOUGHENED GLASS—glass strong enough to resist, without breaking, any blow or force to which glass vessels or glass structures are ordinarily exposed, and this without any diminution of translucency. Glass of this character was known to the Romans, who were even acquainted with flexible glass, but the art of producing it was lost. Recently, however, a French gentleman, M. DE LA BASTIE, has devised a process for depriving glass of its brittleness, which, judging from what we have seen, bids fair to be of the greatest importance to all who have to use glass in any shape or form, and particularly to gardeners and greenhouse builders, &c. The principle of M. DE LA BASTIE'S method, as we gather from a lecture by Mr. NURSEY, recently published in the *Journal* of the Society of Arts, is to temper the glass by plunging it while hot into a bath of oil, wax, tallow, and other similar ingredients mixed in certain proportions.

"The physical change which glass thus treated undergoes is no less complete than remarkable. Its extreme brittleness is exchanged for a degree of toughness and elasticity which enables delicate glass articles to be thrown indiscriminately about the room, and more substantial ones to resist the impact of heavy iron weights, falling from considerable heights—watch glasses, plates, dishes, and sheets of glass, both coloured and plain, were thrown across a large room, and fell spinning on the floor. Water was boiled in a tempered glass saucer for some time over a brisk fire, and the saucer was quickly removed to a comparatively cold place, and stood on iron, but was in no way affected by change of temperature. A small piece of plate glass was held in a gas flame until the corner became very hot. The glass proved a bad conductor of the heat, which did not extend any appreciable distance beyond the point of contact with the flame, neither was the glass cracked from unequal expansion, nor was it damaged by sudden immersion in cold water. In order to judge of the comparative resistance offered by untoughened and toughened glass to the force of impact, a piece of the former, measuring 6 inches by 5 inches by ⅛ inch thick, was supported in a frame about half an inch from the floor. A 2 oz. brass weight was then dropped upon it from 12 and 18 inches respectively without damage, but on the height being increased to 24 inches, the glass was broken into several fragments. A piece of toughened glass of the same size, but rather thinner, was then treated in the same way, at heights increasing 1 foot at a time, up to 10 feet, but without producing the slightest visible impression. Finding the 2 oz. weight to make no impression, an 8 oz. iron weight was substituted, and was dropped on the glass from a height of 2 feet, and then of 4 feet, without fracturing it. On the height being increased to 6 feet, however, the glass broke with a distinct report. But here another phenomenon presented itself; instead of the toughened glass being broken into some twelve or fifteen large angular pieces, as was the ordinary glass, it was literally reduced to atoms. There were, it is true, some pieces about half an inch square, but these were traversed in all directions by delicate lines of fracture, and on being gently touched crumbled into small pieces, and many of these small pieces were easily reduced by gentle pressure into mere atoms, so thorough and so complete does the disorganisation of the entire mass appear to be. A similar result is produced by placing a piece of toughened glass flat on the table, with a corner projecting over, and endeavouring to chip the corner off with a hammer. The corner will, after a series of smart blows, be broken off, but the whole mass will be at the same moment disintegrated and reduced to atoms. Another peculiarity about toughened glass is, that the fragments are by no means so sharp, and therefore so capable of piercing the flesh, or of causing incised wounds, as are those of ordinary glass.

"One important point of difference between M. DE LA BASTIE'S toughened glass and Prince RUPERT'S Drops is, that although the skin of the former may be scored through with the diamond, the body cannot even then be broken through by ordinary force, much less does the mass fly to pieces and disintegrate, as in the case of the Rupert Drops. Still wider will this difference appear when I state that toughened glass is readily susceptible of a high degree of polish, and it can be cut by the wheel for lustre-work and such-like. The glass can likewise be engraved, either by hydrofluoric acid, or by Mr. TILGHMAN'S elegant sand-blast process."

These statements are so remarkable that some scepticism might be permitted. We can, however, bear out from ocular evidence the correctness of the assertions, having been witnesses, through the courtesy of Messrs. REY BROS., of Mincing Lane, the representatives of M. DE LA BASTIE, of several experiments of a similar character. Objections have been raised to this glass on the score that it is hardened but not elastic, and for roofing purposes elasticity is very important; but this objection is, we believe, scarcely tenable. It is also stated that it cannot be cut with a diamond, but this is an objection which could be obviated by other means, as by manufacturing sheets of glass of certain sizes. In any case we hope it will not be long ere this toughened or hardened glass be put to a practical test by our greenhouse builders.

THE NEW POTATO DISEASE, which has been lately observed at Chiswick, and which was commented on by Mr. BERKELEY at the last meeting of the Royal Horticultural Society, has very naturally given rise to some alarm. We are far from wishing to say that the alarm is not well founded—what we have seen at Chiswick, as also near Folkstone, and what we have learnt as to the experience of other people, leads us to the belief that the danger is really great. At the same time, before we talk of "stamping out," even if such a process were possible, we think that more information is needed. At present we know only of the existence of the disease, we know nothing of its origin, or of the circumstances which favour its production. We hope shortly to be in a position to give the results of Mr. BERKELEY'S examination, and we trust that the recommendation made by the Scientific Committee—that a full report on the disease as observed at Chiswick be drawn up—may be acted on without delay. When these documents are before us we shall be better able to judge of the propriety of attempting to "stamp out" the disease, or whether such a course be possible. It is well to give an alarm, but it is still better to observe and investigate; but these latter processes have as yet only been very superficially accomplished.

WE learn from the committee of the INTERNATIONAL HORTICULTURAL EXHIBITION IN COLOGNE that great activity has been displayed in the exhibition grounds. The halls for the finer kinds of garden ornamentation, vases, statues, &c., as also the two wings in which garden literature and artificial plants and flowers are to be exhibited, are now finished, with the exception of the towers. The large restaurant is far advanced; the water conduits, aqueducts, &c., together with the fountains and ponds, are almost completed. The ponds from which the centrifugal pumps are to receive water will be executed in a new cement composition, together with the large central fountain, by the well-known firm of J. F. ESPENSCHIED, Mannheim. The large hall for machinery requiring to be exposed under cover is immediately adjoining the pond. Numerous announcements have been made in this department from Belgium, England, America, &c. A hothouse in three compartments is being built by the firm of RAHLES & LIMBACH, of Cologne. A hothouse is also being constructed by RÖDER BROTHERS, of Magdeburg, opposite the hall erected on a small elevation, in which American drinks are to be furnished. The plantations are progressing favourably. We need only mention here that two large Dahlia beds have just been laid out. The number of sub-committees and agents engaged in promoting the exhibition has been considerably augmented.

—— Chance COMBINATIONS OF FLOWERS are frequently more effective than those in which arrangement has been more carefully studied. Such a case is before us in a few flowers thrown together heedlessly by a child. The flowers are Devoniensis Rose, pale cream colour; a deep orange-coloured variety of Azalea mollis with its foliage, and a bud or two of the common monthly Rose. The combination is charming.

—— We have been favoured with the following proposal for a NEW COUNCIL OF THE ROYAL HORTICULTURAL SOCIETY:—

President—The Right Hon. A. S. Ayrton.
Vice-Presidents (specially selected as being distinguished literary characters)—The Rev. H. H. Dombrain, Mr. George Glenny, jun., Mr. William Earley, and Mr. George Abbey.
Treasurer—Baron Albert Grant.
Honorary Secretaries—Sir Henry Cole, and Mr. Shirley Hibberd, who, in the event of his appointment, will retire from the editorship of the *Gardeners' Magazine*, and be succeeded by Dr. Hogg.
Assistant Secretary.—Sir Alfred Slade, Bart.
Council—Dr. Denny, Dr. Kellock, Mr. S. H. Godson, Mr. G. F. Wilson, Mr. H. G. Quilter, Mr. T. Baines, and, in order to impart a little loquacity and vivacity to the proceedings of the Council, the following gentlemen to be added:—Mr. H. Guedalla, Mr. E. Bennett, Mr. J. R. Petch, Mr. P. Barr, Mr. R. Gilbert, and Dr. Kenealy—the last in special consideration of the great success he has achieved in cultivating the flowers of rhetoric.
Botanical Director and General Expositor of the Policy of the Council—Mr. D. T. Fish.
Pomological Director—Mr. Joseph Meredith.
Floral Director—Mr. John Wills.
General Superintendent (with unlimited and irresponsible power)—Mr. A. F. Barron.

We can only regret that place has not been found for Mr. LIGGINS and the London correspondent of the *Irish Gardeners' Record.*

—— From a recent report to the Foreign Office by Mr. A. GRAHAM DUNLOP, on the FORESTS OF CUBA, we obtain the following notes on useful Cuban trees. There is the hard and compact Mahogany; the softer Cedar, "one of the most precious trees, and everlasting in dry places;" the light violet Acana, a very hard wood; the Sabina (Sabicu—Lysiloma Sabicu), "everlasting, and good for all uses;" the Ramon (Trophis americana), a great resource in drought for feeding cattle with its leaves; the bluish-green flexible Majagua (Lonchocarpus sericeus), the best wood known for gun-stocks, carriage poles, and ship knees; the quick-growing Lanero, "bearing an abundant fruit, which encloses an enormous quantity of silky fibres, from which great advantages might be derived in industry;" the Yaba, a hard wood, fit for shipbuilding, it being "indestructible under water and under ground," but it is poisonous, "the smoke

produces blindness, and the bark is used to destroy worms." Cuba produces an immense variety of coloured woods for cabinet-work. Mr. CHAPMAN, the representative in Cuba of a large English engineering house, makes mention of a floor in a room he has seen, inlaid with fifteen or sixteen kinds of beautiful hard woods. The fustic wood of this part of the world "resists the action of water better than any other wood known, and house-posts made of it have been found sound and fresh after being in the ground for a century." Almost all the forest land in Cuba belongs to private persons. The Government forests have been neglected, aad left to chance and plunder; and there has been no attempt to control the misuse, and waste and wanton destruction of forests. Immense quantities of trees have been felled by the breeders of cattle and swine to make enclosures, what was not required being burnt, and no regard being paid to leaving valuable hard timber. The planters find sugar can be made cheaply in wooded districts, and the remains of the forests are burnt and destroyed. But still there is a vast amount of valuable timber, and Mr. DUNLOP states that, if the fellings were properly regulated, the export of timber from Cuba might be very large, even though the Government should not insist on "replantings." 3,000,000 square feet of Mahogany, 5,000,000 square feet of Cedar, and 2000 tons of fustic wood would be ready for the axe every year. Mr. CHAPMAN observes that in the last century forty-two ships of war were built in the Royal Arsenal of Havannah, chiefly with Cuban wood, and some of them still exist as hulks; and ships of excellent quality were built in Cuba not very long ago. But complaint is made now of the forests not even attracting rain enough for the crops in the plains, although with proper management there would have been produced sufficient timber for the navies of several Powers.

—— COMPTON'S SURPRISE, one of the newer American POTATOS, ungainly in shape and rough in appearance, is yet a remarkably fine variety, keeping well till April and May, making little growth, boiling mealy, and full-flavoured; but it should be grown on light and somewhat early soils to do it full justice. Compton's Surprise, Model, and Paterson's Victoria are in all probability the three best late-keeping Potatos in cultivation. The former should be grown only by those who can keep it over till the spring and early summer.

—— The POTATO DISEASE, to which the Rev. M. J. BERKELEY made allusion at the meeting of the Royal Horticultural Society on June 16, has manifested itself among the collection grown by Mr. PETER MCKINLAY, Woodbine House, Beckenham, Kent, and in a form which may serve to throw a little fresh light on the subject. It is confined entirely to American varieties grown from home-grown seeds. All grown from seeds imported direct from the United States are as perfectly healthy as Potatos could well be; and this holds good of the English varieties also. In all cases there is the arrested paralysed growth, the leaves unhealthy and curled, and covered above and beneath with numerous small dark spots. A good number of the plants were lifted and the roots examined, and in only two cases had the seed tuber rotted, and in almost every case the cut sets had been planted with all but one eye taken out. The sets were cut in two, and in no case was there the slightest evidence of disease in the tuber causing immature and diseased haulm, as stated by Mr. A. DEAN at the meeting above noted. At the point where the shoots grew out from the eye it appeared to be as healthy as could well be desired; but at the distance of from 1 to 2 inches from the set the stem of the foliage was rotted through to the centre, and so thoroughly was the centre rotted in some instances that it suggested the question whether the malady arose in the interior of the stem and came outwards. In two or three instances the diseased leaves appeared on the growth of tubers that were left in the earth at the time of digging and had come up among others planted in the spring. Here, also, the seed tubers were found to be perfectly sound.

—— We are informed that M. LE COMTE DE KERCHOVE DE DENTERGHEM has been elected President of the ROYAL AGRICULTURAL AND BOTANICAL SOCIETY OF GHENT, in place of the late M. DE GHELLINCK DE WALLE.

—— CAMPANULA TURBINATA deservedly ranks high in a select collection of hardy perennials, and is a most striking object in a border. It is not a whit less valuable as a pot plant, and we have lately seen some pretty little tufts in 60-pots, bearing no less than from six to eight large, erect, bell-shaped flowers, of a bright lilac-purple colour. The size of the individual flowers contrasts in a remarkable degree with the diminutive growth of the foliage, which when the plants are grown in pots is very dwarf and dense. Its white variety—turbinata alba—should not be overlooked also, and some seedlings, showing considerable variation in colour, are finding their way into cultivation, and finding much favour among cultivators of hardy plants.

—— The thirty-second anniversary festival of the GARDENERS' ROYAL BENEVOLENT INSTITUTION will be held at the London Tavern, Bishopsgate Street, on July 2, when the Master of the Fruiterer's Company, ROBERT BROADWATER, Esq., will take the chair. The list of stewards contains some of the leading horticulturists, and it is greatly to be hoped that they may be supported by a large gathering of the craft, and, still better, by a large subscription list. There is on these occasions a good opening for those who from whatever cause may be unable to contribute from their purses, to contribute in kind by sending flowers and fruits, and thus insuring the success of an institution whose objects must commend themselves to all connected with horticultural pursuits. Seventy-two pensioners are now on the list, and it is much to be hoped that the amounts awarded to each, as well as the number of recipients, may soon be largely augmented. It is clear this cannot be done unless the institution is largely supported by the gardening class. As things are at present, outsiders constitute the most important body in the Society. This ought not to be. The present affords a good opportunity for amendment, and the treasurer, ROBERT WRENCH, Esq., London Bridge, E.C.; the bankers, Messrs. GLYN, MILLS & Co., Lombard Street; or the secretary, Mr. CUTLER, 14, Tavistock Row, Covent Garden, would very willingly grant absolution on easy terms. We would by no means advocate either the sale or the purchase of indulgences, but we may, with the greatest truth, say that no means are more effectual in procuring a contented frame of mind than successful efforts to promote the well-being of others less fortunate than ourselves.

—— The publication of Mr. DARWIN'S new work on INSECTIVOROUS PLANTS is announced for the present week.

—— The charming LATHYRUS SATIVUS, though a very old plant, representing a tint of blue rarely found among annuals, deserves cultivation because of its free dwarf growth, and profusion of flowers. It is far superior to many annuals generally cultivated,

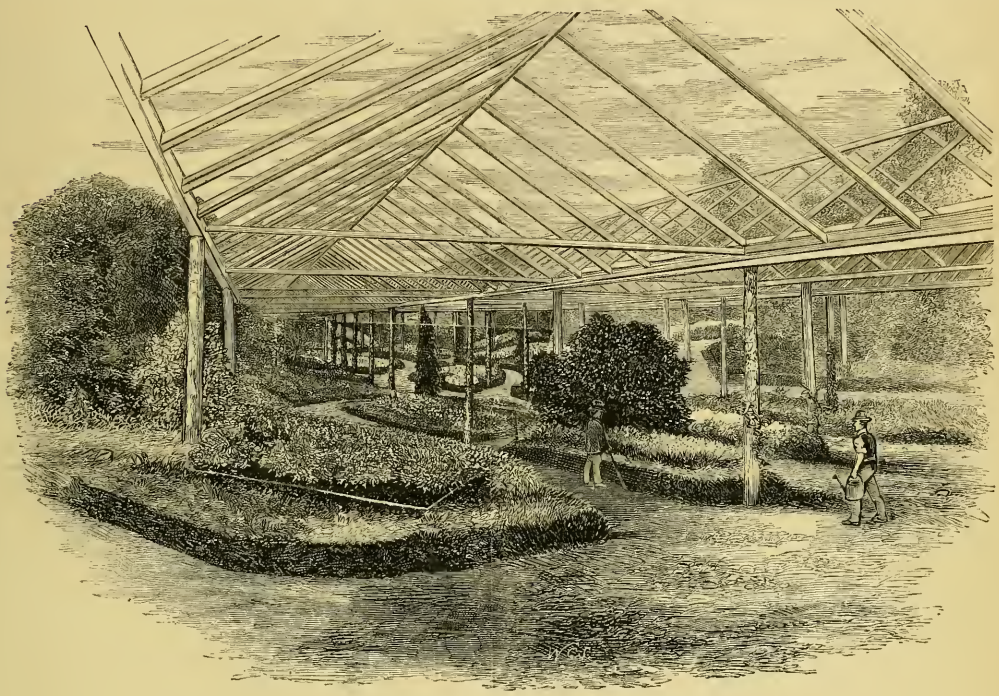

FIG. 170.—SHOW GROUNDS IN THE BELFAST BOTANIC GARDENS.

but it is very rarely met with. A few blossoms, backed up with a green leaf, make a pretty buttonhole, only it is said that button-holes are now becoming quite unfashionable! and the lawgivers of fashion have ceased to sport them.

—— Dr. DE LA SAVINIERRE is about to undertake a botanical exploration in CELEBES, and will prepare dried specimens of the plants of that island for distribution among subscribers. So little is known of the flora of this island that is to be hoped that M. DE LA SAVINIERRE'S enterprise may meet with ample support. Applications should be made to the General Secretary of the Botanical Society of France, 84, Rue de Grenelle, Saint Germain, Paris.

—— That fine H.P. ROSE, LOUIS VAN HOUTTE, is said by Rose cultivators to be wanting in vigour of habit—that it is, in fact, what they term a "bad doer." We have lately seen it in most vigorous growth, worked as a dwarf on the seedling Briar, and growing in a somewhat free gravelly loam. The growth is remarkably vigorous, and large full flowers of a rich shaded crimson hue are produced. Etienne Levet, Richard Wallace, and Marie Baumann, were scarcely more vigorous in habit than Louis Van Houtte.

—— We learn from the daily papers that H.R.H. the Duke of EDINBURGH will visit Edinburgh at the time of the International Fruit Show in September next.

—— We have received from Messrs. C. J. BLACKITH & Co., Cox's Quay, Lower Thames Street, several samples of GARDEN LABELS AND TRAINING STICKS, which we can commend to the notice of our readers. They are hand-made, very regular in size, and sold at an exceedingly cheap rate in bundles of 100 each. The sticks are made from 1 to 5 feet in length, the longer ones being proportionately thicker, and the labels from 4 to 18 inches. Mr. J. SMITH, The Royal Label Factory, Stratford-on-Avon, has also submitted to us a specimen of a new permanent Rose tree label, and a sample of his permanent labels for Conifers, of a much larger size. Both are made of a white metal, and the names are raised from the surface. Both are admirably adapted for the purpose intended, and cheap in price, considering their imperishable nature.

—— Mr. ROBERT SOWERBY, gardener, late of Newburgh Park, Yorkshire, has succeeded Mr. ALFRED EAMES, as gardener to the Earl of MACCLESFIELD, Shirburn Castle, Tetsworth, Oxon.

—— We have not yet heard that the South Kensington members of the COUNCIL of the ROYAL HORTICULTURAL SOCIETY have carried out their publicly expressed intention to resign. As they have shown themselves quite incompetent to appreciate the higher aims of horticulture, and the circumstances which render a society worthy of national encouragement, every day that they delay to fulfil their voluntary promise does but add to the legacy of mischief which they will leave behind them, while any scheme for the reconstruction of the Society on a horticultural basis must necessarily be frustrated by the continuance in office of these obstructives. Under such circumstances we would suggest to the exhibitors whether it would not be better to defer the proposed demonstration on July 21, except in so far as they are tied by the schedule or other previous engagements, till such a time as the prospects of the Society are more favourable. An additional reason for postponement may be found in the short time available for the purpose intended. As the end draws very perceptibly nigh, and reconstitution and reconstruction become inevitable—for we scout the idea of annihilation—we would impress on those interested the absolute necessity of keeping broad general principles in mind, to remember that the chief object is to advance the science and practice of horticulture, and that exhibitions, however useful, are only one means, and that not the most important, of advancing an art, the practical utility of which is rather apt to be overlooked and made subordinate to flower shows and promenades.

—— We learn that the time for entries at the NOTTINGHAM AND MIDLAND COUNTIES GRAND ROSE SHOW and horticultural exhibition has been extended until July 1.

—— We invite the special attention of our readers to the fact that in pursuance of the new postal regulations adopted by the GENERAL INTERNATIONAL POSTAL UNION, and which come into force on July 1 next, the postage of letters to most parts of Europe and to the United States, is fixed at 2½*d.* per half ounce. Post-cards 1½*d.* each will be available for the same countries, and, what is of special importance to our foreign readers, newspapers will be henceforth transmitted at a uniform rate of 1*d.* for 4 oz. Printed papers, patterns, and circulars (not of the nature of private letters) will be charged at the rate of 1*d.* for 2 oz. The only important exception is in the case of France, and of letters, &c., sent through France, in which country the above regulations will not come into force until January next.

—— The quantity of rain which falls in England is very carefully noted in various parts of the kingdom, and the result of the observations is published far and wide, but, says the *Times*, the amount of OUR SUNSHINE is not so well known. It is not out of season at this time to notice that in Scotland the Registrar-General regularly reports the number of hours of sunshine with which that country is favoured, as shown by the mean of returns from 55 stations of the Meteorological Society of Scotland. The hours of sunshine in a year in that country most frequently range between 1650 and 1750; but in 1874 they reached the large number of 1815, and these were distributed as follows:—74 in January, 103 in February, 138 in March, 179 in April, 170 in May, 277 in June, 239 in July, 188 in August, 145 in September, 140 in October, 78 in November, and 84 in December. The average was above nine hours a day in June, and not quite 2½ in January.

—— With the present number we give a SPECIAL SUPPLEMENT, with numerous original illustrations from the pencil of Mr. W. G. SMITH, of the gardens of his Grace the Duke of DEVONSHIRE, K.G., at Chatsworth.

Home Correspondence.

Notes of a South Shropshire Garden.—The rain that has fallen somewhat copiously during the last week has made our lawns green, our bedded plants thrive, and the weeds grow apace, but the winds that have accompanied the welcome moisture batter our Roses, and break the tender shoots of the Rhododendrons. Our Roses promised a splendid show of bloom, but they have not opened so kindly as we hoped, the outer petals being in many cases damaged by the weather; still we have some remarkable specimens. One standard, that bears a head that is 8 feet high and 40 feet in circumference, and almost a perfect hemisphere, carries at least 2000 flowers, fully or all but fully opened. A Gloire de Dijon near it, 10 feet high, has more than 500 well-formed flowers, and the shyer Maréchal Niel has over 200. This garden is favourable to all kinds of Roses. A hedge of Sweet Briar, planted four years since, has grown to goodly dimensions, making the morning and evening air delicious with its refined fragrance. A bed of orange-yellow Lilies, many of which were bought at one of Mr. Stevens' sales last year as Lilium Humboldtii, and the rest supplied from Holland as scarlet Martagons, from both of which species they are, however, very far removed, has been one of the gayest objects during the past week, and these are contrasted well with a bed of Delphiniums, delightful in their blue brilliancy. I wonder why this beautiful plant is not more frequently made a feature at this season. The bed in which it grows is a mass of colour in the early part of the year, yellow, blue, dark and pale, and white with Crocuses. Of these we planted about 1000 bulbs, alternating the colours so that when the sun shines upon them during their time of flowering the circular bed looks like a splendid window of painted glass. Next year we intend to plant it with Forget-me-nots that will follow the Crocus, then will come this Larkspur, and after the Delphinium comes on a growth of the old-fashioned Fuchsia coccinea that will last till late in the autumn. These three, viz., Crocus, Delphinium, and Fuchsia, in no wise interfere with each other's growth, and they keep up the interest we always feel in watching the changing but recurring beauties of the year. In the house the Pelargoniums are just now the chief show, but a Tacsonia Van Volxemi and a Clematis Jackmanni are great attractions. In the vinery we look well, although, in consequence of building a new house and making alterations not yet completed, we have been unable to use heat, the bloom has set very well; even the Muscats, which are usually supposed to require a high temperature, will not disappoint us. In the kitchen garden we gathered our first green Peas on the 10th inst., and new Potatos a few days before, being about the usual date, and showing that summer easily makes up for the time lost through the cold of early spring. Until to-day the river has been very low, but the rain that has fallen lately has caused it to rise, and for the first time this year a salmon was playing in the pool. *S., June* 15.

Synonymy of Marantas. — We have lately received some Marantas, introduced into commerce by Mr. W. Bull, and among them we find some species already previously introduced by us, and described under other names by Professor Morrer. Thus, Maranta pinnato-picta (Hort. Bull) is our Calathea applicata, *Belgique Horticole*, 1874, 228; M. prasina (Hort. Bull) is our C. medio-picta, *Belg. Hort.*, 1874, 228. These two plants were exhibited at Ghent on June 28, 1874, and at Liège, July 5, 1874. Maranta bella (Hort. Bull) is identical with our M. Kegeljani, exhibited by us at Antwerp in April, 1875, and described in the *Belgique Horticole*, 1875, 133. We think, then, we are justified in claiming the priority. In fact, Mr. Bull's catalogue, in which these novelties are announced—1875, No. 110, p. 7—was published at the end of April this year, and it does not appear that the plants have been described elsewhere. In any case the public should be apprised of the identity above stated. *L. Jacob-Makoy & Co., Liège, Belgium.*

Strawberry Forcing in Pots.—I see there is a dispute going on in your columns about wooden troughs, pans, and turf shelves for Strawberry forcing, but I do not see any reference made to Mr. Ward's old-fashioned plan of layering the runners in small pots—a point, in my estimation, of equal if not more importance than the other, considering it has to be done at one of the busiest seasons of the year. I allude to layering the runners into the fruiting pots. I cannot boast of the thousands we force, but I can assure you of our perfect success in fruiting the plants, and of the great saving of time and labour effected by layering the runners into the fruiting pots at once. The method is so simple as compared with the other as to need no description. *E. Bayman, The Gardens, Holmbury, Dorking.*

The Pinguicula.—Mr. Forsyth has scarcely acquainted himself with the habits of the Pinguicula, or he would have known that it does not catch insects by cupping its leaves; and I have never heard that it has been so reported of. If any unfortunate insects should pitch upon its leaves they are, if small enough, seized by the minute hairs that cover the upper surface of the foliage, or glued to it by the gummy secretion that is so easily distinguished if the foliage be moistened or rubbed with a wet finger. When thus captured there is no hope of escape, and, as insect life is specially evanescent, they soon die. The disappearance is, however, not so rapid as has been indicated; and I believe that such minute bodies would disappear as rapidly under any other conditions after death. Whatever may be the nature of the Dionæa, I feel sure that further observation must exonerate the humble Pinguicula from the charge of being insectivorous; the same designation might be with equal validity applied to the Petunia, as at times during the summer the foliage of plants growing in the open air are, owing to the resinous secretion with which it is covered, often much infested with the bodies of dead insects, especially just after a strong wind has been blowing. It may be that in the case of the Pinguicula the gummy secretion on the leaves is an attraction to the insects, and the smaller ones, when once in contact with it, are unable to get free again. I have to-day placed a number of the green aphis on my plants, and these, as long as they kept their legs, seemed uninjured; but if by chance they got on their backs, they were irrevocably fixed. I found also that the bodies of these were still sound eight hours afterwards. This would indicate that the digestive process, if any, was not very rapid. Mr. Forsyth rather astonished me when he wrote about plants of the Pinguicula being infested with greenfly. If anything could indicate that the plants in question had been grown under unnatural conditions, that would do so. Certainly they had no business to be dry, and should not be kept in a frame. A cool, shady place in the open air, and plenty of moisture, are its requirements during the summer; and if at Todmorden the aphis were preying upon it, instead of the plant eating the aphis, the mode of cultivation was to blame. *A. D.*

Mr. Laxton's Peas and Strawberries. — In your report of the meeting of the Fruit Committee of the Royal Horticultural Society, on the 16th inst., it is stated that a seedling Pea named Dr. Hogg was exhibited by me, and that the committee would not pass any opinion upon it without tasting them boiled, and that it would probably be grown at Chiswick. You appear to have overlooked the fact that this Pea has already been tried at Chiswick, received a First-class Certificate, and is now in the hands of the public. The pods were merely sent to the committee to show how quickly such a richly flavoured Pea may be brought in, the Peas from which the ripe pods were gathered having been sown on March 18. It would also appear from the report that I sent some clusters of Pioneer Strawberry for tasting. These

were merely sent to show the bearing character of the plant, and a great many of them were necessarily unripe. I regret, however, to state as a fact that the committee did not eat the fine and ripe specimens sent to be tested. Pioneer was submitted to the committee as a large, highly flavoured, very early Strawberry, which comes in close on the heels of Black Prince, and considerably before Keens' Seedling and Vicomtesse Héricart de Thury; and I know no other Strawberry of its size and flavour which comes in so early. The first fruit was gathered and tasted by Mr. Gilbert, of Burghley, from plants grown in the open ground here on the 4th inst., the same day on which May Queen and Black Prince also ripened. May I therefore trust to your usual courtesy to explain this in your next issue? *Thomas Laxton, Stamford, June* 21.

—— In your report of the meeting of the Fruit Committee of June 16, published in last week's paper, you state that "Mr. Laxton also sent a promising seedling Pea, named Dr. Hogg," and thus the committee would not "pass any opinion on it without tasting them boiled, and for that there was not enough, so that it will probably be grown at Chiswick." I do not know where your reporter could have gained this piece of information. It forms no part of my "minutes" of the meeting. Your reports of these meetings are generally so ably and so accurately given, that if a grave mis-statement like this is left uncontradicted your readers will naturally imagine that the Fruit Committee was in the arms of Morpheus. Dr. Hogg Pea is well-known to the committee, was grown at Chiswick in 1872, and awarded a First-class Certificate, and has been noticed in your own columns frequently since. It has been sent out this present season by Messrs. Hurst & Son, and is undoubtedly one of the best and handsomest early green marrow Peas in existence. The few Peas in question were exhibited by Mr. Laxton simply to show how early it could be produced, the seeds having been sown on March 18. *A. F. Barron, Secretary to the Fruit Committee.* [Our remarks were based upon the statement officially made at the general meeting. Eds.]

Spring Frosts.—On referring to the registers of the weather kept here, I find that it was on July 2, 1856, when the frost occurred in North Notts mentioned by Mr. Strickland on p. 791. The thermometer here that morning was as low as 34° on the grass, and in a note it is stated that the Fern in exposed places was blackened in the park. There is always a lower temperature at Osberton, Clumber, and Thoresby, than at Welbeck, owing to their situation; and I perfectly remember the injury done to tender vegetables in the gardens of those places in that July, as well as to the Oaks and Spanish Chestnuts in the parks. *William Tillery.*

Leafing of the Ash and Oak.—A number of paragraphs appeared in the pages of the *Gardeners' Chronicle* last year upon the great dissimilarity which then existed between the time of coming into leaf of these two trees. As the season proved a very dry and warm one, weather prognosticators who are inclined to believe in the vacillating leafing of these rival trees as foreboding the weather for the summer months, would have their faith somewhat strengthened. Those who are accustomed to watch the opening foliage of forest trees will have observed how much more simultaneously these two sorts have expanded their flowers this spring. The fact is the more remarkable, as the winters and spring months, as regards temperature, were so entirely opposite, and would seem to favour the idea that the retarded flow of sap in the case of the Ash may be owing to some imperfect development of the wood and buds of the previous autumn. Some trees which were unusually late attracted my notice last year, and the dates of coming into leaf were noted down. This year I find there is fully five weeks' difference, being that much earlier after a severe winter and a cold backward spring. The crop of seed on some of these trees this season is immense, and must tend to weaken their growth considerably. All forest trees show well for flowering and seed-bearing this year, and the foliage and growth generally is healthy and strong in this northern locality. *J. Webster, Gordon Castle.*

Early Peas.—I am astonished at Mr. Morgan's opinion (see p. 791) of Laxton's Alpha early Pea. To be despised is nothing to be wondered at now-a-days, but for him to discard one of the best Peas in cultivation is a great matter of surprise. Independently of what I have said of Laxton's Alpha, as to its earliness, I find that it has been the earliest outdoor Pea amongst my neighbours this season; and from what I can see of William the First, it appears to be a fine early dwarf Pea, following upon the heels of some which I named in a former article. With this I send you samples of Laxton's Alpha, Eastes' Kentish Invicta, and Dr. Hogg. They are all remarkably well-filled pods, particularly, as you will observe, Laxton's Alpha—it is as tight as a drum, and well filled with meat instead of wind! Invicta the same, but to all appearance a week younger; and Dr. Hogg, a much larger pod with finer Peas, is as ripe as Kentish Invicta, with no deception as to the fulness of the pods, and I may state it is the best and earliest Pea of the large sorts that I have hitherto grown. Several of the Peas sent still bear the marks upon their pods of the peppering which they received from the late hailstorm. The above Peas were all grown in a south border. Early last week we pulled twenty pecks at one pulling of Dickson's First and Best and Sangster's No. 1 Peas, sown the middle of January upon a border with a west aspect; and the same border is now being cleared to plant Veitch's Autumn Giant Cauliflower. *J. Miller, Clumber.* [The samples received fully bear out our correspondent's statements. Eds.]

The Gardeners' Royal Benevolent Institution.—Permit me to call the attention of your readers, and of my brother gardeners in particular, to the proximity of the thirty-second anniversary festival of the Gardeners' Royal Benevolent Institution, which is to take place at the London Tavern, Bishopsgate Street, on Friday next, July 2, under the appropriate presidency of R. Broadwater, Esq., Master of the Worshipful Company of Fruiterers. I say appropriate, for who is there that can value more truly at their proper worth the great services rendered by gardeners to the community than the fruiterers, and who therefore are better able to infuse an earnest and generous feeling of support into those they may come in contact with, and thus nurture the necessary fruits of a practical sympathy? In looking through the long list of stewards—about seventy in number—I am struck with the many familiar names of persons who year by year give their valuable time and support in this way to this invaluable institution. Forcibly does it bring to view the fact that a "charity which begins at home," and which nurtures so many aged and infirm entirely of its own, still goes on prospering, and which thus brings back to its originators and supporters that proverbial return of good and charitable deeds—the "measure of fulness even to overflowing"—is deserving of every individual's support. Gardeners have the power to aid this festival by inducing their employers to send fruit and flowers to enliven the display, and thereby to increase the pleasure of those who assemble to aid former or future aged and infirm growers of such by their material subscriptions. And, to say nothing of the sympathetic support directly accorded by so doing, they will thereby save the funds by supplying such necessaries as would otherwise have to be bought for the occasion. Finally, let me most earnestly ask every non-subscribing brother gardener not to lay this appeal down without deciding to become a member of this true federation of gardeners. The simple guinea per annum can surely be spared, if there is the will, even from what I confess with painful feelings are in far too many cases wretchedly low salaries. Such a guinea will never be really missed by any one, and it might some day become to any of us, however unexpectedly, a jewel of increased weight—to solace old age, infirmity, and the adverse visitations of Providence, and to which the highest, as well as the most lowly, are liable. Apart from this, whilst any hesitate and delay, they impair the guarantee which is the personal right of every fifteen years' subscriber—namely, to receive the aid of the Institution, or himself or his wife, should either require it. All packages should be addressed to Mr. E. R. Cutler, G.R.B.I., London Tavern, Bispopsgate, on Thursday, July 1, or not later than the earlier trains on the morning of Friday, July 2. Let all who will aid, therefore, be so kind as to write to the Secretary as soon as possible. *William Earley, June* 23.

Eucalyptus colossea.—At pp. 238 and 239 (February 20) the question is raised—What is Eucalyptus colossea? and gratuitously it is added, "It is a peculiarity of Baron von Mueller that he rarely sends out specimens or seeds of plants without provisional names," &c. I had to read over this sentence several times before I could make myself believe that "without" had been substituted in error for "with." Will your correspondent cite the numerous "provisional names?" No phytographic worker has ever been more careful in adopting correct names than myself. I can fairly state that I have reduced thousands of useless synonyms of other writers on Australian plants first, to their real names; instance Calythrix tetragona, to which I reduced correctly seventeen species of acknowledged high authorities; and if on rare occasions I, like my compeers, have adopted provisional names, there was full reason for it, which must be apparent to the meanest understanding. Even in so difficult a genus as Eucalyptus—in which first of all by myself sound principles for specific demarcation were established—nearly all the species (about half a hundred) established by me have stood the test of comparison with original specimens of species previously known and mostly ill-described before my time. That in such a genus an occasional duplicity may occur (as in similar instances with Cupressus macrocarpa and Lambertiana) can readily be comprehended; so it is yet an unsettled point whether the E. fissilis should be separated as a species or as a variety from E. obliqua; the wood and bark of both are very distinct to the woodsplitters, builders, and commercial dealers. Thus it was for a very long time uncertain when this, my E. diversicolor—one of the fifty called Blue Gum tree of West Australia—was identical with the famous Karri tree; and this identity I was only able to establish when I visited West Australia personally in 1857, after the name E. colossea was adopted for the Karri-wood in our locality, and also in several foreign industrial exhibitions. When this identity was made out, I informed M. Ramel and many other correspondents of the fact. It seems almost beneath one's dignity to spend time in refuting attacks, such as the one in your number of Feb. 20; but the baseless attacks of traducers have brought an honourable departmental position to the dust (while under the Civil Service regulations of this colony I could not defend myself), and no one in Europe seems to care to aid in rebuilding it, so far as I can perceive. Whenever in my writings E. colossea was mentioned it was coupled with the vernacular name "Karri," hence there could be no great difficulty in finding out what it was, and even that difficulty could have been easily removed by a letter to myself. There are still several Eucalypti about whose exact specific position I am uncertain, and to avoid confusion temporary names have to be adopted for them. Even after many centuries of the study of plants in your own country the controversy about the British Oaks in not yet brought to a close—*i.e.*, whether you have one species with two varieties, or two species. Cannot then some allowance be made for 150 Eucalypti? Surely, therefore, a little more charity might have been shown in this instance to a distant foreign worker, who would fain have hoped that he had struggled here against illiberality and envy for a quarter of a century not altogether in vain. *Ferd. von Mueller, Melbourne.*

Culture of Strawberries in Pots.—Your correspondent, Mr. W. Hinds, p. 792, seems sadly put out with my remarks concerning the watering of Strawberries. It was the last of my thoughts to disturb the equanimity of any one, or to lead Mr. Hinds astray, or even to invite him to test my old-fashioned practice; I would much rather leave him alone in his glory and his liquid manure, also his shelves, plunging pits, and plunging material. It is one and all too artificial and expensive for the age we live in—permanent trenches, plants naturally grown, fruit receiving a full current of fresh air, nine months wet out of twelve, nothing short of this will satisfy "W. P." "W. H." makes funny remarks about striking Tom Thumb Pelargoniums in bottom-heat, which prove him to be thirty years behind in these matters. If "W. H." will take the temperature of his soil in any part of his garden during July or August, he will find it at about 60° to 65°, and what is this but bottom-heat? More of this anon. I would ask Mr. Hinds to bear in mind it is Strawberry culture we have in hand, not only from March to the end of August, but every month in the year. "W. H." may keep his "pet varieties" to himself, but old gardeners will not give up Keens' Seedling, Cuthill's Alice, President, Duc de Malakoff, Sugar Ball, Sugar Loaf, and a few others. Strawberries as a table fruit are none the better for being monstrously large. The middle-sized, well-ripened, subacid and good flavoured fruit are wanted, and these supplied with pure rain-water. What, grow Strawberries artificially, regardless of expense!—train the fruit over the side of the pot as a show off, allow them to ripen and imbibe the fumes of nasty liquid manure!—away with this. All gardeners well know stagnant water, of any kind, is injurious to plant life. *W. P.*

Kniphofia Macowani.—Referring to Kniphofia Macowani, Baker, figured in the *Botanical Magazine* (tab. 6167), my attention has been called to the fact that this pretty novelty was raised by Mr. Green from seeds sent by Mr. Macowan to W. Wilson Saunders, Esq., and was subsequently flowered by Mr. Green at his nursery at Reigate, and by whom the flowering specimen was sent to Kew. In so far as I am aware, it has not been flowered elsewhere, and the statement that Mr. Macowan has sent roots to Kew is erroneous. *J. D. Hooker, Kew, June* 15. [[We believe that Mr. Green intends to distribute this plant in the autumn. Eds.]

Treatment of Ornamental Trees.—It may be worth while to state the great success I have had in a mode of treatment of large old and ornamental trees on a lawn and area of ground adjacent to a residence, where it is a great object to preserve such trees in a state of vigour to guard against the commencement of decay. It is desirable to state in the outset that where leaves are annually removed in order to keep a place in nice condition, trees are deprived of their natural nourishment, but even when not removed they are blown about so as to render them of little or no avail in affording food and nourishment to the roots of the trees. It is also clear that these trees have been grown for 100 to 150, or a greater number of years, and

where the soil is not perhaps very good it must necessarily be exhausted and impoverished. Therefore after a long period has elapsed, it is not to be wondered at —on the contrary it is to be expected—that time will tell on the trees, and that they should show symptoms of standing still in their growth—of a stationary condition at least in the first instance, and subsequently of the commencement and advance of decay. These considerations attracted my attention years ago, and created a desire to arrest such downhill progress, and devise a remedy, at the same time to steer clear of any experiments which might prove injurious. One of the symptoms I observed, especially on Lime trees, was an increasing smallness of the leaf and a shortness of the annual shoots. I set to work some fifteen or eighteen years ago to give some safe treatment to the trees. Without stirring the existing surface, I began to lay on around the stems of the trees, and at least as far round as a circle with a circumference rather beyond the extremities of the branches, a coating of good earth with which some lime had been mixed. The compost, which was laid on about 5 inches thick when loose, gradually became solid, and remained about 3 inches thick. There was no difficulty in giving this amount of compost to a small number of trees; but it was obvious that earth could not be found within a moderate distance to apply the same treatment to a large number, and that the cartage, even if it could be found, would be a large expense if twenty or thirty cartloads were to be applied to a large number of trees. But as regards the trees to which this treatment was applied, the result was most satisfactory. The earth being laid on in the winter and spring no effect was visible in the first summer; but in the second summer the leaves were double their former size, with quite a new vigour; in the third year the leaves, which had before been little bigger than half-a-crown, were four times that size, and some of them almost as large as dessert plates, on thick and succulent shoots. To a certain extent similar results were attained, but on no tree was the difference so great as on the Lime tree, as all the fine fibres of the roots pushed up into the new soil and nutriment. But I was desirous to see how a similar result might be attained by a less expensive and laborious process, so that the effect might be kept up and extended to a greater number of trees. I bethought myself of a very simple and cheap process, which I have now practised for a succession of years with most satisfactory results. The leaves of the whole of the trees must be cleared at all events, in order to keep the place in nice order, and the practice I have followed is to rake all the leaves off a certain area round the stumps of about one-third of the whole number of trees within a certain space, and to place a coating of leaves about 7 inches thick in a circle from them to a circumference as far as the branches extend. This will gradually sink down to a coating of 3 inches of solid and decaying leaves; and thus there is created a coating of decaying leaves or leaf-mould—the most appropriate food of trees. Into this coating the root fibres push and are sure to find their best nutriment, the youth of the tree is renewed, and a new lease of life seems to be given to it, with all the vigour of youth and the strength and magnitude of manhood. If a little earth or vegetable rubbish can be laid over the leaves it secures their not being scattered by the wind, and a few branches of trees will assist in this object—these can be removed when the leaves are somewhat consolidated. I can state with truth that on a mass of large trees which I have had thus treated, I see an increase in the size of the trees and quite a new vigour in their growth. It is my intention to repeat the treatment once in three years, to keep the gentle action of the nourishment of the trees in the wood and outlying trees to which I mean to apply it. I consider that the leaves will afford the means and necessary supply once in three years to the whole of the trees. Much more might be said, but already this statement is too long, and persons who may take an interest in the subject will readily think for themselves, and see how simple a matter it is to confer a benefit on favourite trees. *T. F. P.*

Vanda suavis.—I understand that Mr. Thomson, of Clovenfords, exhibited recently at the Royal Horticultural Society's meeting a spike of Vanda suavis with nineteen flowers! Was this a monstrosity, or was it an ordinary spike? It must have been of considerable length—so I thought, at least, until Mr. Dunn, who saw it before it was cut, told me that its length did not strike him so much as the closeness of the flowers upon the raceme. Now this is so unusual an occurrence that it deserves more than a mere passing notice. The late Mr. James Veitch, with whom I had many a pleasant chat on Orchid culture and Orchid lore, thought, along with myself, that no Vanda suavis was capable of producing more than sixteen flowers to a spike. That number both of us had several times upon several plants, but I never knew of more until, by the way, I saw Mr. Dunn's variety at Dalkeith last year, which bore seventeen flowers. But when we come to hear of nineteen it certainly excites some surprise, and possibly Mr. Thomson may tell us, if this should meet his eye, if it is an unusual variety of the species that he has got hold of, or if it be one of the ordinary type and the production of flowers due to cultivation. I certainly should be very thankful to hear more about it. *James Anderson, Meadowbank Nurseries, Uddingston, N.B.*

Curved Roof Conservatories.—It may not be known to your correspondent of last week that the house he describes as erected by Messrs. Barr & Sugden is not the first that has been put up in London. I believe I may lay claim to the credit of anything that belongs to this innovation. In building my new offices in 1872, I covered the whole of my roof with a curved conservatory of wood bars, bent on my patent principle. It was noted in the papers at the time, and you will see that Messrs. Barr & Sugden's is very much like it. Mr. Barr, with his architect, visited my place previous to the erection of his conservatory, and my building was shown, and the principles of its construction explained by *W. D. Lascelles*, 121, *Bunhill Row, Finsbury, E.C.* [Loudon was one of the first to advocate these house-top greenhouses. Eds.]

Root Pruning by Water Voles.—Our illustration (fig. 171) shows how a tree may be destroyed by the persistent nibblings of a water vole. The tree in question grew in Mr. Ellacombe's garden, and

Fig. 171.—Root pruning extraordinary.

has been repeatedly mentioned in our columns, but as considerable interest attaches to the subject, we now give an illustration which may serve to put others on their guard against what has been well styled an undesirable root-pruner.

Fancy Pelargoniums at the Botanic Show.—I think many of your readers will share with me the surprise I have felt at the account you give of the Fancies exhibited by Mr. James and myself at the Royal Botanic last week, in which you say, "Mr. James' plants were in all respects most admirable," while you describe mine only as being "but little inferior." [Your plants were not fully in flower, while Mr. James' were at their best: only in this sense inferior. Eds.] That my plants were strikingly superior to any six plants in the exhibition was so generally admitted by other exhibitors, that astonishment was widely expressed at Mr. James' six plants being bracketed with mine; and Mr. Frost, the well-known Pelargonium grower to Mr. Turner, of Slough, said that mine "were the most even and best class of Fancies he had ever seen staged." And here I must ask you to allow me to notice an article by Mr. James in the *Gardeners' Magazine* for May 20 last, in which he says, after speaking of the "ignorance" of other writers on the subject, "one of the most important steps to take in the cultivation of Fancy Pelargoniums for exhibition purposes is to begin with grafted plants;" adding, "if on their own roots, they are liable to die off during the winter season when several years old, and just becoming large enough to produce a good effect." Now, the plants I exhibited last week were only twenty-seven months old, and measured from 3 feet to 3 feet 6 inches in diameter—being, I believe, a greater size than those exhibited by Mr. James; while for compactness, fulness, and evenness of bloom, there was nothing to desire. Yet these were all planted on their own roots, and some of them gained the 1st prize, bracketed with Mr. James' plants in the previous year, when of course they were only fifteen months old, and even then measured 2 feet 6 inches to 3 feet in diameter. Such facts will dispose of the theory that Fancies should be grafted, and not grown on their own roots; the main secret of their successful cultivation being referrible to the soil selected, and to the avoidance of all needless watering. *George King, The Gardens, Wolsey Grange, Esher.*

Alderney Cows.—Now that Alderney cows have so risen in price many of your readers will, perhaps, gladly hear that a cross almost equal for milk to the pure animal may be had between a Kerry or Welsh heifer and an Alderney bull, with the advantage of being much more easily disposed to fatten. It would be worth any one's while to breed a number. They are quite docile. *Z.*

The Royal Horticultural Society.—Messrs. Veitch & Sons, as most fittingly representing the large exhibitors in the trade, have pronounced in favour of the suggested great show on July 21. Allow me to state, as one of the small exhibitors, that I will do my very best to assist in making up an exhibition worthy the name and traditions of the Royal Horticultural Society. I have already supported the Society during the present year, despite the nonpayment of the prize money of 1874 and the absurdly reduced prizes of 1875 exhibiting something at almost every one of the meetings. Can Mr. A. F. Barron convene a meeting of exhibitors at which a plan of action can be agreed upon and carried into effect on July 21? *Richard Dean, Ealing, W.*

The Cedar of Lebanon.—On recommending the Cedar of Lebanon to friends discussing the selection of ornamental trees on home grounds, a common objection has been at once made as to the slowness of their growth. Now, that your younger readers may not be discouraged from planting this beautiful tree at a sufficient distance from the dwelling-house, I send you the inclosed particulars respecting the growth of a Cedar, which, on laying out the grounds about my new-built house in the year 1828, I planted a mere shrub about 3 feet high—less, unfortunately, than 20 yards from the house. As mensuration is one of the many items of instruction at our College, and superior instruments abound, the Principal, Mr. Constable, at my request, kindly attended with some of the students to make an accurate admeasurement of the girth, height, and the superficial extent of ground over which the branches extend. The most striking feature in the growth of this tree is the great extent of the branches from the bottom to the top, bearing in mind that it does not exceed about forty-eight years' growth. I inclose copy of the report as worked out at the College, which shows that the "circumference at 4 feet from the ground is 10 feet 8 inches; at 5 feet, 8 feet 10 inches; height, 51 feet 6 inches. The tree covers about the sixteenth part of an acre." *Charles Lawrence, The Querns, Cirencester.* [Thanks for the photograph. Eds.]

Canterbury Bells.—I send you with this a box of flowers of Canterbury Bells, which may be said to represent quite a new strain. In the seedling bed I have counted no less than fourteen distinct varieties, double and single. Some are very double, others semi-double, and a few of the flowers are of enormous size, as you will perceive by the examples sent. They are a great improvement on the old forms of the Canterbury Bell, with their small flowers and somewhat pointed petals. The bed of seedlings, now in full bloom, is a remarkable sight at my seed grounds at Bedfont. *Richard Dean, Ealing, London, W.* [They are a very fine strain indeed, remarkable for the size of the flowers and their variety of colour. Eds.]

Reports of Societies.

Alexandra Palace Rose Show: *June 24 and 25.*—It is our pleasant duty to record that the first horticultural exhibition held at the Alexandra Palace since the re-opening was a very good one; and as a Rose show we must say that, with the exception of a few awkward details in the arrangements, which will no doubt be altered with experience, it reflected great credit alike on the exhibitors and the Palace Company, whose schedule of prizes was certainly a most liberal one. The exhibition was held in the large concert-room, the staging being erected in two parallel rows down either side, with large and well-filled baskets of plants down the centre of the room, and a row of ornamental foliaged plants down the centre of each of the side-tables. On either side of the orchestra Mr. B. S. Williams had fine collections of large fine-foliaged and flowering plants, and

in the centre, under the conductor's seat, a collection of smaller specimens of new and rare plants were furnished by the same exhibitor. Looking towards the orchestra the effect was very good. The nurserymen's classes for Roses were particularly well contested, and a fine lot of blooms were staged all round. The competition in some of the amateurs' classes was very strong, a large number of stands being put up, but there were a greater number of poor blooms than we like to see.

Taking the nurserymen's classes first, we have that for seventy-two distinct blooms, in which there were six competitors, and the competition very close. Messrs. Paul & Son, Cheshunt, came in 1st; Messrs. Cranston & Mayos, Hereford, 2d; Mr. B. R. Cant, Colchester, 3d; and Mr. Turner, Slough, 4th; an extra prize being awarded to Mr. John Keynes, Salisbury. The 1st prize stands contained an exceedingly fine lot of blooms, not particularly large, but well finished and perfectly fresh. The best blooms struck us as being those of Charles Rouillard, Charles Lefebvre, Edward Morren, Centifolia Rosea, Madame Caillat, Alfred Colomb, Madame Berard, S. Reynolds Hole, Duc de Rohan, Baroness Rothschild, Beauty of Waltham, Etienne Levet, Marquise de Castellane, Annie Wood, and Madame Nachuary, a pretty rosy-pink flower. Looking through the other stands we noticed especially fine blooms of Niphetos, Madame Crapelet, Madame Laurent, François Michelon, Devoniensis, Paul Néron, Duke of Edinburgh, Madame Hippolyte Jamin and Clémence Raoux. In the next class, for forty-eight Roses, three trusses of each, there were five exhibitors, and so good were the flowers that prizes were awarded to each, in the following order:—Mr. Turner, Messrs. Paul & Son, Mr. Keynes, Mr. Cant, and Messrs. Cranston & Mayos. The best blooms in Mr. Turner's stand were of Xavier Olibo, François Michelon, Madame Clémence Joigneaux, Climbing Devoniensis, Etienne Levet, Souvenir de Monsieur Boll, La France, Boule de Neige, Antoine Dacher, Baroness Rothschild, Elie Morel, Edward Morren, Maréchal Niel, La Fontaine, Oxonian, Souvenir de la Malmaison, Marquise de Castellane, Marguerite de St. Amand, and Madame Thérèse Levet. The same varieties were more or less conspicuous in the other groups, which were very fine. There were ten competitors in the class for twenty-four blooms, and the awards were made to Mr. Keynes, Messrs. Cranston & Mayos, Mr. Prince, Oxford, Mr. Cant, and Messrs. Davison & Whitten, Hereford—the two last-named being equal 4th. All the stands were of considerable merit, but the space at our command does not permit us to name more than the best dozen flowers selected from the whole. These were, Etienne Levet, Marie Baumann, François Michelon, Nardy Frères, Madame Clemence Joigneaux, Marquise de Mortemart, Madame Lacharme, Princess Beatrice, Horace Vernet, Duc de Rohan, Madame Hippolyte Jamin, and Maréchal Niel. Again in the class for twelve Tea-scented and Noisette Roses the competition was very close, and extra equal 4th prizes had to be awarded, the result in the end standing thus:—1st, Messrs. Paul & Son; 2d, Mr. Prince; 3d, Mr. Cant; and equal 4th, Mr. Keynes and Messrs. Davison & Whitten. In the corresponding class for amateurs the awards of the judges were given in favour of the Rev. J. B. M. Camm, Captain Christy, T. Laxton, Esq., and Mr. Pulling. The varieties best represented throughout both classes were—Céline Forestier, Madame Villermoz, Souvenir d'un Ami, Devoniensis, Maréchal Niel, Madame Capucine, orange, shaded with bright crimson, and delicately scented; Cheshunt Hybrid, Souvenir d'Elise, Marie Van Houtte, Niphetos, Perle de Lyon, and Belle Lyonnaise.

The other classes, confined to amateurs, were for forty-eight, thirty-six, twenty-four, and twelve blooms respectively. There were five collections of forty-eights, and the blooms generally were very good indeed, and especially those of Camille Bernardin, Mdme. Marie Rady, Alfred Colomb, Marie Baumann, François Michelon, Annie Laxton, and Centifolia Rosea, in the 1st prize lot, contributed by Mr. Baker, Heavitree, Exeter. The other awards went to Miss Penrice, Norwich; Mr. G. Rushmore, gr., Tendring Hall, Colchester; and T. Laxton, Esq. No less than thirteen lots of thirty-six were staged in competition, the result of the judging being that Mr. Baker was again placed 1st, Mr. Curtis, of Chatteris, being 2d; Mr. Cavell, of Oxford, 3d; and Mr. John Mayo, Oxford, 4th; the Rev. J. B. M. Camm securing an extra award. Seventeen collections of twenty-four blooms were put up, and, as might have been expected among so many, there were a considerable number of inferior blooms, but generally each stand contained a few exceptionally fine samples. Six prizes were awarded here, viz., 1st to Mr. H. Atkinson, Brentwood; 2d to Mr. A. J. Bloxham, Oxford; 3d to Mr. T. Jowitt, Hereford; equal 4th to Mr. Curtis and Mr. Baker, and an extra to Mr. J. Mayo. All the before mentioned varieties were more or less represented in these classes, and it is useless to repeat their names. The best twelve came from Mr. Baker, and equal 2d prizes went to Rev. A. Cheales, Reigate, and Mr. Taylor.

The best twelve blooms of new Roses of 1873, 1874, or 1875, came from Mr. Turner—Messrs. Paul & Son coming in 2d, Mr. Cant 3d, and Mr. Keynes 4th. The varieties shown in the best condition generally in this class (made up of ten exhibitors), were Captain Christy, Sir Garnet Wolseley, Cheshunt Hybrid, Antoine Mouton—large and very full, a well built pink Rose; Caroline Kuster, pale straw-yellow, fine in the bud; Oxonian, Beauty of Slough, a fine rosy scarlet colour; Mademoiselle Dumain, and Mons. Claude Levet. Eighteen trusses of English raised Roses in commerce where shown by two exhibitors, Mr. Turner and Messrs. Paul & Son, who took the awards in the order named. The finest flowers were of John Stuart Mill, John Hopper, Lord Napier, Climbing Devoniensis, Beauty of Waltham, W. Wilson Saunders, Annie Laxton, Duke of Edinburgh, and Bessie Johnson. In the open class for twelve distinct blooms, Mr. J. Walker, Thame, was 1st.

Prizes were also offered for the best twelve blooms of certain varieties specially named, a feature which may be commended to the notice of other managers on account of its usefulness in bringing out more prominently the faults or good qualities of a Rose. The best Alfred Colombs came from Mr. Turner, Mr. Baker, and Messrs. Paul & Son; while appropriately enough Messrs. Paul & Son showed the Duke of Edinburgh to the best advantage, Mr. Turner being 2d. Out of four lots of Baroness Rothschild the best came from Mr. Baker and Mr. Prince; and Mr. Baker and Messrs. Paul & Son had the best of the competition in a good class of La France. Mr. Curtis and Mr. Baker contributed the best examples of Marie Baumann, and Mr. Cant and Mr. Walker of Maréchal Niel; while Mr. J. House, Peterborough, sent the best specimens of Princess Beatrice and Edward Morren. The much-abused Madame Lacharme was exceedingly well-shown by Mr. Cant and Messrs. Paul & Son.

Dwarf Roses in pots, to the number of fifty in each collection, were exhibited by Messrs. Paul & Son and Mr. Turner; and vases of cut Roses, set up with Rose foliage only, came from Miss Money, of the Alexandra Palace, and Mr. Gardiner, gr. to Lady Garnier, Southgate. Miss Williams, Holloway, had two elegant vases of Roses set up with Fern fronds and other accessories of a graceful character.

Messrs. Barron & Son, Elvaston, showed several small plants of the golden Cupressus Lawsoniana elegantissima, and Retinospora tetragona aurea. Mr. Turner showed two new seedling Roses, named Oxonian and Mrs. Baker, the first-named being the most promising. It is a cupped Rose, very full, and of a cerise shade of rose with darker guard petals. Pinks and new Pelargoniums were also staged by Mr. Turner. Two boxes of seedling Roses came from Mr. William Paul, and amongst them Firebrand, a rich crimson cupped Rose; Peach Blossom, and Queen of Waltham, bright rose, were the most conspicuous. From Mr. Laxton also came a box of seedling Roses, including Mrs. Laxton, crimson-scarlet; Emily Laxton, deep rosy pink; and Dr. Hogg, very dark claret. Mr. T. S. Ware had numerous samples of a new double dwarf Sweet William. It grows to the height of 12 inches, and the flowers are of a blood-red colour.

Glasgow and West of Scotland Horticultural: *June* 16.—The midsummer show, under the auspices of the above Society, was an unusually excellent one. The plants, generally, were of better quality than we commonly see, particularly those conspicuous for their blossoms. The glow of colour was particularly attractive, enhanced as it was by the presence of many rare and beautiful foliage plants. Unfortunately there were few there to see and admire. How it is that these periodical flower displays bring out so few sightseers, in comparison to others of a similar nature south of the Tweed, it is difficult to imagine. Amongst the most meritorious productions exhibited we must first point out those shown by Mr. A. B. Stewart, of Rawcliffe Lodge, Langside, and of Mr. Thomas Coats, Fergusliie—the one showing for the coveted prize of the season, the directors' silver cup, the other for purely exhibition purposes. Certainly Mr. Stewart's plants—although the field was left completely to himself—would have graced any exhibition stage in the three kingdoms; and there seemed to be no end of his treasures, for they met one upon nearly every table. This gentleman has entered into the spirit of horticulture with zest, and he appears to be ably seconded in his efforts by Mr. Robert Todd, his gardener. His plants undoubtedly were superb. The centre line was decorated with such fine Palms as Livistona rotundifolia and Phœnicophorium, having the character of fans in outline of frondage; and some beautiful pinnated-leaved sorts, such as Dæmonorops palembanicus, filled in with a huge Azalea Chelsoni, like a tree for size, and literally covered with flowers. Then there were, besides, Erica Cavendishiana, the fine cut-leaved Gleichenia, and the extraordinarily slender Maiden-hair Fern, Adiantum gracillimum, mixed with the choicest of Orchids, fine Ixoras, the handsome Medinilla, and quantities of the Princess of Wales Odontoglot, than which a finer or more beautiful flower is scarcely to be seen. Mr. Coats sent from his very rich collection of plants an extra well arranged lot, the Orchids being wonderfully beautiful, the pink racemes of the Aerides and Saccolabiums standing well out among their fellows. These and the pure white Dracophyllum gracile, the Flamingo plant, the unique Blandfordia with orange and scarlet tubular flowers, and many other flowering plants, looked all the better for the magnificent silver Fern, Cyathea dealbata, Dæmonorops, and Cibotium—plants of such a size as give dignity to a collection, and draw forth no end of encomiums from lingering promenaders. Then came the miscellaneous groups, which were in splendid condition, and the Heaths, the Ferns, and the Palms, which were shown in quantities and in a fine state of cultivation. As usual, along with Mr. Stewart were associated Mr. James Findlay, Mr. Eadie, and Mr. J. C. Wakefield, and in addition Mr. Kidston, Newton House, who exhibited by far the best specimens of flowering plants in the hall. Indeed much praise is due to Mr. Craig, the gardener, his Cattleya Mossiæ and Everlasting plant being about the most superb flowering plants exhibited. Nor was Mr. Fleming, or Mr. Beveridge, or Mr. Chapman very much behind in examples of merit. So long as we have such specimens exhibited, so long will the interests of horticulture in the West of Scotland be maintained. For nurserymen there were no special prizes offered, but as usual their plants were well exhibited, the principal collections being those of Messrs. Austin & McAslan, and of Mr. Anderson, Meadowbank. In the Meadowbank collection was a very choice variety of Vanda suavis called Pescatorei, with three very fine spikes; a particularly choice Phalænopsis amabilis, as perfect in the flower as could be well produced; some good examples of Clerodendron Balfonrianum, full of flower in small-sized plants; a new Stephanotis floribunda, with much larger flowers than the normal form, and flowering profusely as a medium-sized plant; and an excellent Amaryllis called Princess Alice—one of the choicest of the Meadowbank seedlings, after the character of Pardina, being, we understand, a cross between that variety and Ackermanni pulcherrima, but of the deepest shaded crimson suffused with white. Messrs. Downie & Laird had a fine stand of fancy Pansies, Miss McNutt being one of the showiest and best. Messrs. J. & R. Thynne sent a choice lot of plants, which have been named and described already, and which have taken first honours in the metropolis. These were all creditable groups, while the Heaths, Rhododendrons, and other miscellaneous plants from Coplawhill were all neat, and generally good.

The Orchids are becoming greater favourites every year, and the plants are well shown by many exhibitors. Mr. Kidson had an excellent Aerides, full of flower, a Cypripedium, and an orange-lipped Cattleya Mossiæ; while Mr. Todd had a grand Cattleya Warneri and other beautiful varieties. The Ferns, particularly those from Mr. A. Stewart, Crossmyloof, merit more than a passing remark. The Adiantum cuneatum was about as perfect as it was possible for plant to be, and quite 4 feet across; and Davallia Mooreana and the handsome Pteris scaberula were equally good. The variegated Pelargoniums from Mr. N. Campbell were better than we ever remember to have seen them; and similar plants from Mr. J. Hogg were first-rate. The cut Roses were beautiful, distributing their fragrance all around. The bouquets were a good exhibition, and so were the Rhododendrons and Pansies, and other cut flowers. The amateurs had a praiseworthy lot, Mr. Edward Boyes, Uddingston, taking, as usual, the best position for specimen plants.

Fruit was limited in quantity, but of good quality. Mr. Crerar sent excellent Black Hamburgh Grapes from Sir James Lumsden's garden, and good Peaches came from Mr. Smollett's, well put up by Mr. McConnachie. Strawberries were good, but we expected a larger display. The whole exhibition was highly creditable to the Society.

Obituary.

We have to record, with much regret, the death o Mr. George Edward, of York, which took place on the 10th inst. Mr. Edward has for many years been known as an enthusiastic florist and seedsman, exhibiting florists' flowers, such as Pelargoniums, Dahlias, &c., with considerable success at the great shows of the North of England. He was in his 59th year.

—— We have also to record, with deep regret, the death of Mr. William Rollisson, of the well-known and highly-respected ancient firm of William Rollisson & Sons, of Tooting, Surrey—a nursery establishment which during the lifetime of the elder Mr. Rollisson, father of the gentleman now deceased, acquired great reputation for the numerous first-rate varieties of Cape Heaths raised and sent out from thence. As cultivators of Orchids and importers of

new plants, the Messrs. Rollisson, father and sons, at one time stood pre-eminent amongst the London nurserymen—for Tooting, though in those days a country hamlet, is, in fact, but a suburb of London; indeed, the Tooting establishment in those days stood in the fore-front of the London trade, and was especially famous as a plant nursery. Mr. W. Rollisson, the younger of the two brothers by whom the business has been carried on for many years, died on the 18th inst., at his residence, Springfield, Upper Tooting, in his 73d year. He was a genial unassuming man, kind and considerate towards all about him; and, though advancing years had shut him out from taking an active part in business matters, he will pass away amidst the keen regrets of a wide circle of friends.

The Weather.

STATE OF THE WEATHER AT BLACKHEATH, LONDON,
For the Week ending Wednesday, June 23, 1875.

Month and Day.	Barometer. Mean Reading Reduced to 32° Fahr.	Barometer. Departure from Average of 18 Years.	Temperature of the Air. Highest.	Temperature of the Air. Lowest.	Temperature of the Air. Range.	Temperature of the Air. Mean for Day.	Temperature of the Air. Departure of Mean from Average of 60 Years.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Dew Point.	Hygrometrical Deductions from Glaisher's Tables 5th Edition. Degree of Humidity Sat. = 100.	Wind. Average Direction.	Rainfall.
June 17	In. 29.63	In. −0.15	° 67.2	° 47.8	° 19.4	° 55.5	° −3.8	° 46.7	72	W.; S.S.W.	In. 0.00
18	29.85	+0.06	65.0	50.6	14.4	54.5	−5.0	51.0	88	S.; NNW	0.15
19	29.96	+0.17	72.0	46.0	26.0	57.5	−2.2	50.2	77	S.S.E.; S.S.W.; W.	0.00
20	29.74	−0.05	65.7	53.1	12.6	57.0	−2.9	55.7	95	S.S.W.; S.W.	0.08
21	29.67	−0.13	58.3	51.0	7.3	53.0	−7.1	47.0	80	N.E.; N.	0.00
22	29.98	+0.18	72.0	47.8	24.2	57.0	−3.4	48.5	73	S.; S.W.	0.00
23	30.00	+0.19	69.4	50.8	18.6	57.9	−2.8	53.3	85	S.W.; S.S.W.	0.00
Mean	29.83	+0.04	67.1	49.6	17.5	56.1	−3.9	50.3	81	S.S.W	sum 0.23

June 17.—A fine bright morning; rather dull afternoon. Fine, and distant thunder heard at night.
— 18.—Overcast, dull, gloomy and showery. Slight thunderstorm at 2 P.M.
— 19.—Fine, bright, and partially cloudy throughout.
— 20.—Overcast, dull, and rain fell in morning. Fine afternoon. Dull at night.
— 21.—Overcast, dull, and cold throughout.
— 22.—A fine day, warmer, and gloomy.
— 23.—Overcast, dull and cool. Fine at times.

—— During the week ending Saturday, June 19, in London and its suburbs the reading of the barometer at the level of the the sea increased from 29.76 inches at the beginning of the week to 29.82 inches by the morning of the 13th, decreased to 29.48 inches by the afternoon of the 15th, increased to 30.18 inches by the morning of the 19th, and was 30.12 inches at the end of the week. The mean reading for the week was 29.79 inches, being 0.09 inch lower than that of the preceding week.

The highest temperatures of the air at 4 feet above the ground ranged from 61½° on the 13th to 72° on the 19th, the mean value for the week being 65¼°. The lowest temperatures of the air varied between 53½° on the 14th and 46° on the 19th, the mean for the week being 49½°. The mean daily range of temperature in the week was 15½°, varying from 10½° on the 14th and 26° on the 19th. The mean daily temperatures of the air and the departures from their respective averages were as follows:—13th, 53°.4, — 5°.3; 14th, 57°.3, — 1°.6; 15th, 55°.3, — 3°.7; 16th, 55°.3, — 3°.8; 17th, 55°.5, — 3°.8; 18th, 54°.5, — 5°; and 19th, 57°.5, — 2°.2. The mean temperature for the week was 55°.5, being 3°.6 lower than the average of the preceding sixty years' observations.

The highest readings of a thermometer with blackened bulb in vacuo, placed on grass in sun's rays, were 144¾° and 135¾° on the 17th and 19th; on the 13th 80° was the highest reading. The lowest readings of a thermometer on grass, with its bulb fully exposed to the sky, were 39¾° and 45¼° on the 13th and 15th; on the 16th and 17th 47¼° was the lowest reading. The mean for the seven low readings was 45¼°.

The direction of the wind was S.S.W., and its strength brisk.

The weather during the week was generally fine, but somewhat cold, cloudy, and showery. A slight thunderstorm occurred on June 18.

Rain fell on five days to the amount of 0.46 inch.

In England, for the week ending June 19, the extreme high day temperatures varied between 74° at Sunderland and 63° at Bradford, with a general average all over the country of 69¼°. The extreme low night temperatures ranged from 46¼° at Liverpool to 34½° at Birmingham, the general average being 43°. The mean of the extreme ranges of temperature in the week was 16½°, the greatest range being at Birmingham, 34½°, and the least at Bradford, 17°. The mean high temperatures observed by day ranged between 69¼° at Cambridge and 60¼° at Liverpool, with a general average of 64¼°. The mean low temperatures observed by night varied from 50¼° at Truro to 42¾° at Newcastle-on-Tyne, with an average value of 47°. The mean daily range of temperature in the week was 17¼°, varying from 21½° at Hull to 11½° at Liverpool and Truro. The mean temperature of the air for the week was 53¾°, being 1½° higher than the value for the corresponding week in 1874. The highest was at Cambridge, 57½°, and the lowest at Newcastle-on-Tyne, 50½°. Rain fell on every day in the week at Nottingham and Cambridge to the amounts of 1½ inch and 1¼ inch respectively; at Bradford it fell on three days only, and the amount measured was a little more than a quarter of an inch. The average fall over the country was three-quarters of an inch.

The weather during the week was generally fine, though cloudy and showery at times.

A slight thunderstorm occurred generally over the country on June 17 and 18.

In Scotland the highest temperatures by day ranged from 68° at Edinburgh and Aberdeen to 62½° at Glasgow. The lowest temperatures by night varied between 43½° at Glasgow and 38° at Aberdeen, their respective averages being 65½° and 41½°. The mean range of temperature in the week was 24½°. The mean temperature for the week was 54°, being ½° higher than that of England, and 2° lower than the value for the corresponding week in 1874. The highest occurred at Edinburgh, 55°, and the lowest at Greenock, 53°. The fall of rain varied from one inch and four-tenths at Greenock to half an inch at Leith, the generat average fall over the country was eight-tenths of an inch.

At Dublin the highest temperature was 65¼°, the lowest 38½°, the mean, 53½°, and the fall of rain 1.12 inch.

JAMES GLAISHER.

Garden Operations.

(For the Ensuing Fortnight.)

[The subjoined directions are intended to supply general information, and must, of course, be adapted to the peculiar circumstances of each locality. Other departments of the garden will be treated on from week to week in succession, according to the requirements of the season. Special directions for the management of "The Villa Garden" will be found in the preceding columns.]

PLANT HOUSES.

Greenhouse Hard-wooded Plants.—In growing hard-wooded greenhouse plants there are two methods of procedure. The ordinary one is that of simply potting the young stock in the spring, generally not very early, and growing them on through the summer without another shift until the year following. Now the quicker plants of this section are grown without anything in their treatment that would come under the head of unduly exciting growth, but simply allowing them plenty of root-room, tends not only so much sooner to get them up to a handsome size, but, after lengthened observation of the two methods, I am quite satisfied that plants that are thus grown on quickly in their early stages not only live longer after they have attained the size of full specimens, but are less liable to go off whilst young through the effects of potting, by reason of their roots never getting so much matted round the sides of the pots, and consequently not being liable to injury from shifting. Plants that are grown on this system and were potted early in the spring at the time advised, will now require a second shift: this particularly applies to the free rooting subjects, such as *Boronia pinnata* and *serrulata*, *Polygalas*, *Pimeleas*, *Eriostemons*, *Adenandras*, *Acacias*, *Darwinia tulipifera*, *Leschenaultias*, and *Statice profusa*. If the roots of these have made their wonted progress since the early potting, they will now have got well hold of the soil, and will be much benefited by being at once moved into larger pots. The size of the pots to which they are transferred should in all cases be determined by the condition each individual plant is found in, when turned out of that it already occupies. The more roots a plant has got, the larger shift it will bear, but in no case give more room than there is a likelihood of the roots fully occupying before winter, for should they not be able to fill the pot there is danger of the soil becoming sour. After potting, if the weather is bright and the atmosphere dry, they must be shaded for two or three weeks from the sun, and the air of the house kept moist by throwing about plenty of water. Do not, for a time, allow a greater circulation of air amongst these newly-potted plants than is necessary to keep the temperature from getting too high. In the summer potting of plants of this description there is one thing that must not be lost sight of, that is, the necessity of doing it without delay, as if put off later than the first fortnight in July there is not sufficient time for them to get established before the autumn is upon them.

Soft-wooded Greenhouse Plants.—*Veronica Andersoni*, and *solicifolia* are amongst the most useful autumn flowering plants for conservatory decoration when grown in pots and properly prepared. To keep them dwarf and bushy, as also to induce a free disposition to flower, the pots should now be plunged in coal ashes in a sunny situation, and well supplied with water. When they get filled with roots give them manure-water once a week. *Kalosanthes* that are coming into flower should be neatly tied; if the plants are intended for exhibition use a stick to each shoot, or the flowers from their weight will get bruised in moving. If only required for home decoration fewer sticks will suffice, looping a portion of the shoots up with bast. Whatever purpose they are used for they should be so treated as to give the flowers their proper colour, which they never get when they open under glass. As the heads of bloom begin to expand, place the plants out-of-doors in a sheltered place at the north side of a wall, or in a similar position near a tree that will break the mid-day sun from them. The colour the flowers so treated will acquire will be such that the varieties would not be recognisable when compared with others kept indoors. When fully open they may be removed to the conservatory, or where required, and shaded from the sun, by which means they will last longer. Sometimes there is a difficulty found in getting these useful plants to flower freely. This is simply through their not being properly treated during the preceding summer. If they are turned out-of-doors at midsummer in an open sunny situation, and allowed to remain until the beginning of September, the shyest varieties will flower freely. *Salvias* of the useful decorative class, *splendens* and *gesneriflora*, should, if not already done, be shifted into their flowering pots and placed out-of-doors. Before turning out, secure them with sufficient sticks and ties to prevent their being broken with the wind. If they are plunged in cool ashes they will require less attention in watering, and the bottom leaves will be less likely to suffer.

Conservatory.—The season has now arrived when there is less profusion of flowering plants to select from; still, by the introduction of fine-leaved subjects, and the use of such blooming things as have in past Calendars been advised to be prepared for use here during the summer, an effective display may be kept up. *Zonal Pelargoniums*, *Balsams*, *Campanulas*, especially the blue and white varieties of *pyramidalis*, *Hydrangeas* double and single, *Petunias*, *Plumbago capensis*, *Achimenes*, *Globe Amaranthus*, *Fuchsias*, *Lilium auratum*, &c.—these, if made the most of by tasteful arrangement with the foliage plants, will make a display quite as pleasing as that produced earlier in the season by *Azaleas*, *Pelargoniums*, and similar things of a profuse flowering habit. For mixing amongst *Dracænas*, *Coleus*, and such coloured-leaved plants, the different varieties of *Centaurea* are very effective; the large-leaved *Echeveria metallica* may also with advantage be used in the same way. *T. Baines.*

FLOWER GARDEN, &c.

Parterre and Mixed Garden.—Favoured by the late rains, bedding plants are making rapid progress towards filling the beds, and to aid them in effecting this as quickly as possible all blooms should for the present be picked off as they continue to show themselves. The trailing varieties, such as *Verbenas*, *Petunias*, &c., will now require frequent attention in regulating and fastening them to the surface of the ground by means of pegs or pieces of matting passed over the stem, the ends of which should be thrust into the soil by using a blunt stick for the purpose, but before carrying this out the beds should be thoroughly mulched over with rotten dung, such as may be obtained from old Mushroom beds, or, failing this, any other short spent material that may be at hand, provided it is not of too rich a nature, as that would induce gross growth instead of blossoms. Grass saved from the mowing machine is a capital substitute for the above, and has the advantage of being ready to hand. In dry seasons mulching the flower-beds is of the utmost benefit, and I would strongly recommend those who may have a light dry soil to deal with, to give it a trial, and I am sure they will be pleased at the result. Beds treated in this way give double the amount of bloom, and are almost independent of the water-pot, as they strike their roots deep down in search of moisture, instead of being attracted to the surface by frequent and insufficient waterings, where they perish almost as quickly as they are formed. Indeed, watering without mulching is sheer waste of labour. If given in small quantities water often does more harm than good, from causes alluded to above, and heavy waterings invariably cause the soil to crack open, letting in large volumes of hot, dry air, that quickly absorbs the moisture and injures the tender

rootlets. With such things as *Calceolarias*, *Verbenas*, *Violas*, and such-like moisture-loving plants, mulching becomes a necessity, and to attempt their cultivation without it is only to court failure.

At this season it will be found necessary to run the machine over the grass at least once a week, but should dry weather set in the cutters may with advantage be set a trifle higher, so as not to cut too hard. Straggling bents and tufts of grass will be found to escape the machine, and are a great disfigurement, but by using the scythe they may be quickly brushed off. Maintain everywhere the most perfect neatness and order, as far as means will permit, as much of the pleasure of a garden depends on the style in which it is kept. Take advantage of every shower of rain to roll walks, so as to keep them firm and smooth; their appear ance may be greatly improved and a saving of labour effected for the rest of the year by giving them a good sprinkling of salt. By doing this now all moss and small weeds will be destroyed, and the walks will present a clean, bright appearance for many months to come. The salt should be sown during settled weather, as it is not effectual if washed immediately by heavy rain, and care should be taken not to sow it within 6 or 8 inches of the grass or other live edging, as it would spread and injure the same. Box is very susceptible of injury in this way, and where it is grown as an edging plant the use of salt is attended with great risk, and should be avoided.

Push on the propagation of spring flowering plants, such as *Arabis*, *Aubrietias*, *Violas*, *Daisies*, &c., according to requirement, and sow *Wallflowers* and *Stocks* of the Brompton, Giant, and Queen varieties, for blooming next spring. Late sown annuals should be freely thinned out, so as to leave plenty of room for full development. Choice *Carnations* should now be layered in fresh sandy loam, and pipings of the same and *Pinks* put in under hand-lights on a shady border. Novelties, or new things in the bedding way, should at once be placed under trial in the reserve garden, so as to prove their merits and capability for decorative purposes before risking them in the general arrangement, or propagating them in quantity. Continue to supply *Roses* liberally with manure-water, and remove all faded blooms before the petals begin to fall and strew the place. Give choice *Rhododendrons* plenty of water, to assist them in completing their growth and forming bloom-buds, and, where time will allow, remove all seed-pods at once. Prune evergreens, where it is desirable to keep them to any particular shape, and clip all evergreen hedges, as by so doing they will now make sufficient growth to take off that stiff shorn appearance which is so objectionable. *J. Sheppard, Woolverstone Park.*

FRUIT HOUSES.

Figs.—The first crop will now be nearly all gathered, and the trees will want generous treatment afterwards by giving them at times liquid manure at the roots, and syringing twice a day to keep the red-spider in check. Thin the second crop where thickly set before they get to the size of Walnuts, reserving the largest fruit near the base of the shoots. In the latest house, where the first crop is beginning to ripen, maintain a free circulation of warm, dry air, on purpose to give the fruit flavour, and tie in and regulate the shoots, so as to get the benefit of all the light and sunshine possible for the same purpose. The trees in pots, and intended for forcing early next year, must not be neglected at this stage; syringe them overhead as often as possible, and supply them with liquid manure in the shape of a handful of guano put into the water occasionally. When the trees have fully matured their shoots in the forcing pits or houses where they have been grown, they may be placed in the open air in some sunny corner to ripen their wood. *William Tillery.*

KITCHEN GARDEN.

The superiority of the *Tripoli* section of *Onions* for spring and early summer use is too well known to need any comment on that point. As preparations will soon be needful for the purpose of sowing seed for the subsequent year's supply, it is well to note the fact, so that such an important crop may have due consideration beforehand. The Onion tribe, being deep-rooting subjects which delight to luxuriate in deep rich soil, regard to these matters is indispensable if fine bulbs are desired, and positions embracing such qualities should be selected for the crop, and the sowing be effected at about August 10 in drills about 1 foot apart. The rotation of cropping differs considerably in practice: we usually employ ground which was well manured, trenched deeply and fallowed last winter, on which spring Cauliflower plants are set, which come off in time to be succeeded by Tripoli Onions. *Peas* of the earliest character will by this time be over. No unnecessary delay should elapse in effecting a clearance of the ground, which should be forked over, and occupied with such subjects as are most required amongst *Broccoli* and winter stuff. As the gathering of succeding crops is completed and cleared off, it can be appropriated in quantities required for late *Celery*. *Rosette Coleworts*: a large breadth of this excellent little Cabbage should be planted, and a reservation made for that most useful and excellent vegetable—*Winter Spinach*. In many places it is customary to leave a breadth of the *Cabbage* stumps, to give an additional supply of young heads during the autumn months. Where this plan is not already adopted it should be, as affording better results than those obtained by planting out young plants at the period required to provide for the same purpose. Towards the middle of next month sow the main crop of *Endive*; we prefer the moss curled variety to those of more straggling habit and larger growth. At about the same time a liberal sowing of *Lettuce* should be made, as many of these plants will be required for lifting into frames or elsewhere for late autumn use. No variety excels for this purpose the true old Black-seeded Brown Cos. If not already done sow *Parsley* at once, and when the plants are ready they should be planted out in single rows, some of which should have sheltered sunny positions, such as at the base of a wall, where, if necessary, a slight protection can be easily afforded, should it be required next spring. For the present, small sowings of *Turnips* occasionally will suffice, and another of *French Beans* may be made, if desirable, in a warm place. Take up *Shallots* as soon as they indicate ripeness, and store them in bunches or otherwise. Plant out *Leeks* either into prepared trenches or in drills: in the latter put them in deeply. Attend to nailing and tying up *Tomato* plants as they advance in growth. Remove all side shoots when the requisite number of fruiting shoots are obtained. Train, thin out, and stop as needed, *Gherkin* and *Ridge Cucumbers*. Keep the surface soil stirred about crops which are not mulched, and maintain the strictest order in this department. *G. T. Miles, Wycombe Abbey.*

Variorum.

Is Dandelion a Cultivated Root? — On Monday, 21st inst., at the Bury Petty Sessions, two young men, Robert Bridge and John Howarth, were summoned by Mr. Geo. Ormerod for having stolen certain cultivated roots used for the food of beasts and for medicine, to wit, a quantity of Dandelion growing in a field at Chamber Hall. Mr. Crossland appeared for the complainant, and Mr. Anderton for the defendants, and the issued raised was whether Dandelion is a cultivated root according to the 24th and 25th Vict., cap. 43, sec. 37, under which these proceedings were taken.—Mr. Anderton contended that Dandelion was not a cultivated root.—Mr. Crossland said grass was cultivated with manure, and they could not cultivate the grass without cultivating the Dandelion at the same time.—Mr. T. Wrigley (presiding magistrate) took it that if the meadow was properly manured, which was stated to be the fact, the Dandelion would progress and improve like the other grass.—Mr. Dodds (one of the magistrates' clerks) said Dandelion was a weed.—Mr. Anderton submitted that Dandelion in its wild state was not a "cultivated root" as meant by the Act. The magistrates, as classical scholars, would know that the word "cultivated" was derived from the Latin *colo*, to till or manure. To cultivate a root or plant signified a specific preparation, and he held that Dandelion, growing promiscuously in a field unprotected and liable to the pasturage of cattle, could not be considered a cultivated plant. Mr. Wrigley said he and his brother magistrate were quite agreed that Dandelion was one of the plants belonging to the proprietor of the meadow, and that the defendants had no business to take it. It was a natural grass [herb], cultivated amongst other grasses, and amongst other grasses it was no doubt valuable.—Mr. Crossland said that for several weeks parties had gone trespassing in this field, damaging the fences, and forking up the Dandelion. Some pounds' worth of damage had been done altogether.—Mr. Wrigley said it was desirable it should be known that people must not take such liberties. The defendants must pay the damage, 7*s*., and a fine of 2*s*. 6*d*. and costs each.—Mr. Anderton asked for a case on a point of law (as to Dandelion being a cultivated root), and the Bench granted him one. *Manchester Courier.*

Robert Brown.—The late Sir R. J. Murchison, writing late in life about the early part of his scientific career in London, from 1826 to 1838, says:—"I must specially dwell on the great botanist, Robert Brown, who was chiefly to be met with at the Sunday breakfasts of Charles Stokes, in Gray's Inn, and who provoked my impatient temper because he never would pronounce upon the genus—scarcely even upon the class—of a fossil plant. Profound in his acquaintance with living plants, he knew too well the fine limits and subtle distinctions to be observed; these being generally obliterated, and the fructification being barely visible, he paused and looked again and again, and came to no conclusion. Lindley, on the other hand, being of a less cautious temperament, often dashed off an opinion, and therefore gratified geologists. Robert Brown, though a quiet, sedate man, was full of quiet humour, and told many a good story to his intimate friends, among whom I was delighted to be reckoned to the day of his death. I was one of the mourners at his burial at Kensal Green, when this illustrious man had but a few old friends to pay the last honours." *Journal of Botany.*

Enquiries.

He that questioneth much shall learn much.—Bacon.

[Many enquiries which reach us would be more suitably answered by those of our correspondents whose experience or requirements are, or have been, similar to those of the questioner. These we propose, in future, to gather together for facility of reference; and as fellow feeling makes us wondrous kind, so we would fain hope that this enquiry column may serve as a bond of sympathy and good-will between our correspondents and readers, and be the means of eliciting much valuable information. Eds.]

53. Snails and Slugs.—How can snails and slugs best be caught, and what is the most merciful way of killing them? *M. M.*

Answers to Correspondents.

Red Rust on Roses (Qy. 52, p. 799): The best and only remedy for red rust on Roses is to remove and burn every leaf or part of a leaf as soon as any signs of the fungus appear, taking care to avoid scattering the spores; it generally appears on spots where it has existed in previous years. I had it amongst my Roses in considerable quantity about three weeks since, but by careful and determined removal, it appears to be nearly exterminated. *Thomas Laxton.*

Aralia: Hellebore: *Clover*. To your first question about Aralia Sieboldii, we say cut off one of the leaders if you wish for a symmetrical plant. To the second, the white Hellebore powder used to destroy caterpillars is poisonous, and therefore should be washed off the fruit, but a better remedy is to hand-pick the caterpillars.

Calceolarias: *D*. Your plants have been attacked by the well-known Calceolaria disease, which seems to kill the roots first. We believe that but little is known as to the cause, and still less as to the cure.

Cucumber Daniell's Duke of Edinburgh: *G. Taylor*. The brace of fruit sent, measuring respectively 24 and 25 inches in length, are the most handsome and serviceable we have seen of this variety.

Cottager: *G. Hall*. Yours, which is not a horticultural question, would be much better settled by your committee, which must know all the circumstances. Doubtless the schedule intends by the word "cottager" to designate that class of persons who live in cottages and gain their livelihood by daily labour, but as it does not express this we see nothing to prevent the person referred to exhibiting in either class. The omission should be rectified another year.

Fancy Pansies: *J. Downie*. A splendid batch, the flowers large, richly-coloured, and extremely varied. The distinctly bordered varieties were very telling.

Fencing: *L. J.* 1. Sloping out at an angle of 7 inches in 70; 2, 18 inches from the base of each tree; 3, 6 feet, if horses are included: 5½ feet will suffice for horned cattle only; 4, we know of none that has been proved effectual by practice. Slightly point the stakes, char them well by burning around their base, and drive them in so deeply as to insure their stability against cattle rubbing.

Fungi: *H. S.* Your Quince leaves are attacked by a parasitic fungus, Roestelia lacerata. One form of fructification appears on the upper surface, another on the lower. If the fungus was less abundant we should recommend gathering all the affected leaves and burning them, but this seems, in your case, impracticable. *M. J. B.*

Greenhouse Stage: *J. R. C.* Much depends on the kind of plants you wish to grow in your small lean-to. If dwarf subjects, like Pelargoniums, requiring much light, we should recommend a stage rising by steps, so that the back plants may be raised sufficiently near the glass. If a mixed collection, containing large and small plants, a flat stage will be better, and this should be close boarded, with a fillet around the edge, and covered with a layer of coarse sand or fragments of spar, sufficient to retain moisture about the plants in the growing season. Hence roughly sawn timber, fitted close, will be best. Consult Mr. W. Paul's *Rose Garden*, or a shilling book by the same author, entitled *Roses and Rose Culture*.

Greenhouse: *S. S. B.* We see no reason why you should not put up the house in the position indicated. You must not expect to be so successful as under more favourable circumstances, but such things as Ferns, Camellias, &c., would do well in it.

Insects: *H. H.* Your Pears have been attacked by a two-winged fly, Cecidomya nigra. I found the larva of one, but the rest have escaped, and wait in the ground for development next year. It is said that a coating of cocoa-nut fibre refuse under the trees is a remedy. It is too late to take any other step now, but should the Pears be attacked next year, they should at once be gathered and burnt, while full of the little maggots, which you will easily know by their appearance. *M. J. B.—R. G.* Your Vine leaves are covered along the ribs with the very young larvæ of the Vine scale, Coccus Vitis, most of which have already assumed the scale state. They are hatched from the myriads of eggs enveloped in the white matter which you seem to have mistaken for a spider,

Clear off and burn all the infested leaves, or your Vine will be destroyed. *I. O. W.—Heddon.* Your friend's Vine is infested with the common Coccus Vitis. It must have been carelessly kept to be allowed to get in such a state. The masses of white matter must be carefully picked off and burnt, or the myriads of eggs will hatch and soon destroy the tree. See preceding answer. *I. O. W.—I. W.* The two insects are the males of the wood-boring Sirex gigas. They were reared within the timber-posts, and have not made the holes from the outside. *I. O. W.—Camjee.* Your Roses are eaten by the green larvæ of one of the many small species of bell moths, Tortrices, which prey on Roses. We will endeavour to rear the moth, and then give its name. *I. O. W.*

NAMES OF PLANTS: *C. & D.* Bryophyllum calycinum. —*T. Cripps & Sons.* Two forms of Lilium Washingtonianum var. purpureum, one with unspotted and the other with spotted flowers, the latter exactly matching Reegel, *Gartenflora*, t. 710. *J. G. Baker.*—*P. P.* Selaginella Poulteri, and Polystichum aculeatum lobatum, but the latter specimen insufficient.—*J. W.* Achimene longiflora (leaves purple below), and A. grandiflora. —*Arthur.* Iris Xiphium and Lonicera chinensis.—*R. G.* Layia beterotriche (California).—*P. H. G.* Mahernia pinnata, L., var. The Oncidium is O. hastatum var. atratum, but with yellow instead of white basal lobes to the labellum. It does not belong to the same section as O. tigrinum.—*C. B.* 1, Sedum sexfidum; 2, Hippocrepis comosa; 3, Silene bicolor; 4, Geranium Endresi, apparently; the specimen sent was too poor to be certain.—*C. T.* 1, Abelia floribunda; 2, Asplenium Veitchianum, often called A. Belangeri.—*B. K.* Athyrium Filix-fœmina in a small state.

PELARGONIUMS: *J. Ck.* Your Pelargonium leaves have the common spot, which arises first from drought and then from over-watering. When the roots are healthy we believe that it rarely, if ever, occurs. *M. J. B.*

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ERRATUM.—In the report of the Leeds show, for *small* dish of Nectarines, read *single* dish. Mr. T. Watson is stated in error to have won the 1st prize for Strawberries in pots. The prize was won by Mr. Thomas Newton, The Gardens, Campsall Hall, Doncaster, who has also taken this prize for the last five years.

CATALOGUES RECEIVED.—A. E. Barnaart & Co. (Vogelenzang, near Haarlem, Holland), Catalogue of Dutch Flower Roots, &c.—Auguste Van Geert (Ghent, Belgium), Priced Catalogue of New Plants, &c.

COMMUNICATIONS RECEIVED.—T. B.—M. S.—Victor—A. D. —T. & S.—T. P. W.—Anxious—G. F. F.—J. C.—J. F. R. —B. K.—K.—W. H. K.—W. M.—T. R.—Madeira.

Markets.

COVENT GARDEN, June 24.

Supply larger, and business somewhat better—outdoor Strawberries being well in, and the hothouse produce sufficient for the general demand. *Thos. Taylor, Wholesale Apple Market.*

—— Among the choicest descriptions of fruit in the retail market we may note:—Strawberries, 1s. 6d., 2s., and 3s. per lb.; Melons, 7s., 10s., and 15s. each; Peaches and Nectarines, 18s., 24s., and 30s. per doz.; Apricots, 6s. per box; Figs, 18s. per doz.; Pines, 10s. to 12s. per lb.; Grapes, 5s., 8s., and 12s. per lb.; Cherries, 1s. to 2s. per lb. A few ripe Currants and Gooseberries are also coming in.

CUT FLOWERS.

	s. d.	s. d.		s. d.	s. d.
Carnations, 12 blooms	1 0-	3 0	Pelargoniums, 12 spr.	0 6-	1 6
— Clove, per doz..	1 6-	6 0	— Zonal, do.	0 0-	1 0
Cornflower, p. doz. bnc.	3 0-	6 0	Primula, dbl., p. bun.	0 9-	1 6
Deutzia, per bunch..	0 4-	1 0	Ranunculus, p. bun.	0 4-	1 0
Eschscholtzia, 12 bun.	3 0-	6 0	Roses, indoor, p. doz.	2 0-	6 0
Eucharis, per doz. ..	6 0-	12 0	— outdoor, 12 bun.	4 0-	9 0
Gardenia, per doz. ..	2 0-	6 0	— Moss, 12 bun. ..	6 0-	12 0
Heliotropes, 12 spr.	0 6-	1 0	Rose de Mai, doz. bun.	3 0-	9 0
Mignonette, 12 bun.	4 0-	6 0	Spiræa, 12 sprays ..	1 0-	3 0
Myosotis, per bunch	0 4-	0 9	Stephanotis, 12 sprays	2 0-	6 0
Nemophila, 12 bun. .	1 6-	3 0	Stocks, 12 bun. ..	6 0-	12 0
Pæonies, 12 bun. ..	4 0-	12 0	Sweet Peas, 12 bunch.	4 0-	9 0

PLANTS IN POTS.

	s. d.	s. d.		s. d.	s. d.
Begonias, do. ..	6 0-	12 0	Lobelia, per doz.	.. 4 0-	9 0
Bouvardias, do. ..	9 0-	18 0	Mignonette, do.	.. 4 0-	9 0
Calceolarias, do. ..	6 0-	18 0	Myrtles .. do.	3 0-	9 0
Cyperus, do... ..	6 0-	12 0	Pelargoniums, dble., per doz. ..	6 0-	12 0
Dracæna terminalis	30 0-	60 0	— Scarlet, do.	.. 4 0-	9 0
— viridis, per doz.	12 0-	24 0	Petunia, per doz.	.. 6 0-	9 0
Ficus elastica ..	1 6-	7 6	Roses, do. ..	..12 0-	60 0
Fuchsia, per doz. ..	6 0-	18 0	Solanums, do.	.. 6 0-	18 0
Gardenias, do. ..	12 0-	60 0	Spiræa, do. ..	..12 0-	24 0
Heaths, in var., doz.	12 0-	30 0	Stock, do. ..	.. 3 0-	6 0
Heliotrope, per doz.	6 0-	12 0			
Hydrangeas, per doz.	9 0-	24 0			

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples, per ½-sieve	3 0-	4 0	Oranges, p. 100	.. 8 0-	12 0
Apricots, per box ..	2 6-	4 0	— Malta, per doz...	2 0-	3 0
Cherries, per box ..	2 0-	4 0	Peaches, per doz. ..	10 0-	24 0
Figs, per doz. ..	6 0-	12 0	Pine-apples, p. lb. ..	6 0-	10 0
Grapes, English, lb.	4 0-	10 0	Pomeloes, each ..	0 6-	1 0
— foreign, do. ..	..	..	Shaddocks, each ..	2 0-	3 0
Lemons, per 100 ..	8 0-	12 0	Strawberries, per lb.	0 6-	2 0
Nuts, Cob, p. lb. ..	..	..	Walnuts, p. busb. ..	16 0-	..

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes, Fr., doz.	4 0-	..	Leeks, per bunch ..	0 2-	0 4
Asparagus, English, per bundle ..	5 0-	6 0	Lettuces, per score..	1 0-	..
— French, p. bund.	4 0-	15 0	Mint, per bundle ..	0 4-	..
Beans, French, p. 100	2 6-	..	Mushrooms, per pott.	1 0-	2 0
— broad, per bushel	5 0-	..	Onions, young, bun.	0 4-	0 6
Beet, per doz. ..	1 0-	2 0	Parsley, per bunch..	0 4-	..
Cabbages, per doz. ..	1 0-	2 0	Parsnips, p. doz. ..	0 9-	1 0
Carrots, French, do.	1 6-	..	Peas, per quart ..	1 6-	..
Cauliflowers, spring, per doz. ..	3 0-	4 0	Radishes, per bunch.	0 2-	0 4
Celery, per bundle ..	1 6-	2 0	Shallots, per lb. ..	0 3-	..
Cucumbers, each ..	1 0-	2 6	Salsify, per bundle ..	1 6-	..
Endive, per doz. ..	1 0-	2 0	Sprue, French, bund.	1 6-	..
Herbs, per bunch ..	0 2-	0 4	Tomatos, per doz. ..	4 0-	..
Horse Radish, p. bun.	3 0-	5 0	Turnips, per bundle.	0 8-	..
			Veg. Marrows, doz.	6 0-	..

Potatos, old:—Regents, 80s.: Flukes, 120s.; and Victorias, 120s. per ton. New: Lisbons, 6s. to 10s.; Kidneys, 10s. to 12s.; and Rounds, 7s. to 10s. per cwt. Old Potatos nearly finished.

SEEDS.

LONDON: *June 24.*—Our agricultural seed trade, as might be expected, is now without any feature of interest, no speculatinn in Clover seeds (as is sometimes the case in the interval between the spring and autumn seasons) having yet developed itself. A few samples of new French Trifolium have come to hand from France, but values are not at present definitely fixed. It is thought that, owing to the recent beneficial rains, there will be no very great demand for this article during the approaching fall. Sowing Mustard and Rape seed are in moderate request at about late rates. Occasional orders drop in for spring Tares. The prices made for the few cotchels forthcoming are almost without precedent. Canary seed shows no pause in its downward course; present currencies are from 50s. to 60s. per quarter under the top price. Millet and Hemp seed are in steady request. Linseed is easier. *Shaw & Sons, Seed Merchants*, 37, *Mark Lane, E.C.*

CORN.

At Mark Lane on Monday English Wheat was scarce, and about 1s. per quarter higher on the week, while the rates of last Monday were well supported for foreign. Barley was cheaper in the majority of sales effected. Malt sold at prices ruling in buyers' favour. In Oats the quotations gave way 6d. per quarter. Maize was offered occasionally at some reduction, without attracting the attention of buyers. Beans were from 3s. to 4s. per quarter lower than on Monday se'nnight, while a similar fall occurred in Peas. In flour English descriptions rose 6d. to 1s. per sack. American barrels were rather dearer. —Trade on Wednesday was dull. English Wheat realised the rates of last Monday; but a few sales in foreign Wheat were effected at some reduction from that day. Barley was very weak, and the tendency of Malt was downwards. Oats changed hands slowly, at about late rates; and Maize further receded to some extent. Beans and Peas were depressed, and no improvement took place in the value of flour.—Average price of corn for the week ending June 19:—Wheat, 42s. 3d.; Barley, 39s. 6d.; Oats, 30s. 8d. For the corresponding week last year:—Wheat, 60s. 8d.; Barley, 42s.; Oats, 30s. 4d.

CATTLE.

The demand for beasts was good at the Metropolitan Market on Monday; consequently, prices advanced. Trade for sheep was brisk, at rather higher rates; for lambs it was slow, at a reduction in price. Calves were more plentiful, but choicest qualities were not much cheaper. Quotations:—Beasts, 4s. 6d. to 5s. 6d., and 6s. to 6s. 6d.; calves, 4s. 6d. to 5s. 4d.; sheep, 5s. 4d. to 6s., and 6s. 4d. to 7s.; lambs, 6s. 4d. to 7s. 8d.; pigs, 4s. 6d. to 5s. 4d.—On Thursday prices for beasts were lower on the average, and it was difficult to effect a clearance. For sheep trade was slow, but there was not much reduction in the price of choice qualities. Lambs were dull of sale at lower figures; and as the average quality of the calves on offer was very middling, choicest English maintained their value.

HAY.

From Whitechapel we learn that the supplies of fodder have been very short, with a good trade at firm prices. Prime meadow hay, 90s. to 130s.; inferior, 55s. to 75s.; prime Clover, 100s. to 132s.; inferior, 85s. to 95s.; and straw, 35s. to 38s. per load.—From the Cumberland Market we have the following quotations:—Superior old meadow hay, 132s. to 140s.; inferior, 105s. to 114s.; new hay, 80s. to 95s.; superior Clover, 128s. to 135s.; inferior, 100s. to 112s.; and straw, 40s. to 44s. per load.

POTATOS.

The Borough and Spitalfields markets report a large supply of old Potatos on offer, the demand for which was very slow at irregular prices. Quotations:—Regents, 50s. to 100s.; Victorias, 70s. to 110s.; Flukes, 90s. to 120s.; Rocks, 45s. to 60s. per ton.—The imports into London last week consisted of 2878 sacks and 575 baskets from Dunkirk, 1758 bags 5 baskets Antwerp, 1399 packages Lisbon, 14 barrels 13 packages Guernsey, and 192 bags 592 baskets Rotterdam. A large quantity of new Potatos arrived at Southampton from the Channel Islands.

COALS.

On Monday house coals were in good demand, at previnus prices. Wednesday's market was firm, without change in prices, which were as follow:—West Hartley, 19s. 9d.; Weardall, unscreened, 16s. 3d.; Wallsend Harton, 19s. 9d.; Wallsend Lambton, 22s.; Wallsend East Hartlepool, 22s. 3d.; Wallsend Tees, 22s. 3d.

THE MOST VALUABLE VEGETABLE PRIZE OF THE YEAR

This Magnificent Cup to become the Absolute Property of the Winner.

IMPORTANT NOTICE.

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CARTER CUP, value FIFTY GUINEAS,

WITH THIRTY POUNDS IN MONEY PRIZES,

WILL TAKE PLACE AT

THE GARDENS, SOUTH KENSINGTON, on JULY 7th.

PRIZE SCHEDULE.

FIRST PRIZE—THE "CARTER CUP," value FIFTY GUINEAS, to become the absolute property of the Employer to whom the Prize may be awarded; also Ten Guineas for the Gardener.
SECOND PRIZE—Seven Guineas. THIRD PRIZE—Five Guineas. FOURTH PRIZE—Three Guineas.

FOR

THE BEST COLLECTION OF VEGETABLES, 24 DISHES,

TO INCLUDE

½ peck Carters' Early Premium Gem Pea.
½ ,, James' Prolific Pea.
½ ,, G. F. Wilson Pea.
½ ,, Carter's Blue Peter Pea.

½ peck Carter's Commander-in-Chief Pea.
,, Hardy's Pedigree Windsor Bean.
,, Carter's White Advancer French Bean.

peck Carter's New Mammoth Long-pod Bean.
Best Curled Parsley, and Little Heath Melon.

FIRST PRIZE—Two Guineas, SECOND PRIZE—One Guinea, for 6 DISHES of PEAS,
(½ peck of each variety) to include—

Carter's G. F. Wilson, James' Prolific Marrow, Carter's Hundredfold or Cook's Favourite, Carter's Commander-in-Chief.

CONDITIONS, &c.—All Vegetables to be grown by *bonâ fide* Gentlemen's Gardeners or Gentlemen Amateurs, and in the open Ground, excepting Cucumbers and Melons—The following to comprise dishes: Of Peas, ½ peck (unless otherwise stated); Onions, 12; Melons or Cucumbers, 1 brace; Beet, 3; Potatos, 18; Cauliflower, 2; Parsnips, 6; Celery, 3; Broad Beans, 18 pods; French Beans, 24 pods.

SPECIAL NOTES—ALTERATION OF SCHEDULE.

Any variety of Parsley is eligible for Competition. Eighteen pods instead of half pecks of Beans of all kinds enumerated. In consequence of the past unfavourable season it has been decided to make the dish of Carter's Champion Runner Beans optional in the Collection.

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MARENDAZ AND FISHER, 9, James Street, Covent Garden, W.C., Importers of Archangel and St. Petersburg Mats, have a large stock of MATS, TANNED NETTING, TIFFANY, RAFFIA FIBRE, &c., at Wholesale Prices.

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PROTECTION from the SCORCHING RAYS of the SUN.
"FRIGI DOMO" CANVAS—

2 yards wide	.. ..	1s. 10d. per yard run.
3 yards wide	.. ..	3s. per yard.
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2 yards wide .. 1s. 6d. and 1s. 10d. per yard run.
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SILVER SAND, fine or coarse grain as desired. Prices by Post per Ton or Truck Load, on Wharf in London, or delivered direct from Pits to any Railway Station. Samples of Sand free by post.
FLINTS and BRICK BURRS for Rockeries or Ferneries.
KENT PEATS or LOAM supplied at lowest rates in any quantities.
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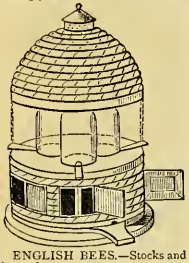

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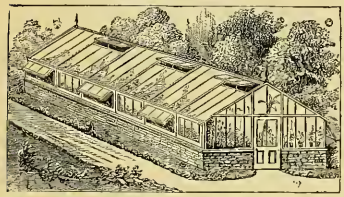

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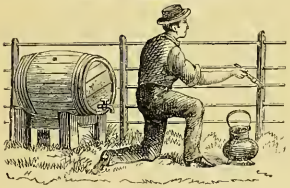

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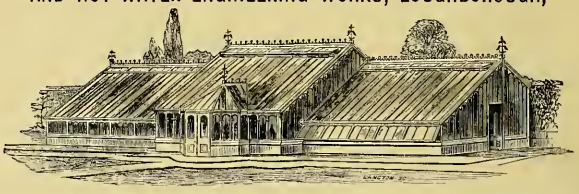

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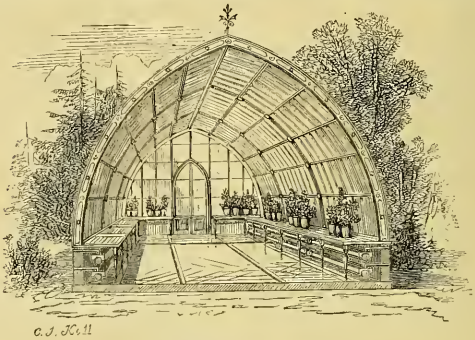

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WANTED, a MANAGING PARTNER in an old-established Nursery, Seed, and Florist Business in the Midland Counties, through the death of one and the illness of the other Partner. About 2000 feet of Glass. A good opening for a competent person with moderate capital.—G. SMALE AND SON, Lawn Cottage Nurseries, Ilkeston, near Nottingham.

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WANTED, a GARDENER, without incumbrance, for Devonshire, to undertake Fruit, Kitchen, and Flower Gardening, Vines, and Forcing, and to Milk a Cow. One Man's help allowed. Wages 18s. to 20s., with cottage and garden. Wife as Laundress.—Apply by letter to DICK RADCLYFFE AND CO., 129, High Holborn, W.C.

WANTED, an active Man as GARDENER in a Midland County; he must thoroughly understand the Management of Kitchen and Flower Gardens, the Cultivation of Vines, and a small quantity of Land. A married Man required (no children), his Wife to Manage Poultry.—H. W. N., Post Office, Bridgnorth.

WANTED, as GARDENER, a married MAN, without Children. He will have to occupy a Lodge, and attend to Vinery and Greenhouses, as well as Kitchen and Flower Gardens. Two Under Gardeners are kept. —Apply, by letter only, stating age, qualifications, references, &c., 184, *Midland Counties' Herald* Office, Birmingham.

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WANTED, for a Provincial Nursery, a FOREMAN who understands the profession in all its branches. Must be a good Propagator, Budder, and Grafter.—Apply, by letter, to T. A. B., Messrs. Hurst & Son, 6, Leadenhall Street, London, E.C.

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MESSRS. JAMES VEITCH AND SONS are in WANT of a PROPAGATOR for their Nursery at Coombe Wood. He must understand Indoor Propagation in all its branches (with the exception of Roses, which is a separate department), including that of all kinds of Ornamental Shrubs, Coniferæ, Rhododendrons, &c. Liberal wages offered. —Application to be made, by letter, giving references as to ability, character, &c., to Royal Exotic Nursery, Chelsea, S.W.

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WANTED, in a country Nursery, where a good collection of Plants is grown, an active, intelligent young MAN, anxious to improve himself.—Apply in own writing to K., Nutting & Sons, 60, Barbican, E.C.

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WANTED, shortly, TWO good ROSE BUDDERS for a few weeks.—Address, stating terms, to GEO. BOLTON, Wyddial, Buntingford, Herts.

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Farm Manager Wanted.

BOROUGH of BEDFORD URBAN SANITARY AUTHORITY.—The Sanitary Authority for the Borough of Bedford are prepared to receive, from persons possessing a competent knowledge of Market Gardening, applications for the office of Manager of their Irrigation Farm. The salary will be £100 per annum, with 1 per cent. on the gross returns of the produce of the Farm. The gross return for the year 1874 was about £2500. The Manager will be required to devote the whole of his time to the duties of the office. Further information may be obtained of the Town Clerk. Applications for the office, stating the age and qualification of applicants must be made to me before July 12.—THEED WM. PEARSE, Town Clerk.—Bedford, June 17.

WANT PLACES.

To Gardeners in Want of Situations,

WHOSE CHARACTERS WILL BEAR STRICT INVESTIGATION.

THE PINE-APPLE NURSERY COMPANY devote special attention to this important matter—proper Men to suitable Situations. For a GARDENER, or for a SITUATION, please send full particulars to the PINE-APPLE NURSERY COMPANY, Maida Vale, London, W.

B. S. WILLIAMS, having at the present time several very excellent GARDENERS upon his Register, is desirous of placing them in Situations where great experience and trust are required. B. S. W. would at the same time beg to intimate that when a Gardener is applied for that the filling of the situation should be left with him, as that would prevent unnecessary correspondence and delay.—Victoria and Paradise Nurseries, Upper Holloway, London, N.

Gardeners and Under Gardeners.

WM. CUTBUSH AND SON beg to state that they have at all times on their Books MEN of VARIOUS QUALIFICATIONS, whose characters will bear the strictest inquiry. Any Gentleman making application would save time by clearly stating the duties to be undertaken, wages offered, &c., so that suitable Men may be selected.—Highgate Nurseries, London, N.

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JOHN LAING can at present recommend with every confidence several energetic and practical Men, of tested ability and first-rate character. Ladies and Gentlemen in WANT of GARDENERS and BAILIFFS, or GARDENERS for First-rate Establishments or Single-hand situations, can be suited, and have full particulars by applying at Stanstead Park and Rutland Park Nurseries, Forest Hill, London, S.E.

GARDENER (HEAD).—Age 28; understands Kitchen and Flower Gardening, Vines and Pines, also Planting, Levelling, and Laying-out of Grounds; could Measure a Tree, and Writes Shorthand fluently. Has worked in London, Liverpool, and New York. Can give good testimonials.—JOHN SHAW, 28, Hethpool Street, Hall Park, Paddington, London, W.

GARDENER (HEAD).—Age 30, single; has a thorough practical knowledge of all branches. Five years' character.—R. C., J. Huggins, New Wandsworth Railway Station, S.E.

GARDENER (HEAD).—Age 31, married, one child.—Messrs. THOMAS CRIPPS & SON will have great pleasure in recommending to any Nobleman or Gentleman requiring a Head Gardener, a thoroughly practical, industrious, and trustworthy Man. First-class recommendations and references.—The Nurseries, Tunbridge Wells, Kent.

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GARDENER (HEAD).—Age 34; energetic and practical in all branches. Of tested ability and unexceptionable character. Six years in last situation.—G. PHILLIPS, 6, Longford Cottages, Feltham, Middlesex.

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GARDENER (HEAD), where two more are kept.—Age 26, single; has had good practical experience in all branches of the profession. Good character from past and present employers.—H. PLUME, East Street, Sleaford, Lincolnshire.

GARDENER (HEAD), where two or more are kept.—Age 32, married, two children. Will be well recommended by the Gentleman whom he has lately left, with whom he has served in the above capacity for the last six years; also by Mr. Stalker, Gardener to the Right Hon. Gathorne Hardy, M.P., Hemsted Park, Staplehurst, Kent.—H. MANDY, Albion Cottages, West Hill, Epsom, Surrey.

GARDENER (HEAD), where more are kept. —Age 37, married, no children; understands Stove and Greenhouse Plants, Early and Late Forcing, Vines, Melons, Cucumbers, and Flower and Kitchen Gardening. Six years' good character.—J. W. BINT, Forest Gate, Windsor Great Park, Berks.

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GARDENER (HEAD, WORKING).—Age 34, married; understands Forcing, Fruit, Flowers, Vegetables, and Kitchen and Flower Gardening. Twenty years' experience. Good character.—Address, stating wages, to W. S., Mr. Allen, Baker, Lee Bridge Road, Leyton, Essex.

GARDENER (HEAD, WORKING).—Age 36, married, no children; thoroughly practical and hard-working. Understands the profession in all its principal branches. First-class recommendations.—Mr. RAINBOW, The Lodge, Harpenden Road, St. Albans.

GARDENER (HEAD, WORKING), where two or more are kept.—Age 35, married, one child; experienced in all branches of the profession. Five and a half years' good character.—J. H., Post Office, Castle Hedingham, Halstead.

GARDENER (HEAD, WORKING), where three or more are kept.—Married, no family; experienced in all branches of the profession. Seven years' good character.—M. S., 25, Grummant Road, Peckham Road, Camberwell, S.E.

GARDENER (HEAD, WORKING), where four or five are kept.—Age 27, single. Good references. State wages and all particulars to R. R., Betsfield Gardens, Bowness, Windermere.

GARDENER (HEAD, or good SINGLE-HANDED).—Age 27; understands Vines, Cucumbers, and Stove and Greenhouse Plants.—A. W., 4, Back Lane, Hampstead, N.W.

GARDENER. — N. GERMAN, Gardener, Crowhurst Park, Battle, Sussex, will be disengaged on July 1, and is a liberty to treat with any Lady or Gentleman in want of a thorough Gardener.—Address as above.

GARDENER.—Married, no incumbrance; thoroughly practical; understands Early and Late Forcing of Flowers and Fruits in all branches.—A. B., 15, Chesterman Street, Southampton Street, Reading, Berks.

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GARDENER (SECOND, or SINGLE-HANDED). —Age 25, single; experienced. Good character.—G. J., 15, Collins Street, Blackheath, S.E.

GARDENER (SECOND).—Age 26, single; well experienced in the houses. Good references can be given.—S. G., Post Office, Usk, Monmouthshire.

GARDENER (SECOND), or under a Foreman, in the Houses.—Age 19. Good character.—Z. Y. X., The Grove Nursery, Southampton Street, Camberwell, S.E.

GARDENER (UNDER).—Age 20; lately employed in a large Fruit Garden. Near London preferred. Six years' excellent character from present situation.—F. P., The Vicar, Ilford, Essex.

GARDENER (UNDER), in a Gentleman's Garden.—Age 20. Has a good knowledge of Greenhouses, and Flower and Kitchen Gardening. Two years' good character.—J., Ratcliffe House, The Newlands, Peckham Rye, S.E.

GARDENER (UNDER), where he could improve himself in the Houses and general Work of the Garden.—Age 18.—A. M., Pine-apple Nursery, Maida Vale, London, W.

GARDENER, under a Foreman in the Houses, in a Gentleman's Establisment.—Age 20. Good character from last situation.—A. B., 18, Well's Place, South Street, Camberwell, Surrey.

GARDENER (plain KITCHEN).—Married, no incumbrance; no objection to a Pony and Trap.—H. H., Sidmonth Lodge, 75, Tulse Hill, S.E.

JOURNEYMAN, under a good Foreman (Houses preferred).—Age 20. Good character. State wages.—A. E. B., The Gardens, Easton Lodge, Dunmow, Essex.

IMPROVER, in a Nobleman's or Gentleman's Garden, where Gardening is carried on systematically and with spirit.—H. L., Messrs. Daniels Bros., Seed Growers, Norwich.

To Nurserymen.

ASSISTANT, in the Houses. — Age 28, single. Well up in Plant Growing, Bouquet-making, and other Nursery-work.—THOS. CULLUM, Mrs. Loft's, Walker Gate, Beverley, Yorkshire.

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TO NURSERYMEN.—Wanted to APPRENTICE a YOUTH for three years indoors, to be treated as one of the family, within 15 miles of London.—J. B., Hadley Post Office, near Barnet, N.

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Agent for Manchester—JOHN HEYWOOD. Agents for Scotland—Messrs. J. MENZIES & Co., Edinburgh and Glasgow.

SUPPLEMENT TO THE GARDENERS' CHRONICLE.

CHATSWORTH

MANY circumstances invest Chatsworth with a special interest. Its lovely situation, its palatial character, its treasures of art and literature, its historic associations, the prominent position which the family of Cavendish have always held as patrons of art, literature, and science, the discovery in 1786 of the composition of water by an ancestor of the present Duke; all these circumstances contribute to give Chatsworth a foremost place among the mansions of England. In addition to these points of general interest, it has particular attractions for horticulturists, not only from the completeness and good keeping of its garden establishment, but from the enlightened liberality of, and the services to horticulture rendered by the former and by the present Duke, and also from its association with the memory of some of whom the gardening fraternity have good reason to be proud, in particular the late Sir Joseph

CHATSWORTH HOUSE FROM THE DERWENT.

Paxton and his pupil, John Gibson, not to mention others still among us.

Chatsworth came into the possession of the Cavendish family in the reign of Queen Elizabeth, but the present mansion was not finished till 1702, under the auspices of the first Duke of Devonshire, while the long *annexe*, which somewhat spoils the symmetry of the whole, was added in the time of George IV. by Sir Jeffrey Wyattville. It is placed in the valley of the Derwent, on a slight eminence overlooking the river, and backed up by superbly wooded hills, through breaks among which glimpses may be obtained of the barren Derbyshire moors.

It is a question which is the better way to approach Chatsworth—whether from Rowsley station, when the tourist passes through a few miles of the most delicious park scenery possible, with the winding river on his right nearly the whole way, and occasional glimpses of the model village of Edensor on his left; or whether he arrives from the direction of Sheffield, crossing the bleak moorlands, very characteristic if not exactly beautiful, and descending through

"Pastoral dales thin set with modest farms,"

into the richly-wooded and well stocked deer park. Tastes will differ upon this point; our advice is, try both.

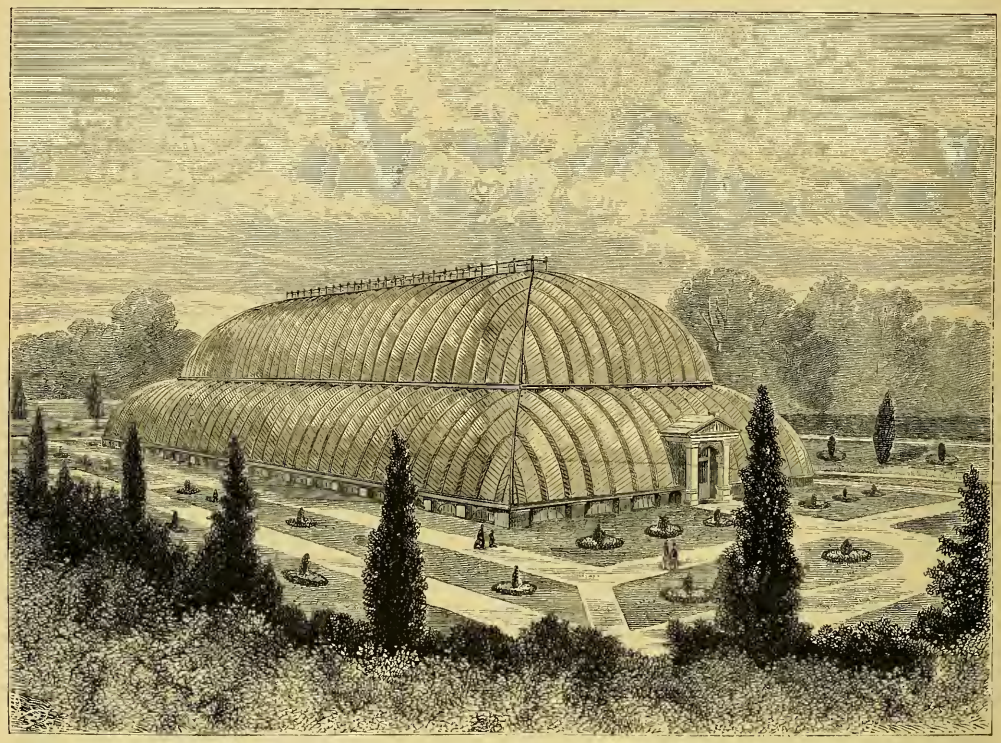
The general appearance of the "Palace of the Peak," as seen from the opposite side of the river, is shown in the illustration on the front page. Of its contents we propose to confine ourselves to the mere mention. The sculpture gallery, with its grand examples of the art of Canova and Thorwaldsen, and the chapel and other rooms with their fine specimens of the art of Gibbons; the rich library, the collection of pictures and drawings by the old masters, Landseer's pictures—these are among the most noteworthy features of this treasure-house. Our business, however, lies with the setting of the casket—with the glories of park and pleasure-ground, the treasures of the conservatories and the stores of the fruit houses. For the same reason we can only mention that ruined moat-encircled tower which formed, so it is said, the prison of Mary Queen of Scots for thirteen long years.

In indicating some of the more remarkable features of so vast an establishment it is a difficult matter to know where to begin, and where our space is too limited to do justice to the whole it is equally difficult to decide what to select and what to pass over unnoticed. The fact that the principal features have repeatedly been described in these columns, particularly in our volume for 1873, pp. 1175, 1238, relieves us of the necessity of going into detail, while the division of the garden establishment into two main portions—viz., the flower garden with the pleasure-grounds, and the kitchen-garden with the forcing-houses—in some degree facilitates our task.

In the former are the Orchid-houses and the great conservatory; in the latter are the Amherstia-house, the Victoria-house, the vineries and other fruit growing houses, and the residence of Mr. Speed, who has charge of the whole.

Beginning our survey of the garden, we have first to call attention to the Orangery, adjoining the mansion, and which contains some very fine specimen greenhouse plants, particularly Camellias and Oranges. It is about 110 feet in length by 16 feet 6 inches in width. Among its contents may also be mentioned a magnificent crystal of quartz and a noble marble vase.

A long glazed corridor, extending almost from the mansion to a point near the Orchid-houses, is filled with fine specimen greenhouse plants trained against the back wall, among which we mention a noble plant of Camellia reticulata, another of the old double white Camellia, and a large assortment of other kinds. At the time of our visit the Camellias were in free growth, and all abundantly set with flower-buds, though started in February. They are all grown in drift loam, and receive enormous quantities of water. Escallonias, Correas, Fuchsias, Myrtles, Roses, and such-like plants are also grown here, while Gloire de Dijon Rose furnishes an inexhaustible supply of flowers.



EXTERIOR VIEW OF THE GREAT CONSERVATORY.

Orchid Houses, &c.—On a terrace near the mansion are three span-roofed houses side by side, with a transverse one crossing them at one end. These houses are light and roomy, and seem adapted not only for growing, but for showing plants to advantage. The one chiefly destined for growing Orchids is divided into three compartments, maintained at different temperatures, according to the particular needs of the species grown in them. In one of these at the time of our visit in spring were a number of specimen plants of Sarracenias, with pitchers rivalling in size those with which Mr. Baines was wont to astonish us, though the plants themselves were smaller. Mr. Speed prefers the pitchers formed in the autumn, as being finer and more durable.

Here, too, is a truly magnificent collection of Orchids, including most of the well-known species as well as others of great rarity, but all

cultivated with a skill and degree of success that has made the Chatsworth Orchids notorious. It is Mr. Speed's object not only to grow a grand collection of Orchids but to grow them well, and to furnish very large supplies of their flowers for decoration. Large plants, and plenty of them, are, therefore, required: in illustration of which we may record that of Dendrobium nobile upwards of 2000 spikes were cut in the season; of Vanda suavis, 160 spikes; of Phaius grandifolius, fifty spikes in one day. The Vandas are specially remarkable for their size and robust vigour, while they are well furnished with leaves to the bottom, the spikes numbering as many as thirty on the same plant. The genus is represented by almost all the known species and varieties, including Vanda cœrulescens and the more common V. teres. Dendrobiums are grown in quantities; among them we note D. fimbriatum, Dayi, Devonianum, Farmeri, and others. The collection of Acrides and Saccolabium is equally complete and remarkable. Angræcum eburneum, with magnificent foliage, and a fine specimen of Miltonia virginalis, probably the best in the country, also demand special notice. It is worth noting here that many of our finest Orchids, such as Dendrobium Devonianum, Vanda teres, and others, were introduced to Chatsworth and to Europe by the late John Gibson. Of Calanthe Veitchii the quantities grown are enormous, the bulbs being plump and so large as to suggest the idea of Mangel Wurzel rather than of Orchids. The tops of these bulbs are cut across and struck as cuttings. Of Cœlogyne cristata there are truly magnificent specimens, and the bulbs cover the pots like so many small Potatos. Mr. Speed finds this species does not do so well on blocks as in pans. C. Lemoniana is found useful as coming in later, though it is scarcely so fine as the typical C. cristata. C. pandurata and the rare C. Parishii are also to be seen here, the latter with green flowers springing from the top of the pseudobulb.

Pleiones were not in bloom at the time of our visit, but their foliage was as vigorous as that of Lettuces. In one of the cooler houses were some plants of Disa grandiflora making really wonderful growth. Mr. Speed attributes much of their robust vigour to the practice of syringing them pretty freely overhead.

The plants are grown on slate stages covered with spar, others on blocks, and, as a general rule, Mr. Speed finds that moss or any substance which prevents the free access of air to, or retains stagnant moisture around, the roots of Orchids on blocks, is injurious, and certainly the difference in the growth of the roots where the moss was dispensed with, as compared with that in which it was present, was very marked.

In this house also were some of the more ornamental and curious Ferns, among which we may cite Lindsæa Portei, which Mr. Speed succeeds in propagating by pegging the stems down; Adiantum gracillimum, that most delicate of Adiantums, and which does not, as was feared by some, lose its misty veil-like aspect as it gets older; and Athyrium Goringianum pictum, a Fern with whose beauties most gardeners are conversant. We cannot stay to mention more of the contents of these houses. The general reader, who is familiar with the enormous demand made now-a-days for cut flowers and for decorative plants, will understand that a very large collection of stove and greenhouse plants must be grown for the purpose. We must not, however, omit to mention a plant of Hypocalymna robusta, an elegant myrtaceous shrub, which is not so often seen now-a-days as it should be.

The Italian Garden.—Very quaint in appearance is the garden known under this name, and of which the figure on p. 7 gives an illustration. It is a garden of the old style, maintained as nearly as possible in the same way and planted with the same plants as were in vogue at the time of its formation. It is thus a most interesting relic, and at the present time may be advantageously contrasted with more modern efforts. At the same time it is easy to see how, by a judicious selection and furnishing, such a garden might, without materially altering its lines, be made to combine the good qualities of the old and new styles without the bad ones of either. The one great advantage of such a garden is the infinite variety of which it is capable. At all seasons of the year it may be made interesting, and every day will reveal something fresh and novel to the plant lover, which is a good deal more than can be said of the modern style of bedding out. Overlooking this garden is an old conservatory, containing some fine specimen Camellias, &c.

The Rock Garden.—Huge masses of brownish millstone grit piled irregularly here and there on undulating ground, with paths winding about among them—a cascade splashing noisily over one giant boulder called the Wellington Rock, and losing itself in the ravines below—dark funereal Yews, relieved in the blooming season by gorgeous masses of Rhododendrons and brilliant groups of Berberis Darwinii—such are the main features of this, the most extensive and most ambitious rock-garden made by the hands of man that is known to us. As might be expected, alpine and rock plants find here congenial homes, but not in such numbers or diversity as might be looked for; truly there is room for representatives of the whole flora of Switzerland or the Pyrenees. Up on the hillside, not far off, under some gnarled Oaks, is a glorious wilderness of fallen rock and boulders, and, did circumstances permit, a little judicious planting there would produce an even finer effect than does the existing rock-garden, but then it would be comparatively inaccessible, while one charm of the present rock-garden consists in this—that you may pass abruptly from smooth dressed garden to this picturesquely undulating spot, with its rocking stones, nicely poised stone doors, and other surprises, not forgetting the "water tree," so fascinating to the Sheffielders; and again, still more surprising, you pass under a rocky arch, and find yourself suddenly face to face with the great conservatory—a grand structure, so cleverly hidden that you would scarce suspect its existence were it not for an occasional glint between the trees.

THE MUSA AVENUE.

TANK IN THE CONSERVATORY.

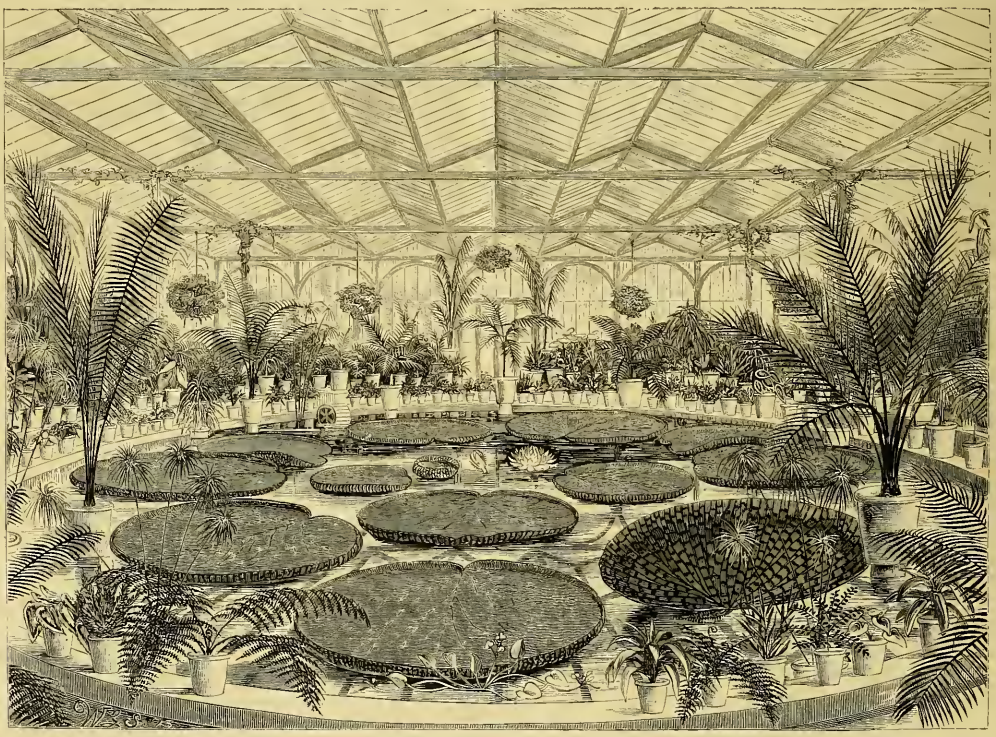
The Great Conservatory.—Long unrivalled as the great conservatory of the kingdom, still second only to the Palm-house at Kew in dimensions, and superior to it as to the arrangement of its contents—this fine structure may serve as an appropriate monument to the skill of its designer, Paxton. It is placed on a sunken platform bordered by Wellingtonias, one of which is remarkable for its elegant drooping habit. The general appearance of this magnificent house is well shown in the illustration on page 2.

It is some 300 feet in length, 145 feet in width, and 65 feet in height, and covers an acre of ground. The roof is curvilinear, and surmounted by an upper storey of the same shape. For details of its construction we may refer to our volume for 1845, p. 839. Its plan is very simple, consisting merely of a central nave and two side aisles; a gallery runs round the building between the main structure and the lantern, and a broad walk—broad enough to admit a carriage being driven through—traverses the building from end to end. In the centre a smaller path, called the Musa Avenue (see p. 3), crosses this at right angles.

HANGING BASKET IN THE CONSERVATORY.

Almost all the plants are planted out, and thus unsightly tubs and contrivances for raising this or lowering that specimen are dispensed with. A stage for pot plants runs round the sides of the building. A large mass of rockwork concealing the steps leading to the gallery occupies one corner of the building, and is laved at the base by a serpentine streamlet of water (see p. 3). Overhead are magnificent hanging baskets of Ferns, of Achimenes, of Epiphyllums, in various combinations. The basket of Adiantum cuneatum shown on p. 5 is about 6 feet through, and has a grand appearance in its position over the entrance door. The basket shown in the accompanying illustration is a combination of Platyceriums and other Ferns, and Epiphyllum, and measures 10 feet through.

Such are the main features of this glorious plant-house: the plan is simplicity itself, the effect proportionately grand and majestic. As it is not an object to grow a collection, but rather a selection of the best and most effective plants, each plant is allowed plenty of room to develope itself, and thus the tangled confusion inevitable where an immense number of different plants have to be grown together is avoided. The Palm-stove at Kew may be more imposing as to its contents, but Chatsworth presents the more grace and elegance, and is destitute of many eyesores which are unavoidable where other considerations beyond mere beauty and elegance have to be attended to; scarcely a single deciduous tree or shrub, for instance, finds a place at Chatsworth in the Palm-stove. It would be



INTERIOR OF THE VICTORIA HOUSE.

tedious to attempt the enumeration of the contents of this Palace of Palms. We must content ourselves with alluding to a few only.

How grand the view on entering from either end is may be gleaned from Mr. Worthington Smith's illustrations. Almost equally effective is the transept, which forms a veritable grove of Musas—M. Cavendishii, M. sapientum, M. coccinea, &c. It matters not in which direction the eye is turned, something grand or elegant meets the view; but if we suppose the visitor entering by the door nearest to the mansion, and passing first round the aisles and then up the centre, we shall be enabled to indicate, in something like order, some of the more prominent objects of interest.

First of all, after feasting on the grand vista of the central avenue, the hanging baskets before alluded to will attract attention, not only from their dimensions, but from their beauty, richness and variety of furnishing. A Dicksonia, one of the first imported, is one of the first plants that demands notice. Near it is a group of giant Agaves, looking grander and finer here, in all probability, than in their native country, where no fostering care prevents them from injury and disfigurement. The side stages at the time of our last visit were largely occupied with Epiphyllums, of which Mr. Speed makes great use for decorative purposes, and other flowering plants. From this side walk a view is obtained of a remarkable plant of Renanthera coccinea, one of the features of Chatsworth. It is attached to a birch stump, and is now as high as the top of the column near which it is placed; it has bloomed for six years in succession, the remains of the old inflorescences being left on the plant to satisfy the doubts of the incredulous: Crinums, including the deliciously scented C. Elphinstoni, occupy the foreground, while in the background Beaucarneas, Dracænas and arborescent Yuccas rear aloft their long leafy tresses. A glorious mass of Bamboo, with leaves of richest green, the secret of which was rendered patent to nose and eye at the time of our visit, in the shape of copious applications of rich manure, forms an arch over one end of the central avenue, passing by which we come to masses of Sugar-cane, to a Cinnamon bush, with its tender unfolding leaves of a lovely pink colour. Near here is a fine specimen of the Looking-glass tree, Heritiera macrophylla; and then crossing the end of the Musa transept we come to a clear pool (see p. 3), bordered with Colocasias and Papyrus, Richardias and Pontederias, and other aquatic plants, and backed up by a giant rocky mass all overgrown with countless Begonias and seedling Ferns, Dicksonias and Adiantums chiefly, and between whose crevices noble specimens

HANGING BASKET IN THE CONSERVATORY.

INTERIOR OF THE GREAT CONSERVATORY.

of Monstera, with their grand foliage, entwine themselves, and, as it were, bind the stones together. Near here is placed a rugged branch of many arms, thickset with Elk's-horn Fern —a striking picture in itself. Having now completed the circuit of the house, we may pass up the central avenue, noticing on the left fine specimens of Palms, including Phœnix dactylifera, Sabal, Corypha australis, about 50 feet in height; Chamærops Griffithii, Arenga saccharifera, and Ceroxylon andicola. Dracæna Draco and Araucaria brasiliensis are also represented by large specimens.

On the opposite side is one of the finest plants of Latania borbonica in the kingdom, and near it are good examples of Sabal Blackburniana, Corypha umbraculifera, Borassus flabelliformis, and Seaforthia elegans; the last-named was bearing its beautiful clusters of lilac flowers at the time of our visit. Some little time since the fruiting of Hedychium Gardnerianum was observed by Mr. Bennett at Hatfield, and a representation of it was given in our pages. It was therefore with some interest that we observed the plant to be also fruiting in the conservatory here, where it has not previously been known to fruit. Access to the gallery is obtained by a stone staircase in the rockery, and from it may be obtained a splendid bird's-eye view of the house and its contents. The symmetrical forms of the Ceroxylon and other Palms may, from this vantage ground, be seen to great perfection, and as each plant has room to develope itself, the magnificence of the prospect may readily be imagined.

As we have already remarked, almost all the larger specimens are planted out, only those on the side stages, with few exceptions, being in pots. To feed these giants manure is liberally forked in the borders and water supplied with no niggard hand, the hose being kept running on the borders at the roots of the Palms for three months at a time during the day-time. Indeed, in every department Mr. Speed carries out the principle, with modifications according to special requirements, of affording abundant food to his plants in the shape of plenty of air, copious supplies of water, abundance of manure, and as free exposure to light as is possible.

The whole of this conservatory is heated by two flues and four rows of pipes, the boilers being situated in the basement. It is of wood and glass chiefly, and with a ridge-and-furrow roof which furnished the pattern for that of the Great Exhibition of 1851 and of the Crystal Palace at Sydenham.

The Fountains, &c.—High up on a plateau on the hill-tops, embowered in trees, are several vast reservoirs which receive the rainfall from the adjacent hills and moors. These reservoirs supply the water for the cascades and fountains. One comes straight down from the hill-top in a rather stiff formal manner, now bounding over rocks, now splashing over steps, now foaming over a water-temple, the whole imposing from its magnitude and height, but too artificial to be pleasing. The Wellington Rock is laved by another stream, which, falling into a pool at the foot of the rock, thence meanders through the rock-garden, to which it contributes a large share of beauty.

But the fountain of Chatsworth is, of course, the "Emperor" (see p. 8), and it deserves the name. It was constructed in 1844 (see *Gardeners' Chronicle* of that year), and rises from the centre of a basin near the terrace flower gardens as a simple jet to the height of 296 feet, thus overtopping in its airy grace the highest trees in its vicinity. It is difficult to imagine anything more beautiful in its way than this simple jet. Of course, its noble proportions have much to do with the effect, but setting them aside, what a contrast does it present, in its elegant simplicity, with the dolphins and mermaids, the sea-sick monsters, and meaningless squirts that constitute what so many people understand as fountains. The great fountain at the Crystal Palace may challenge comparison as to size, but the effect of that is impaired by the dozens of minor jets, the artificial water temples and the steps in its vicinity. The Emperor stands out alone, as an autocrat should do—he brooks no peer nor rival near him—and a glance suffices to show that he is worthy the position, and that it would be an impertinent intrusion for minor potentates to approach too closely. The magnitude of this fountain may be judged when it is stated that when playing it lowers one acre of water a foot in the course of an hour.

The Pleasure Grounds.—Some idea of the extent of this portion of the grounds may be obtained from the fact that there are at least 7 miles of broad walks to maintain in condition, and 104 acres of dressed ground to keep in order, including 50 acres of grass to mow. A portion of this latter is set apart as an arboretum, and in the following notes we shall not confine ourselves strictly to locality, but mention a few of the finer or more interesting trees to be found, either in the park or in the pleasure-grounds. It may then be excusable to mention here the avenue of clipped Tulip-trees leading to the principal entrance of the mansion—an avenue we believe to be as unique as effective.

Mention may also be made of a fine weeping Ash, of about 50 feet in height, which some years since was moved from a distance when already of such a size that turnpike gates and other obstructions had to be removed to allow it to pass. In the park are some grand Limes, Beeches, and Hornbeams, while among the rough rocks by the hill-side—rocks which recall the famous Wharncliffe crags—fine old Oaks abound. Conifers have been planted among the woods, but some, such as Araucarias, have suffered from frost.

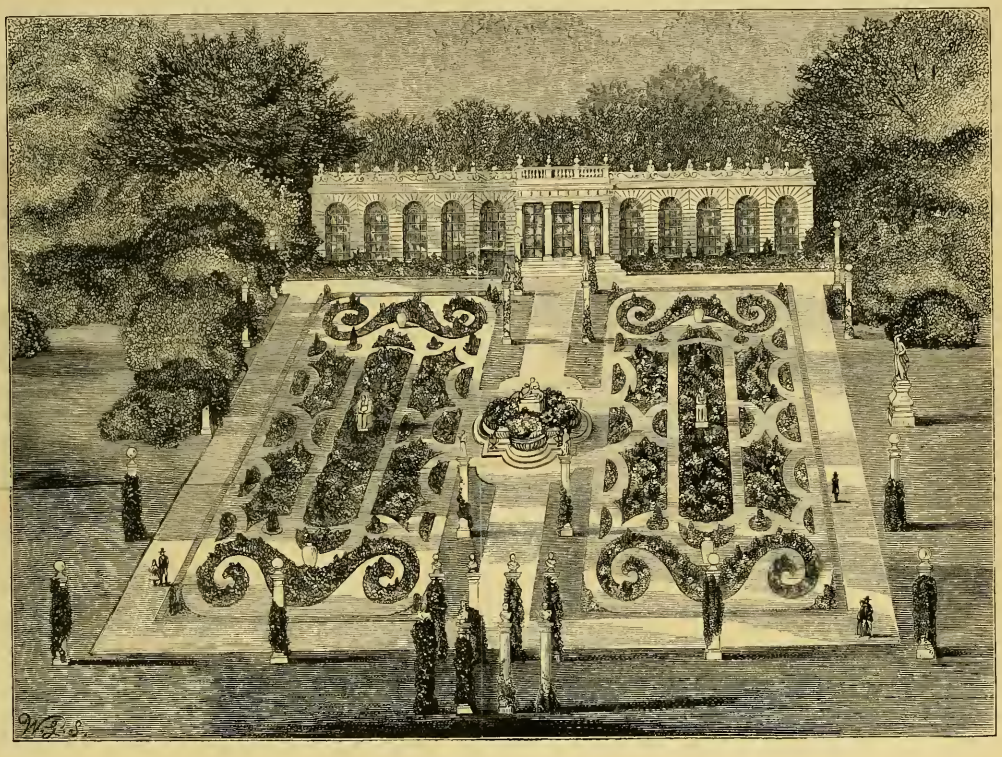
In the arboretum proper are groups of special genera, such as Æsculus, Acer, Populus, &c., and numerous fine specimen Conifers, some of which are so remarkable that we are surprised that they have not obtained a wider repute. In particular there is a very fine Abies Douglasii, fine enough to suggest a comparison with the grand tree at Dropmore. Of Picea nobilis there is also a very fine example, and another which is remarkable for a series of longitudinal cracks in the bark, passing somewhat obliquely

VIEW IN THE ROCK GARDEN.

THE AMHERSTIA HOUSE.

down the trunk, but not continuous one with the other, nor yet completely encircling the trunk. It is surmised that these cracks may be due to excessive sun-heat. Picea grandis is also represented by a splendid specimen.

Among others we may cite Pinus monticola, P. Beardsleyana, P. excelsa, P. pumila, P. Banksiana, Abies Morinda and A. Menziesii alba. Specimens of Abies orientalis and A. nigra are remarkable for their habit, which in the former case is very neat, while in the other it is remarkable for the pyramidal growth of the central trunk and the circumstance that the lateral branches have taken root, and in their turn sent up clustering pyramids of foliage around the central one. It may be well, also, in passing, in these days of Larch disease, to note how well the Larch thrives in the plantations here.



THE ITALIAN GARDEN.

Fruit and Vegetable Garden. — This department of the Chatsworth establishment is situated, like the mansion, in the valley of the Derwent, and three quarters of a mile distant on the Chesterfield side of the park. The ground fenced in is about 12 acres, divided into four compartments, with a wide slip all round, and within the boundary are situated the gardener's residence—a handsome stone structure, erected for Sir Joseph Paxton (see p. 8)—the Amherstia and Victoria houses, Vineries, Peach-houses, Fig-houses, Pine-pits, &c., *ad infinitum*.

The Ridge-and-Furrow Greenhouse, close by Mr. Speed's residence, is one of the earliest of Paxton's ridge-and-furrow erections, having been erected about 1834. It is of wood and glass, and has a sloping roof, thrown into ridges and furrows. This house has no doors, but the side sashes slide in double grooves, so that entry and exit are easy. It is nearly 100 feet in length by 26 feet in breadth, 13 feet 6 inches in the lowest and 15 feet in the highest part of the back wall, while in front the height is respectively 8 feet 6 inches and 10 feet. The construction of this house is described in *Paxton's Magazine of Botany* for 1836. At present it is used for growing ordinary greenhouse plants—Acacias, Camellias, Fuchsias, and contains some fine plants of Rhododendron Gibsoni, arboreum, &c., and many of the original specimens of plants introduced by Gibson but now familiar in most gardens.

At the back is a north house, devoted to Ferns, among which we noticed fine specimens of Nothoclæna lanuginosa, a newly-introduced Fern, Ceterach aureum, &c.

The Amherstia House.—When, in 1836, English plant lovers first became acquainted, mainly through the writings and illustrations of Dr. Wallich, with the Amherstia, it became an object of ambition with the late Duke of Devonshire to possess and cultivate a tree described as "one of the most superb objects imaginable, with large pinnate leaves, and large scentless flowers, of a bright vermilion colour, diversified with three yellow spots, and disposed in gigantic ovate pendulous bunches." To secure this plant the Duke despatched the late Mr. Gibson, who subsequently became known as the creator of Battersea Park, to Burmah. How Gibson succeeded, and how he contrived to send over to his employer many Orchids and other choice plants before alluded to, need not here be told; suffice it to say, the Amherstia has now the place of honour in a polygonal house with a curved roof (see p. 6). Planted out in the centre of the house, one might almost imagine the plant conscious of the consideration paid to it.

To our readers it is not necessary to give any more full description of a plant of which many must have seen the flowers, and more read. As becomes a plant of such exalted rank, it is not easy to multiply it. Nevertheless, cuttings do occasionally succeed, of which we saw an instance in the nursery of Messrs. Fisher, Holmes & Co., near Sheffield. On the shelves around the Amherstia-house is grown a fine collection of Pitcher-plants, which thrive in the damp moist heat, which is maintained in imitation of the climate of Martaban. The Pitchers serve as veritable insect-traps, and from one we saw the half-decayed body of a gigantic cockroach extracted. Dracænas, rotons, Marantas and other heat-loving plants, find a congenial home in this house. Here, too, is a fine example of the lattice-leaf plant, Onvirandra fenestralis, which Mr. Speed succeeds in growing to great perfection, attributing much of his success to frequent syringings overhead. Some of the leaves we found to measure 12 inches in length and 6 inches in width; and at present the plant has two flower-spikes.

The Victoria House.—This was one of the earliest structures built for the reception of the Queen of Water Lilies, and it remains quite one of the best, if not, indeed, the very best in the country. It was fully described and illustrated in our columns in 1850, p. 548, and again in 1873, pp. 1175, 1238.

It is a square structure, with ridge-and-furrow roof (see p. 4), a circular tank in the centre for her nymph-like majesty, and other smaller tanks in the corners and sides of the building for her

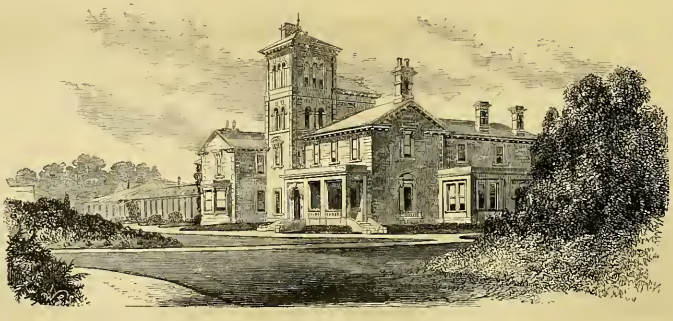
THE EMPEROR.

courtiers. The water in the central tank is kept in gentle motion by two small water-wheels. A good collection of Nymphæas, Nelumbiums, and other aquatic plants is here maintained, and when one sees how beautiful they are it is a matter of surprise that they are not more frequently grown.

Here, it may be remembered, the Victoria first flowered in November, 1849. The fine red variety of Nymphæa Lotus, called N. Devoniana, was also raised here. The effect of this house is considerably enhanced by placing Palms, Colocasias, and other fine-foliage plants in pots around the edges of the tank. Overhead are some hanging baskets filled with Achimenes, and which, measuring some 5 and 6 feet through, are now perfect globes of blossoms.

In terminating this necessarily very condensed account of Chatsworth, we cannot forbear from making passing allusion to Paxton, who went to Chatsworth from Chiswick in 1826, rose to be superintendent of the whole Chatsworth estates, suggested the design for the Exhibition of 1851, and of the Sydenham Crystal Palace, who was knighted by Her Majesty, and who became M.P. for Coventry. He was one of the founders of this journal, and a full account of his career will be found in our columns soon after his decease in 1865. At present the garden is under the management of Mr. Speed, and all the departments under his charge testify to his skill and excellent management. A portrait and brief account of Mr. Speed's gardening career is given at p. 783, vol. ii., 1874, while some notes on the fruit-houses and kitchen gardens, for which we have no space in this supplement, will be found in the pages of our present issue.

Lastly, we must record our thanks to his Grace the Duke of Devonshire, to whose courteous permission we are indebted for this opportunity of bringing under the notice of our readers a horticultural establishment second to none in the kingdom, and one which has never-failing attractions for the gardening fraternity as for the general public to whom these attractions are made available by the ungrudging liberality of the Duke. To Mr. Speed and his assistants our thanks are also due, for the facilities so cordially offered us in inspecting and noting some among the many treasures of Chatsworth.



THE GARDENER'S HOUSE.

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